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Editorial

Environmental education: where do we go from here?

By: The Ecologizing Editorship¹

Here is a basic truth to which environmental education must contend: our civilisation is able to look at its dwindling life support system, see countless species driven into isolation and poisoned into extinction, witness untold suffering for many disenfranchised humans, and the imminent loss of the most complex, beautiful and grand web of relations in the known cosmos and yet, often with eyes wide open, most appear to get on with business as usual. We have been doing this despite the increasingly tragic consequences for over half a century. Why? And can it be prevented? Is it structural greed? Is it unstructured distractions? Or is the problem, as some say, simply too big to hold in our hearts? Who knows?

Staring down the abyss is hardly the only way to approach environmental education. There are times for leaning into hope, for defiant conviviality, or for inspiration in paradigmatic possibilities, and for simply and softly appreciating the world we live in. But we suggest that, at least occasionally, there are times to take a step back, feel the weight of the hurtling machine, and wonder where to go next. And that doing so may be important when collectively recreating the future hangs in the balance and our best intentions are easily co-opted. For instance, we know that our profession seems increasingly held hostage as journal articles are tied to metrics, which in turn influence job security and promotion. The ways we work with each other, with ideas, and with practices then get subtly or explicitly redeployed to game the system. Our field ends up with countless clever diagnoses for the ecocrisis, generating alternative worldviews, and recycling creative pedagogies. In another context, some of this work might be genuinely inspiring. But here, in the belly of the institutional and educational beast, we are often stuck between pragmatics, possibility, and the deception that change is and can happen.

Too often, we print our work through major publishing houses that drain money from universities, and from public funding through grants, and create epistemological firewalls between people and ideas, and between wealthier institutions and those in the Global South. Ideas get owned and contained, knowledge flows are diverted like rivers from their course, the ecology of the human mind gets enclosed and ripped apart at the same time. Capitalism doesn't care because Che Guevara t-shirts sell. All the while, our critiques proliferate like microplastics in the sea. However incisive they may be, the fundamental issue still stares us in the face: perhaps we do not know how --or even whether-- education can get us out of this mess.

As *Canadian Journal of Environmental Education* gathers its new editorial team, we sit in this place for a moment, somewhere between heaviness and

hope and the accelerating destruction to which we must respond. And as we hold the tension, the power of a more beautiful futures also makes itself felt.

Education is about the relationship between the new and the old, whether about the relationships between newcomers and the existing world order or new ideas and existing paradigms. And so, education has an intrinsic dimension of hopefulness to it. It is a gesture that cannot say no to the future, even when the future itself seems impossible or futile.

At a moment between the old and the new, CJEE welcomes our readers into this space, to imagine together what we can yet be. It is a space which turns to hold the wisdom and lessons of its previous incarnations while keeping firmly in view the severity of the situation we are in and the need for radical breaks. As readers, authors, and editors of a free and open-source journal, and one which slips under the ranks of most neoliberal institutions, our work is already a powerful act of resistance to the conspiracy of factors that is compromising the ecology of ideas. We have opportunities and responsibilities to explore the bounds of what might be, to urgently linger, to stretch towards those impossible possibilities we cannot yet think, feel, touch, taste or see.

With that, our vision—and by vision we mean *aspiration* as success is hardly assured—is to work together as a team, and with you, the CJEE community, to keep each other “real” as the challenges mount, to not turn away when the suffering surrounds us, nor conversely to bury ourselves in the pain and forget to honour the goodness of the world. Fundamentally, we hold a vision for new spaces of imagining, researching, creating, questioning, articulating, documenting, collaborating, and envisioning. We hold ourselves to what calls us and refuse the bad faith of easy answers, easy scapegoats, dualisms and fatalisms. How do we hold an educational space, indeed an environmental education space, in our editorial relations? And as we embark on creating its next chapter—writers, readers, reviewers, and editors together with the rest of the natural world—what might it mean to conceive the journal-making process as environmental education, committed to the challenge of sustaining a world that needs drastic change?

Despite the trepidation and uncertainty, we have assembled an important collection of papers thanks to the thoughtfulness, creativity, collaborations, and care of the submitting authors and their reviewers. The papers in this volume are an intriguing mix of theory and practice, of the particular and the general, the local and the global. They illuminate important threads of change, criticality, and awareness, as well as practices that align with environmental educators’ commitments and integrity. Ordering such a varied and diverse set of articles is always a challenge, but these are loosely grouped around themes and paired so that the following paper is talking to, following up on, building on, and even challenging its predecessor. The fit isn’t perfect, but for those of you who like to read the entire journal in a single sitting, curled up with a hot drink on a rainy evening, perhaps our choices will be engaging. And those who like to dip, sip, and savour articles one at a time, in whatever order, will find abundance and variety here.

Onwards ...

The volume opens with *From Teacher Doings to Human Beings: Ethical Awakening in a Wild Pedagogies Gathering*, a deeply engaging project where Greek practitioners and scholars seek to, in some ways, “do Wild Pedagogies” while also doing academic conferencing and being scholars differently. This research seeks to walk the talk with regard to relationality, temporality, shifting identity, and, perhaps ultimately, change. Next, *The Canada 2080 Workshops: An Arts-based Activity to Support Climate Change Education* engages learners’ sense of hope to creatively, strategically, and collectively imagine a better future. *Ecologizing Bildung: (Re)Framing Five Questions for Future Environmental Education Practice*, is also about changing practice in search of different outcomes, but instead of practitioners working with students, philosophers work with curriculum theory, Klafki’s theory in particular. These papers are in search of a similar end: change.

“*Paying Respect to the Land*”: *Futures-making Through Land-based Education in the Face of Climate Change* brings us back to the themes of community, relationality, and making manifest the visions of youth within the auspices of land-based education and the culturally specific. This conversation is carefully taken up in *Land-based Education and Place-based Education: Mapping the Terrain and Resisting Conflation*. Here, the authors, through a deep literature review and their own practices, take us on a journey through the importance, even necessity, of the local Indigenous cultural presence in Land-based education and the potential dangers of co-option and re-colonization.

Into this discussion comes the practice-based case study *Phenomenological Writing at an Island Beach: Encouraging Connection with Nature . . . and its Limits* which describes a place-based writing activity with undergraduates, committed to decolonizing, exploring Indigenous/settler relations, and perhaps even opening space for ontological change. *Business as Usual but Greener? Confronting Colonialism in University Responses to the Climate and Nature Emergency* holds Canadian universities accountable, beyond the work of particular environmental educators in their particular courses, to critically examine what these institutions are doing and not doing to address climate and nature emergencies.

What happens when educators do this work of critically analysing their practices and institutions in light of colonization and ecological crises? For one thing, according to *‘The World is Under Threat and We Had Best Get a Move On’: Canadian Climate Activist Teachers*, teachers become activists, changing their practices and ways of being teacher so that they become more obviously engaged in the project of creating a more just, perhaps even better world. Often left out of the equation, as *Messily Mediating Milieu: Enclothed Cognition in Environmental Education* points out, is the need to consider everything in and around education, even things that might not be obvious. Theory ... sure, practice ... definitely, but so too the affordances, the imaginings, and the clothes one wears and shares. As this paper illustrates, pedagogy can be influenced and learning mediated by every decision environmental educators make.

The final five papers of this volume turn to case studies and research on rich examples of practices and discussions with collaborators and participants of such practices. Working with students of various ages in a variety of environments they provide compelling insights into doing this work of environmental education and doing it well.

The first three; *Transformational climate change education: A case study on using personalized assessment methods to support enduring engagement*, *Community partner perspectives on course-based experiential learning in Environmental Studies: A case study*, and *Canadian Environmental and Sustainability Education in Preservice Teacher Education*, focus on tertiary education with the first diving into insights for practitioners drawn from an online course. This case study shares these insights while also describing how the course is built around partnerships between academics and the academic world and active, in-the-field sustainability practitioners. The second paper focuses on the experiences, benefits, and challenges experienced by community partners who act as hosts for undergraduate students involved in a one-semester experiential learning, community-based course. The third paper in this group turns its attention to preservice teachers in a faculty of education, seeking to better understand what those becoming teachers need and want to become good teachers of sustainability and environmental education.

Our last two papers also focus on programs and practices, this time with high school-aged students. The first, *Layering participation pathways in school-based environmental education* explores how benefits accrue the more programs and possibilities exist. The authors describe three different environmental entry points at a single school and explore the implications of that broader range of layering between choice and commitment. And the final paper, *Exploring the limits of knowing and discovering Reverence: The fundamental shift from STEAM to CREATIVE Learning* brings us, in some ways, full circle—back to the first paper in this volume. Here, on board a sailing ship for a semester, high-school students become learners in such a different way that things like reverence, sacred connection, and responsibility to the environment are thoughtfully given the space to be part of the curriculum and, perhaps, the world changes as a result.

And so, there you have it dear reader. We walk and work in interesting times.

Notes

- ¹ The Ecologizing Educators, in reverse alphabetical order, are: Megan Tucker, Estella Kuchta, Ellen Field, Elizabeth Boileau, Sean Blenkinsop, Sarah Anderson, & Ramsey Affifi

From teacher doings to human beings: Ethical awakening in a wild pedagogies gathering

Angelos Konstantinidis, University of Groningen; Zoe Theodosaki, University of Ioannina; Stelios Pantazidis, University of Thessaly; & Georgia Tsismalidou, University of Ioannina, Greece.

Abstract

This article explores a Wild Pedagogies (WP) gathering in Greece as a site of transformative professional and personal learning for educators. Against a culture of institutional alienation, the seven-day camp, informed by the touchstones of WP, operated as an embodied critique of standardized, control-oriented education. Using a “wilding” qualitative approach grounded in relational accountability, the inquiry emerged organically to trace the ways in which learning unfolded through deep time, communal living and more-than-human relations. Framed ethico-onto-epistemologically, the study shows how the gathering fostered shifts in relationality, temporal experience, identity, and pedagogical understanding. Ultimately, the gathering functioned as a site of “ethical awakening,” allowing educators to reclaim agency and reimagine educational futures rooted in care and reciprocity.

Résumé

Cet article étudie un rassemblement sur les pédagogies par la nature qui a eu lieu en Grèce en tant qu'espace de perfectionnement professionnel et de transformation personnelle pour les éducateurs et les éducatrices. En réaction à une culture institutionnelle aliénante, le camp de sept jours, conçu selon les principes des pédagogies par la nature, incarnait une critique de l'éducation normalisée et contrôlante. En mobilisant une approche qualitative inspirée de la nature et soucieuse de la responsabilité relationnelle, la recherche s'est déployée organiquement, de manière à s'arrimer au mode d'apprentissage inscrit dans un temps qui s'étire, la vie collective et les relations plus-qu'humaines. Selon un cadre éthico-onto-épistémologique, l'étude montre comment le rassemblement a favorisé des transformations dans les formes de relationnalité, l'expérience du temps, l'identité et la compréhension pédagogique. En définitive, le rassemblement a offert un lieu « d'éveil éthique », permettant aux éducateurs et éducatrices de retrouver leur agentivité et d'imaginer un avenir de l'enseignement ancré dans le soin et la réciprocité.

Keywords: Wild Pedagogies, Wild inquiry, Deep time, Teacher learning, Relationality, Identity transformation

Introduction

In contemporary societies shaped by acceleration, individualism and bureaucratic control, many educators inhabit a quiet paradox of being constantly connected, yet increasingly detached (Ostovar-Nameghi & Sheikhhahmadi, 2016). Digital communication multiplies messages, platforms and interactions, while meaningful encounters become rarer and more fragile. Although digital infrastructures and accountability systems promise collaboration and efficiency, they often deepen forms of alienation that pull teachers away from the relational and communal dimensions of their work (Biesta, 2020). Within highly standardized institutions, teaching risks being reduced to a technical task, losing its relational, ethical, and situated character.

This shift carries consequences that extend beyond professional practice and reach into educators' sense of self and purpose (Pantazidis & Moisiadou, 2025). For many educators, alienation is not only professional but existential. Teachers increasingly describe a distance from what initially drew them to the profession: care, dialogue, shared growth and the slow cultivation of relationships. Managerialism, performativity and constant measurement fragment collegial ties and erode trust, transforming schools into spaces of endurance rather than communities of learning (Apple, 2009). Within this context, professional learning is often reduced to state- and market-driven training models that position educators as passive implementers of externally imposed curricula, prioritizing credentials and pre-packaged tools over experimentation, collective reflection, and professional agency (Darling-Hammond & Oakes, 2019).

It is within this landscape of fatigue and disconnection that movements such as Wild Pedagogies (WP) become significant, not through offering transferable solutions, but by creating openings for educators to reconnect with place, with one another, and with forms of learning that unfold through presence rather than performance (Theodosaki et al., 2025; Winks & Warwick, 2021).

WP challenge dominant regimes of governance that position humans primarily as producers, governed by efficiency and control. They resist the "taming" of pedagogy in the Anthropocene, where schooling often reproduces extractive and anthropocentric worldviews (Kahn, 2010) and instead foreground pedagogical engagements rooted in relationality, uncertainty, spontaneity and care for the more-than-human world.

This study examines how a gathering among educators for a WP Symposium functioned as a form of professional learning grounded in relationality, lived experience, and deep time (Jickling et al., 2018), opening space for alternative educational orientations and new becomings to emerge through encounters with others, both human and more-than-human. We intentionally resisted framing the study through a predefined research question. Instead, we allowed the inquiry to unfold as a process of emergence, where not-knowing becomes a productive force, a generative opening that creates the possibility to escape the habitual and the

schoolized. Here, experience is not a static object but a living motion, an interplay of relations and affects from which new understandings and ways of being can emerge. The implications of this stance are explored further in the sections that follow, where we analyse the ethico-onto-epistemological commitments of WP and how they shape both the research process and its outcomes.

Ethico-Onto-Epistemology of Wild Pedagogies

This study is situated within the relational philosophical orientation of WP, which shaped both the gathering and the inquiry as they unfolded. What follows clarifies the conceptual foundations of this orientation.

The philosophical orientation of WP dissolves the traditional boundaries between being, knowing, and acting (Jickling et al., 2018; Jickling & Blenkinsop, 2020). Ontology, epistemology, and ethics are not separate domains of inquiry but mutually entangled processes of living and learning within a dynamic world (Barad, 2007; Wilson, 2008). To be is to know, and to know is to care. Within this framework, education is reimagined not as a means of mastering the world but as a practice of participating responsibly within it, an invitation to dwell with humility, creativity, and attentiveness in a more-than-human world that is, at every moment teaching us how to live.

This relational orientation is inseparable from WP's explicit recognition of ecological crisis and planetary precarity (Jickling et al., 2018; Jickling & Blenkinsop, 2020). WP arise from the understanding that we live amid mass species extinction, intensifying extreme weather events, and accelerating climate change (IPCC, 2023). Within WP, these conditions are not external contexts but ontological realities that call for a reconfiguration of education itself. They reveal the limitations of anthropocentric, mechanistic, and techno-capitalistic worldviews and demand not merely new policies or technologies, but a radical re-examination of how we understand, inhabit, and relate to the world (Konstantinidis, 2025).

Within WP, the conditions of planetary crisis and interdependence call forth a mode of ethical responsibility that exceeds individual moral accountability and instead emphasizes response-ability (Barad, 2007): the cultivated capacity and obligation to respond attentively and relationally within the entangled conditions of life. This framing recognizes the complex webs of complicity, interdependence, and vulnerability that characterize the Anthropocene. Ethical action, from this perspective, is not primarily about assigning blame, but about cultivating the ability to respond, to "nurture healers and restorers of the Earth" and to participate in the co-creation of "a decent, durable, and beautiful future" (Orr, 2011, p. 242).

WP articulate a critique of domesticated, institutionally confined forms of learning and of the systemic drive for control that underpins dominant social and educational systems, along with the logics of efficiency, standardization, and predictability that they perpetuate (Jickling et al., 2018).

In place of these logics, WP invite the cultivation of alternative ways of being, knowing, and relating. These orientations are articulated through a set of touchstones, “points of departure and places to return to” (Jickling et al., 2018, p. 77), that serve not as prescriptions but as ethical and pedagogical guides. The eight touchstones developed thus far emphasize: (1) that nature—rather than being the place where education occurs—can in fact be an entity one can learn from, aka a co-teacher, (2) provided one allows for ample and qualitative (i.e. deep) time and patience for observation, participation in natural/cyclical events; (3) teachers ought to welcome unexpected, spontaneous, emerging themes and regard them as opportunities for learning encounters with the “wild”; (4) such encounters can happen anywhere and ought to encourage a re-consideration of the way we relate to the wild, repositioning our human species amidst the web of life rather than elevating ourselves from non-human beings; (5) teachers need to be aware that they perform a political act, in which there is no neutral position; (6) as part of their work, they need to invest in the building of communities of collaboration, respect, solidarity; (7) they need to broaden their imagination as to how and to what extent education can change, because we can only achieve as much as we have imagined; (8) finally, learning processes need to be guided by and have as their main goal the cultivation of caring, compassion and love toward all beings.

In this sense, wildness is not a metaphor for chaos, but a mode of re-relating—to oneself, to others, and to the more-than-human world (Jickling et al., 2018). Wildness unsettles the binaries that separate mind from body, knowledge from emotion, human from non-human, and individual from community (Smallwood, 2025). It invites encounters with animals, plants, landscapes, and so-called “inanimate” beings such as mountains, rivers and campfires as active participants in educational life—each carrying histories, agencies, and forms of knowing that call for ethical attentiveness and reciprocity (Beavington et al., 2022; MacEachren, 2022; Schmidt, 2022; Urquhart, 2024).

For educators, this entails a profound ethico-onto-epistemological reorientation: from the self as an autonomous professional subject toward the self as a participant in a living web of relationships (Smallwood, 2025; Theodosaki et al., 2025). Within this orientation, relations are understood as primary, and knowledge is not only socially constructed but co-emergent with place. Learning is recognized as deeply embodied and affective, arising through sensuous, adaptive, and often uncertain encounters with changing environmental conditions. Risk, unpredictability, and not-knowing are not failures of preparation, but integral dimensions of becoming attentive to the world as it is unfolding. Teaching, within this frame, is not the transmission or management of knowledge but a situated ethical practice of attentiveness, responsiveness, and care toward the relational conditions that make learning possible.

Methodology

Context

In the summer of 2025, eleven humans (pre- and in-service teachers) and one cat came together for the 4th Greek WP Symposium. The gathering took the form of a seven-day camp, with the possibility of extension (for further information on this and previous Symposia, see www.wildpedagogies.gr and Theodosaki et al., 2024). All participants had attended previous gatherings and were already acquainted with the theories and practices of WP. The call was intentionally open: there was no theme, no predefined schedule, and no promised outcomes. It was an invitation simply to be together—in nature.

Our “venue” was a secret spot on a mountain in Drama, Greece: a hidden clearing nestled within an oak forest, beside a small creek and a cascading waterfall that formed a natural pond. Surrounded by the ruins of old terraces from a long-abandoned village, the landscape carried traces of forgotten habitation, while the absence of mobile reception and internet allowed the gathering to unfold without digital interruption.

Although the week was not initially conceived as a formal research study, the intensity of the relational and affective dynamics that unfolded generated a clear need for collective reflection. This recognition, emerging from the experience itself, became the starting point of our inquiry.

A Wild Pedagogies Inquiry Approach

The possibility of conducting an inquiry was shared with the whole group during and after the Symposium; the four members of the inquiry team were those who expressed interest in engaging in this. As four co-researchers who were full participants in the gathering, we embraced this genesis as the foundation of our methodology. Our research did not begin with predefined questions, but with a shared desire to document our gathering and make its knowledges available. This mode of beginning is not incidental; it reflects the core epistemological and ethical commitments of WP, which position knowledge as co-created through lived, relational and place-responsive entanglements (Jickling et al., 2018; Jickling & Blenkinsop, 2020).

This epistemological perspective led us to question dominant, normative approaches to research and how we learn. We turned to the ethico-onto-epistemology of WP as a methodological compass for our work. This inquiry stance is a deliberate ecological and political choice. It guides us away from methodologies that seek to “capture” data and toward practices grounded in listening, responsiveness, and relational accountability.

We understood the inquiry as an extension of the gathering itself, a scholarly effort to remain “wild” by recognizing the land, forest, and waterfall

not as a passive setting, but as active participants in knowledge production. Consequently, we sought to think *with* the land and our community, rather than *about* them.

Given the emergent nature of our study, we drew methodological guidance from allied paradigms: Indigenous Research Methodologies, which center relational accountability and the land as teacher (Wilson, 2008), and Participatory Inquiry, which frames research as a collaborative, transformative practice (Reason & Bradbury, 2013).

These frameworks supported us in crafting an approach that is relational and entangled (positioning ourselves as co-participants, not detached observers), emergent and non-prescriptive (allowing conversations to unfold from an open prompt), and more-than-human centered (analyzing transcripts for the agency of the land as co-teacher).

It also became a practice of “wilding” scholarship—embracing iterative, dialogic analysis and resisting standardized outcomes—and one of relational accountability. Here, ethics extended beyond procedural protocols to ongoing responsibility toward all participants, human and otherwise. This commitment is reflected in our use of the “names given by the wild”—bestowed in a creek-side ceremony—which we employ, with consent, not as pseudonyms but as an epistemic and ethical practice. These names honour the land and water as co-constitutive agents, resist abstraction, and keep the more-than-human world present within the very representation of our knowledge.

Inquiry Process

Guided by these principles, our inquiry unfolded through three online focus groups conducted one month after the gathering. All eleven participants took part in these sessions, which were facilitated by two members of the inquiry team and functioned as reflective extensions of the symposium, prioritizing exploration over conclusion (Winks & Warwick, 2021). The focus groups were designed as dialogic spaces, with facilitators participating as co-inquirers who shared familiarity with the experience and equally offered their own reflections.

The interviews were organized around five thematic questions, identified by the inquiry team as central to our experience:

- How relations and dynamics within the community developed (e.g. trust building, equality)
- How we related to time
- How we connected to more-than-humans
- What were important learnings and effects
- If there were “peak experiences” (e.g. moments of connection or significant realizations)

Our analysis was a reflexive and engaged process of thematic meaning-making, aligned with calls for a more philosophically committed qualitative practice (Wolgemuth et al., 2024), and informed by the iterative and emergent logic of Grounded Theory (Bryant & Charmaz, 2011; Charmaz, 2014). We approached the data not as a sequence of procedural steps to be completed, but as a collaborative dialogue: with participants' words, with one another, and with the touchstones of WP that guided our inquiry. In this way, themes were allowed to develop inductively from participants' accounts rather than being imposed through a predetermined framework.

Our analysis began with three members of the inquiry team independently listening to the audio recordings of the focus groups to familiarize themselves with the data and identify prominent themes. Following this, we reviewed the transcripts of the audio recordings to locate experiences and quotes that highlighted a striking contrast between “everyday life” and the relational, immersive lifestyle experienced during the gathering. Through iterative discussion, we found that these moments clustered around four major themes, which structure the analysis presented below.

The analysis aims to highlight alternative ways of doing and being—illuminating how the gathering's relational commitments opened possibilities for reimagining life, learning, and ecological belonging.

Findings

What is presented below has emerged from the participants' own words, either as direct quotations or descriptive summaries of their statements. The analytical framing and connections to the literature are developed in the Discussion. The most prominent themes, which will be presented below revolve around issues of community building and communal living, the altered time perception as well as matters of identity.

Theme 1: Emergent Community

Analysis of participants' accounts highlights the emergence of a community characterized by fluid coordination, affective trust, and authenticity. Instead of being organized through formal structures or predefined roles, the group operated through relational processes that evolved organically over time.

Informal Consensus and Collective Flow

Participants widely acknowledged that informal hierarchies emerged during the gathering. These hierarchies, however, were not perceived as oppressive or exclusionary. Instead, they were understood as situational and relational, grounded in participants' willingness to offer specific work, skills or experience

when needed. Leadership was described as temporary, task-specific, and collectively recognized, rather than as a position of authority.

“Someone wants to be the leader in the group and the group accepts it. I would say it’s a relationship, an interaction.” (Pan)

Importantly, following another person in a given moment was not associated with generalized power:

“Following a person, at a specific time for a specific thing, does not give them generalized power. It is a dynamic state of coordination.” (WildAmulet)

Decision-making processes were similarly non-formalized. The gathering did not follow a predefined schedule; instead, activities emerged through participants’ expressed needs and desires. What participants found striking was the extent to which coordination often occurred without explicit discussion or formal consensus mechanisms. Decisions were described as intuitive, non-verbal, and marked by a sense of collective flow.

“So somehow the activities came organically out of our living there and organically in relation to nature.” (Earthangel)

“Everything we experienced there was completely spontaneous. There was a natural flow to everything.” (WildSoulCat)

Trust, Safety, and the Emergence of a “We”

Participants consistently emphasized the rapid development of trust and emotional safety within the group. The feeling of being heard, accepted, and supported was described as both surprising and deeply meaningful. Everyday collective practices, such as cooking, bathing in the creek, caring for one another, and openly discussing cohabitation issues, played a central role in cultivating this sense of togetherness.

“The dominant feeling of those days is togetherness.” (Pan)

“These are habits in everyday life that very strongly demonstrate that we are a team here.” (OwlFairy)

“If I have an issue, the team embraces me. It’s not my personal problem; it’s everyone’s.” (BlossomingAmazon)

Participants highlighted that this sense of community did not require uniform participation in all activities. Instead, smaller groups formed spontaneously around expressed desires or emerging needs, such as fetching water or preparing food, reinforcing a flexible and responsive social structure.

This was partly attributed to the demanding mountain conditions as a catalyst for relational bonding, making mutual care a practical necessity:

“Community building is both a desire to be together and a response to being out of our comfort zone, being outdoors requires taking care of each other.”
(MossGoddess)

Authenticity, Desire, and Following One’s Needs

A central theme across participants’ narratives was the role of desire as an organizing principle of communal life. Desire structured not only the initial decision to participate, but also the daily unfolding of activities. Expressing desire openly was experienced as both a challenge and a learning process, requiring honesty and vulnerability.

“I am driven by desire. I want to feel the community, to trust people, to connect with people—human and non-human. Desire is basic, and then the whole group accompanies it.” (BlossomingAmazon)

Practices such as nudity emerged as collective expressions of authenticity and trust, arising through informal, consensual processes. Participants described these moments as deeply liberating, affecting both individual self-perception and group dynamics.

“A freedom, an opening of the soul.” (SereneLightning)

“Getting naked and talking honestly about myself felt relaxing and liberating—it’s the same decision to trust.” (CrystalUnicorn)

“At first nudity felt awkward, but after a while it felt completely reasonable.”
(BarleyField)

Several participants reflected that everyday life normalizes disconnection and alienation, whereas shared living in the forest revealed alternative values grounded in presence and authenticity. Being in nature, away from social norms and institutional expectations, appeared to enable expressions of both authentic doing and authentic being.

“There were no external norms to dictate what we should do.” (Earthangel)

“I’m in nature, different things are allowed here, the rules are different.”
(CrystalUnicorn)

The above-described aspects of social organization—participants’ experiences of trust and safety, together with the authenticity of expressing

and acting in alternative ways—interwove to create a community of authentic relations and collective self-organization, in contrast to formal social structures based on externally imposed rules and regulations.

Theme 2: Perceptions of Time and Shifts in Temporal Experience

The differentiated perceptions of time presented below, emerging from participants' personal experiences, unfold across multiple dimensions: a social critique of capitalist temporalities, the role of time in communal organizing, and experiences of deep time. Together, these perspectives invite a reconsideration of the taken-for-granted conceptualization of time in modern Western culture.

Restructuring of Time in Communal Organizing

As noted in the methodology, the gathering was not designed as a learning space in the conventional sense; its intention was simply to live together in nature. Yet, precisely by stepping outside expectations to learn, perform, or “use time well,” participants encountered a different temporal reality.

The absence of clocks or timekeeping devices led to a reorganization of time around lived events and collective rhythms. Participants described time being marked by moments such as cutting a watermelon or gathering for yoga, giving rise to expressions like “half past watermelon” or “a quarter to yoga.” These expressions signaled a shift toward a time structured by meaning and relational importance.

“We arranged time through our own rituals. A ritual is an arrangement of time. This arrangement gave me space inside me to connect, to exist more authentically.” (BlossomingAmazon)

“Time was for us; we were not trying to squeeze ourselves into time.” (WildAmulet)

Several participants linked this experience to ancestral modes of temporal organization, noting that time historically followed needs, work, and environmental conditions rather than abstract measurement. Time was described as being shaped by “outer nature (light, dark, cold, warm) and inner nature (hunger, tiredness)” (Earthangel).

“I felt that time was defined only by light.” (WildAmulet)

“The fact that we started to feel hungry is a clock—the clock of desire.” (CrystalUnicorn)

Critique of Time as Commodity

Participants reflected critically on how time is commonly understood through capitalist metaphors—as something to be “spent,” “saved,” or made productive. During the gathering, these notions appeared to lose their dominance. Having ample time enabled participants to attend to emotional states, creative impulses, and caring practices.

“Time was not a resource to be spent.” (WiseRoe)

“Time belonged to me; I didn’t belong to time.” (BlossomingAmazon)

“I experience the whole range of emotions because I have time.” (MossGoddess)

Experiences of Deep Time

Participants frequently referred to experiences in which time could no longer be described in quantitative terms. These moments reflected what many described as a deepened or differentiated perception of time—what can be understood as deep time. In some cases, this emerged through collective experiences, such as trance drumming or guided meditation.

“I couldn’t remember how long [the drumming] lasted. I have no idea. It felt very intense, so it felt like a lot.” (BarleyField)

In other cases, deep time emerged through solitary practices, such as sit spots or moments of intentional stillness.

“Was time deepening? Yes, quite often. I wanted to sit in a corner and do nothing. Just focus on what is there ... the essence of things, the meaning of life.” (SereneLightning)

These experiences carried strong emotional and cognitive significance.

“Embracing the rock at the river has been inscribed in my emotional world—power and tenderness at the same time.” (SereneLightning)

“Time increased my observation. Even the smallest act had repercussions.” (Pan)

Participants consistently described time as a transformative dimension of the gathering. A shared observation was that having ample, unstructured time constituted a rare condition in their everyday lives. This temporal openness appeared to facilitate both individual processes—such as attending to personal needs, emotions, and rhythms—and collective ones, including responsiveness to

others and the group as a whole. Through this experience, time was not merely reorganized but fundamentally re-perceived. While there were testimonies of how the process of experiencing time differently generated moments of discomfort or stress, these tensions were described as part of the process of unlearning dominant temporal habits.

Theme 3: Ontological Disruption and the Critique of “Normality”

Participants articulated a growing misalignment between the identities cultivated within the WP gathering and those demanded by “normal” life. This misalignment was consistently framed not as an individual discomfort, but as an ontological and socio-political tension.

BlossomingAmazon described this rupture as a loss of relational and temporal coherence in everyday life:

“There’s a need for sharing, a need for connection—which I think is universal. And the life we live has taken that away from us. We’re trying to escape fragmented time—which is also sociopolitical. We’ve become alienated, even self-alienated. And when we finally create a connection, we think it’s artificial, when in fact it’s the truth we want.”

Rather than positioning the gathering as an artificial or escapist space, participants repeatedly described it as revealing the constructed nature of what is commonly accepted as “normal.” The return to everyday life thus became increasingly fraught:

“What I see happening more and more is that I fit less and less into the outside world... It’s like I experience the ideal when I participate in WP gatherings. And then I have to return to the ‘normal’ world, and I feel I don’t want to.” (Earthangel)

“Still, I see how difficult it is to maintain these elements in daily life—the way we were there.” (MossGoddess)

Crucially, the gathering did not offer participants a ready-made alternative identity. Instead, it has created conditions in which the question of identity could no longer be deferred. Participants were confronted with who they are becoming—and at what ethical, relational, and ecological cost:

“I can say that I gained a lot... seeing the world again through new filters... also this openness, the ability to hold real honesty about how we feel and what we want. This genuine expression, which we often suppress ... it’s still affecting me in many ways today, in my life. Sometimes in a good way, sometimes in a difficult way.” (WiseRoe)

These reflections suggest that the gathering functioned as a liminal space in which dominant assumptions about identity, time, and social life could be questioned and reconfigured. The tension participants experienced upon returning to everyday contexts reflected a heightened awareness of how dominant social and educational arrangements shape ways of being. Ontological disruption thus became a dimension of learning, opening possibilities for more relational and ethically attentive ways of inhabiting educational and social worlds.

Theme 4: Learning New Ways of Being and Relating

Participants' accounts suggest that the gathering created conditions in which alternative ways of being and relating could be experienced and practiced. Through shared living, dialogue, and engagement with the more-than-human world, participants described shifts in self-understanding, openness toward others, and attentiveness to relational life.

Several participants described experiencing a sense of security within the group that enabled them to accept themselves more fully, including emotions that are often marginalized in everyday life, such as fear, anger, or disappointment.

"I find security in these groups, accepting myself a little more." (OwlFairy)

"It's all therapy—the cycle, the sharing, how the other person listens to you, how you respond, how you manage your anger, how you manage your disappointment." (WildSoulCat)

Participants also spoke of becoming more open to others and more willing to step outside their comfort zones in order to encounter the "other." This openness was described as both a learning and a conscious choice, even when it did not easily align with dominant social norms.

"I have developed a need for openness. It has become more pronounced, and I see that in some other contexts it does not fit in." (WiseRoe)

"I usually come across as very open, and I push myself to open up." (BlossomingAmazon)

WildAmulet reflected on the significance of this experiential shift and how it aligns with the theories of communal living she engages with:

"Because I'm constantly moving in these ideological spaces, I now have the privilege of saying it experientially: this is how it actually works, in practice. I finally lived what for years I'd only talked about in theory."

Several participants also described changes in their relationships with the more-than-human world, noting increased attentiveness, care, and ethical sensitivity in everyday encounters with plants and animals. These shifts were connected to a reconfiguration of fear—not as something to be avoided but as a meaningful form of relation and engagement.

“Even being afraid of an insect is a form of connection to it—it just takes the form of fear.” (BlossomingAmazon)

Overall, participants claim to have experienced shifts in how they understand themselves, others, and the more-than-human world. These learnings extended beyond the event itself, shaping participants’ everyday relationships and ethical sensibilities. In this way, the gathering functioned as a space where alternative ways of being and relating could be practiced.

Generally, it appears that participants’ experience of the WP gathering was in many respects awakening other ways of being, doing, and relating and perceiving oneself, others, time, and community. This will be discussed in the following section together with its implications as to an identity transformation.

Discussion

Taken together, the findings position WP gatherings as sites of transformative learning that exceed instrumental models of teacher development. The gathering created an opening in which educators temporarily moved from modes of “teacher doing” toward modes of “human being.” Instead of acquiring techniques or competencies, participants engaged in a reconfiguration of teacher identity through lived experience, deep time, and collective care. This experiential shift reshaped participants’ understandings of themselves, their relationships, and their pedagogical orientations. Importantly, these insights did not arise from predefined hypotheses but from a process of collective reflection on lived experience, highlighting the exploratory character of the inquiry process that guided this study.

Participants’ reflections demonstrate that learning within the gathering unfolded as a dialogical and emergent process, distinct from the outcome of intentional instruction. The realization of a participant that “we learn when we are not learning” captures succinctly the learnings of the gathering by pointing toward a form of learning that resists control and hierarchical transmission of knowledge. Learning emerged through shared inquiry, uncertainty and responsiveness, moving away from mastery or control. Importantly, participants emphasized that such learning was deeply embodied and affective: emotions, care, silence, and physical presence functioned as epistemic resources. This aligns with phenomenological and ecological traditions that conceptualize knowing as grounded in being-in-the-world (Heidegger, 1962; Naess, 1989). These findings

reinforce the argument that meaningful learning requires temporal spaciousness and bodily presence and cannot be rushed or instrumentalized (Jickling et al., 2018). This emergent, embodied learning was made possible, in part, by the relational conditions participants co-created—conditions in which care operated as both ethical orientation and communicative ground.

Indeed, a key contribution of this study lies in illuminating how care operates not only as an ethical value but also as a communicative ground. Participants described forms of coordination and decision-making that bypassed formal deliberation, relying instead on trust, intuition, and non-verbal attunement. Also, rituals, shared vulnerability, and practices such as nudity operated as conditions for authenticity, enabling what participants described as honest and liberating communication. These processes resonate with humanistic traditions that foreground authenticity, acceptance, and empathic listening as foundations for relational growth (Rogers, 1966), as well as with ecological conceptions of the expanded or ecological Self (Naess, 1988/2007). The findings suggest that when desire is legitimized and care is collectively practiced, community becomes a lived competence rather than an abstract ideal. These dynamics echo the WP emphasis on care, relational attentiveness, and the cultivation of community as foundational pedagogical conditions (Jickling et al., 2018; Jickling & Blenkinsop, 2020).

The findings suggest that participants' experience of time functioned as a decisive rupture from the dominant societal chronologies. Time is socially produced through regimes of productivity and efficiency (Pantazidou, 2022); a logic clearly recognizable in participants' descriptions of their everyday personal and professional lives. Against this background, the gathering created conditions in which time was no longer something to be managed, justified, or optimized, but something to be inhabited. The absence of schedules and clocks allowed participants to step outside what they describe as the rigid repetition of clock time in education, revealing instead a lived temporality aligned with bodily rhythms, environmental cues, and relational needs (Cole et al., 2024). This shift was not merely organizational but ontological, enabling participants to experience learning and being otherwise. Such experiences resonate with WP touchstones that challenge dominant temporalities of schooling and invite slower, more attentive engagements with place and experience (Jickling et al., 2018; Jickling & Blenkinsop, 2020).

Participants' accounts resonate with a Deleuzian reading of learning as non-linear, affective, and emergent (Deleuze & Guattari, 2004). The differentiated temporal experiences described—in which duration could not be measured, recalled, or quantified—can be understood as educational lines of flight, where thought deterritorializes from striated institutional time. In these moments, attention drifted, conversations spiraled, and meaning emerged sideways and not forward. Crucially, participants did not frame such experiences as empty or unproductive. On the contrary, they described heightened observation, emotional intensity, and ethical attentiveness. Deep time thus operated as a

pedagogical condition that legitimized slowness, stillness, and not-knowing, allowing learning to unfold through curiosity, affect, and relational intensity rather than predefined pacing or outcomes.

Furthermore, deep time carried significant ethical implications for how participants related to themselves, others, and the more-than-human world. Experiences of sitting in silence, attuning to light, hunger, or temperature and engaging in collective or solitary practices enabled a cyclical, rhythmic sense of time akin to what Abram (1996) describes as the embodied, ecological temporality of Indigenous worldviews. By stepping out of linear, historical time and into the cyclical time of the sensorial present, they cultivated an ethics of attentiveness to the needs, presence, and communications of the human and more-than-human others sharing that moment.

Within the gathering, participants experienced modes of being grounded in relationality with both human and more-than-humans through attentiveness and shared responsibility that rendered dominant social and educational norms increasingly untenable. In this sense, participants' experiences resonate with WP touchstones that emphasize dialogical learning, relational inquiry, and the decentralization of authority in educational processes. This dissonance aligns with critical traditions that frame awareness as the recognition of social structures as historically produced and ethically contestable (Freire, 2000).

In this way, identity crisis within WP becomes a form of ethical awakening: a lived recognition that extractive, efficiency-driven modes of existence can no longer be inhabited without friction. WP gatherings respond to Snaza's (2013) call for an education that leads us "away from being human, or at least away from thinking that we have any clear idea about what that means" (p. 49). These gatherings create conditions in which living, teaching, and knowing differently is sensed as not only possible, but absolutely necessary in a world marked by ecological precarity and social injustice. In this sense, identity disruption becomes a form of response-ability, an embodied obligation to respond differently within entangled human and more-than-human worlds (Barad, 2007).

To conclude, this study suggests that WP function as an ongoing ethico-onto-epistemological invitation to re-inhabit education and the world differently. As Jickling et al. (2023) argue, expanding imaginative capacity requires "a willingness to change; an active gathering of ideas about how to be differently in the world ... and an intentional engagement in a diversifying range of experiences" (p. 188). The gathering described here provides precisely such conditions: through deep time, collective care, and more-than-human encounter, participants gather the experiential "stuff" that makes new imaginaries possible. If learning is understood as a process that transforms ethical orientations and, ultimately, action, then these experiences enable educators to imagine and enact different relational possibilities—possibilities that move beyond reproducing unsustainable social arrangements toward something more responsive, more caring, and more alive (Jickling et al., 2023).

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The Canada 2080 workshops: An arts-based activity to support climate change education

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Abstract

Research has shown that youth are aware and concerned about climate change; however, traditional approaches to climate change education sometimes fail to adequately address learners' affective responses to the learning process. Between September 2023 and March 2024, 21 workshops were delivered based on principles of positive psychology, and arts-based methodologies (Art Hives) were delivered to students aged 9 to 25 in classrooms across Canada. The workshops aimed to foster an environment where students envisioned a positive future for themselves, their communities or their country, which they depicted through creative arts and imaginative storytelling. More than a thousand students participated ($n = 1067$) in a workshop, and nearly everyone ($n = 1064$ or 99 %) was able to complete the workshop, imagining potential solutions to climate change and ways in which the world might look or feel more hopeful in the future. This practice report shares the design and delivery of the workshop, offering reflections about how the workshops may be repeated or adapted in future based on teacher and facilitator feedback.

Résumé

Les études montrent que les jeunes sont sensibles aux changements climatiques. Les approches éducatives traditionnelles permettent d'éveiller leur conscience écologique. Cependant, elles ne tiennent souvent pas compte des réactions émotionnelles déclenchées par ce sujet. Entre septembre 2023 et mars 2024, partout au Canada, des apprenant·es de 9 à 25 ans ont participé à un atelier fondé sur les principes de la psychologie positive et les méthodologies basées sur les arts (ruches d'art). Dans le cadre de 21 ateliers, les jeunes ont imaginé un avenir positif pour eux-mêmes, leur communauté ou leur pays, par le truchement des arts et du récit oral. Plus d'un millier de personnes ont participé ($n = 1\,067$) et presque toutes ($n = 1\,064$, soit 99 %) ont terminé l'atelier : elles ont réussi à concevoir des solutions aux changements climatiques et des perspectives prometteuses pour l'avenir. Le rapport détaille la conception et la prestation de l'atelier afin qu'il puisse être reproduit, ainsi que des pistes d'adaptation suggérées par les équipes d'enseignement et d'animation.

Keywords: climate change education, arts-based interventions, storytelling, workshops, classroom, future

Context

In Canada, mental health diagnoses associated with concern about climate change, such as solastalgia and eco-anxiety, are on the rise among young people (Galway, 2025; Galway & Field, 2023; Rosenbaum & Levitt, 2023). Despite the efforts of many parents to shield their children from the climate crisis (Graham et al., 2025), a 2024 review revealed that adolescents are experiencing eco-anxiety alongside clinical depression and sustained strong emotions like grief, sadness, and fear, due to strong emotional attachment with the natural environment coupled with heightened awareness about climate change (Mondal et al., 2024). To support young people to better understand, cope with, and act on the climate crisis, climate change education (CCE) at all levels of schooling is necessary (Aeschbach et al., 2025).

Traditional approaches to CCE have predominantly focused on the climate science (Nepraš et al., 2022), paying less attention to the social justice and political dimensions that undergird the issue. In the Canadian context, most provinces (which govern the education system and dictate the curriculum) include climate education in the science curriculum, but not in other courses, and generally focus on three core topics: “physical climate mechanisms (‘It’s climate’), observed increase in temperature (‘It’s warming’), [and] anthropogenic causes of warming (‘It’s us’),” typically offering little content or instruction on the impacts of climate change, the possible solutions, or the affective dimensions of the crisis (Wynes & Nicholas, 2019, p.4).

Further, researchers have noted that due to the significant negative consequences of the climate crisis, learning about the crisis can take an emotional toll on the learner (Field et al., 2023; Diffey et al., 2022), with Sarah Jaquette Ray (2018) likening it to an “affective roller coaster” (p. 303). Some researchers and educators have stressed that CCE is an affective process as much as it’s a cognitive process, and that young people’s affective responses to climate change are often derived from the seriousness of the problem (Burkholder et al., 2017; Ojala, 2015). Put simply, the better a young person understands the climate crisis, the more likely they are to experience complex and challenging emotions in response. These wide-ranging emotional responses should be anticipated by educators and can be mitigated through the use of storytelling that is “affective and connective,” targeting the learner’s affective process (Verlie, 2021) and through the promotion of constructive coping strategies (Brown et al., 2023) such as introducing solutions and empowering students to act, even if in small ways (Ojala, 2016). In this practice report, we introduce a new, classroom-based workshop, leveraging positive psychology approaches (Seligman & Csikszentmihalyi, 2000; Csikszentmihalyi et al., 2014) and arts-based methods (Moon, 2016) to support students to learn about the climate crisis through a solutions-oriented framing.

Designed as a break from ordinary science-based class discussions on climate change, which tend to ignore – or sometimes inadvertently exacerbate

– negative affective responses to the crisis (Diffey et al., 2022), the Canada 2080 workshops were brief (1-2 hours), positively framed, and led by trained external facilitators to allow teachers the opportunity to participate too. The workshops invited students to envision their future selves and the world they would be a part of in 2080 through a positive lens, then depict that future in a work of art.

Intervention Approach

Choosing a Positive Psychology Approach

Positive psychology, founded in 1997 by Mikaly Csikszentmihalyi and Martin Seligman offers an alternative to problem-centred approaches so common in climate change education. By focusing on “what goes right in life, from birth to death, and at all stops in between” (Kristjánsson, 2012; Peterson, 2006), positive psychology interventions (PPIs) are characterized as programs which elicit or center positive feelings, behaviours, and cognitions (Sin & Lyubomirsky, 2009).

It should be noted that several scholars have argued for and demonstrated the benefits of engaging hard or negative emotions and psychologically painful experiences in dealing with topics like climate change (e.g. Blenkinsop & Kuchta, 2024). For example, Haraway (2016) argued that we need to “stay with the trouble” of living on a damaged earth; however, she balances this with an emphasis on understanding nonhuman beings in complex ways to build more liveable futures. Here, the focus on codesigning healthy liveable futures with other beings requires some degree of optimism, while holding space for the real and embodied pain of the present condition. Others have noted that overly or exclusively positive approaches to climate education can lead students to feel numb or to disengage from climate action (Blenkinsop & Kuchta, 2024, p. 71). We do not contest the importance of engaging the full range of emotional responses to the crisis and align with calls from Blenkinsop and Kuchta (2024), and Macy (2012; Macy & Johnson, 2021) and others to support students to experience and cope with the full affective roller-coaster of climate change education.

Addressing a range of emotions is especially relevant given that different emotions can be useful in coping with and addressing climate change (Lambert et al., 2021). A meta-analysis by Bouman et al. (2020) revealed that negative emotions (e.g., grief, fear, guilt) can be harnessed for climate action, while another systematic analysis of published literature by Schneider et al. (2021) showed that positive emotions can act as antecedents to climate change engagement as well as a result of this engagement.

Notably, PPIs do not imply avoiding negative emotional responses emerging from students’ awareness of climate change or the polycrisis. Rather, PPIs acknowledge that strong negative emotions are often a healthy response to scary,

sad, or otherwise challenging phenomena. Following in the tradition of PPIs which have addressed climate change in other contexts (Malboeuf-Hurtubise et al., 2024), affective difficulties related to the climate crisis are acknowledged, and participants are supported to cope with the issue by identifying strengths, resources, opportunities, and fostering positive emotions (Lomas & Ivtzan, 2016; Lomas et al., 2021, Wong, 2011). This approach offers students a brief reprieve from the negative emotions so endemic in climate change education.

Importantly, we do not advocate for PPIs as the *only* approach to CCE, but rather, an important tool that can be leveraged to alleviate – even if only temporarily – the affective strain on children and teens relating to the climate crisis. We also emphasize that the time framing of each lesson or intervention is relevant to its design. In particular, asking young people to focus on positive emotions when thinking or learning about the present moment, which is rife with natural disasters and widespread human and nonhuman suffering (IPCC, 2023), risks discrediting or diminishing the justified negative feelings students may experience in relation to the crisis. However, in a future-oriented intervention such as the one described in this report, where the emphasis is placed on *what could be*, rather than what is, a more positive and optimistic orientation can sit alongside the full range of affective responses to the present condition and drive constructive conversations about the “liveable futures” Harraway described in her work (2016).

Our choice to adopt PPIs is further supported by the evidence that these have proven successful in classroom settings. Lea Waters’ (2011) review of school-based PPIs in Australia showed the effectiveness of a model focused on positive emotions, engagement, relationships, meaning, and accomplishments (‘PERMA’ model) as the basis of effective interventions. Positive education fosters academic achievement while emphasizing well-being (Waters, 2011). PPIs which focus on hope and character strengths can address the whole student and promote more prosocial behaviours. This focus on hope and strengths is important as Gillham et al. (2002) showed that garnering hope may be the most significant contributor to improving well-being, increasing resiliency, and helping persons recover from setbacks and stress, as well as creating the capacity to seek new opportunities and growth. In another example, the Penn Resiliency Programme (PRP) demonstrated the potential for PPIs to reduce feelings of depression, hopelessness and anxiety (Seligman et al., 2009) – all emotions which are common responses to learning about the climate crisis. In sum, intentionally designed PPIs have strong potential to produce positive outcomes for learners engaging difficult topics.

Art Hives

The methodological approach we applied to our workshop design was modeled after Art Hives. The “Art Hive,” a community arts-based intervention developed by Concordia University professor Janis Timm-Bottos for arts therapy purposes,

champions individuals from all backgrounds as artists and invites them to participate in free and accessible art sessions, which “experiment with ideas through humble inquiry and arts-based research” (Art Hives, nd). In the context of climate change, art-based approaches such as art hives have been transformative in the way they help participants develop a sense of agency in regards to our collective future through the practice of imagination and creation (Galafassi et al., 2018). Our team chose to adopt this format, combining communal interventions with positive psychology principles to create a classroom workshop that offered students the opportunity to reflect on social issues and the existential questions that accompany the climate crisis, while working through their affective responses through the making of art.

Intervention Delivery

Between September 2023 and March 2024, we conducted 21 workshops in 16 schools (or universities) from Corner Brook, NL to Whitehorse, YK (see Table 1). Schools and classes were selected for the workshops based on interest (following a general invitation sent to school board contacts in each destination) and to maximize diversity in the sample of classes (i.e., different grades, a mix of rural and urban schools, a mix of public, private, and Catholic schools, and a mix of classes – ranging from history to science to art). Workshops were scheduled during the school day in a class period of the host teacher’s choosing. All participants (or their parents, for minors) signed consent forms which included agreement to participate in the workshop, be photographed or video-recorded by our team during the session, and to have our team collect and keep the artwork produced at the end of the session.

Prior to starting the tour of Canada to conduct these workshops, the workshop structure was piloted with three school groups in the United Kingdom and one in Canada. The pilots revealed minor flaws in the original workshop design (e.g., amount of time needed, types of art media that would be most interesting to young people), and offered the workshop facilitators a chance to iterate and improve the intervention, including the script used to introduce the workshop, the ice-breakers, and the music being played in the room.

Intervention Structure

The Canada 2080 Workshops were delivered by the first and second authors, in classrooms during the school day, typically for one or two class periods. The duration ranged from 60-180 minutes. At the beginning of the session, the facilitators would introduce themselves and the workshop, offering the students a chance to get to know them and build rapport. To ensure participants understood what their parents had signed on the consent forms, in the introduction of each

	Location	School Type	Grade	Class subject
1	Beechy, SK	Public elementary school	7/8	Science
2	Calgary, AB	Public high school	11	Art
3	Charlottetown, PEI	Public high school	12	Oceanography
4	Corner Brook, NL	Catholic high school	10/11	Science
5	Fredericton, NB	Public high school	9	Social studies
6	Fredericton, NB	Public high school	10/11	Art
7	Hamilton, ON	University	undergrad	Health sciences
8	Montreal, QC	Public high school	11	Science
9	St Peter's Bay, PEI	University	grad	Island studies
10	Sydney, NS	Public high school	11	Sociology
11	Toronto, ON	Public high school	10/11	Art
12	Toronto, ON	University	undergrad	Research methods
13	Toronto, ON	University	undergrad	Kinesiology
14	West Vancouver, BC	Public elementary school	6	Science
15	West Vancouver, BC	Public elementary school	5/6	Art
16	Whitehorse, YK	Public high school	11/12	Social Justice
17	Whitehorse, YK	Catholic elementary school	7	Art
18	Whitehorse, YK	Catholic elementary school	8	Art
19	Winnipeg, MB	Public high school	10	Science
20	Yellowknife, NT	Catholic high school	8/9	Art
21	Yellowknife, NT	Catholic high school	11/12	Art

Table 1. Descriptive of the schools and classes that hosted workshops

workshop, facilitators explained the outline of the session and requested verbal consent (or a “show of hands,” “thumbs up”) from students to confirm they agreed to participate, be photographed or filmed (we respected anybody’s wishes to abstain from this), and to have their work collected at the end. Then, depending on the age of the group and whether their teachers had discussed the workshop with the group ahead of time, one of two ice-breakers were run. For each icebreaker, students were given a colourful cue card and a wax crayon.

The flip the script icebreaker: For the first minute of the exercise, students were invited to draw a current issue (e.g., from the polycrisis) or icons that referenced the issue. Then, students flipped the card over to reflect on ways the issue could be solved. The intention was twofold: to encourage students not to worry too much about the aesthetic results, and to have them think directly about the multiple narratives of the polycrisis. Once the students completed this task, we followed up with a group discussion about the issues they wanted to tackle, celebrating the students’ diverse and innovative responses and ability to

quickly come up with tangible ideas. By placing the emphasis on their ability to problem-solve, students began focusing on a range of solutions. This icebreaker was most suitable for groups which did not have a chance to discuss the topic of the workshop ahead of time to quick start the optimistic future-building efforts of the workshop.

The happy memory icebreaker: Students were given two minutes to draw an image of something that represented a good memory. This icebreaker was intended to put students in a good mood, and prepare them to think positively about the future. Then, they had a moment to share the memory with their group (or the person sitting next to them, if there were no clear groupings or tables of students). This icebreaker was most suitable for groups that did discuss the topic with their teacher ahead of time because they had already thought about problems-and-solutions. So, the purpose of the icebreaker shifted to encouraging self-expression and storytelling through artistic creation and focusing on positive outlooks.

Once the icebreakers were complete, students were invited to begin thinking about the future, and specifically the year 2080. To help students imagine that year specifically, facilitators would ask students how old they would be in 2080, and what their own lives might look like at that point (most will be retirees and possibly grandparents in the age range of 60-80). Once the students had a grasp on the timeline, they would be invited to take a piece of craft paper (white, half-letter size, or A5) and any arts materials they wanted from a selection of acrylic paints, watercolors, markers, crayons, pencils, pastels, and collage material, to depict life in the year 2080 assuming it is free from polycrisis. This depiction could be done at any scale (individual, community, city/town, or national), in any art-style (concrete or abstract imagery, poetry, short-story, etc.).

Students were informed of three things to keep in mind when making their art. First, it had to be Canada-based (or turtle-island more broadly), but not focused on the whole planet, nor somewhere foreign, outer-space, or an imaginary land. Second, whatever they depicted had to be something they considered positive (no apocalyptic scenes). And third, the work did not have to focus on them as individuals, it could broaden to include their communities, cities/towns, provinces/territories, or the whole nation.

Finally, students were told before starting that the goal of the session was to collectively illustrate a future that Canadians would be motivated to run towards, instead of resigning ourselves to the certainty of negative outcomes. Students were also informed that their work would be collected at the end of the session (if they were willing to give it to the facilitators) to be shown in a public gallery exhibit called "Canada 2080."

Students spent between 45 and 165 minutes creating their artwork. Depending on the length of the session, typically they would be given the full time minus 15 min for introductions, icebreakers, and wrap-up. Some used paint, others chose to draw, and a few made a collage or wrote poetry.

Facilitators played pre-recorded music during the art-making session, using a playlist curated specifically for the project by a Quebecoise artist and DJ (Georgette¹), who chose to feature all Canadian music in the playlist. Facilitators invited students to share what they were working on with their peers, if that was their choice. Alternatively, students were equally supported if they chose to sit quietly and create alone.

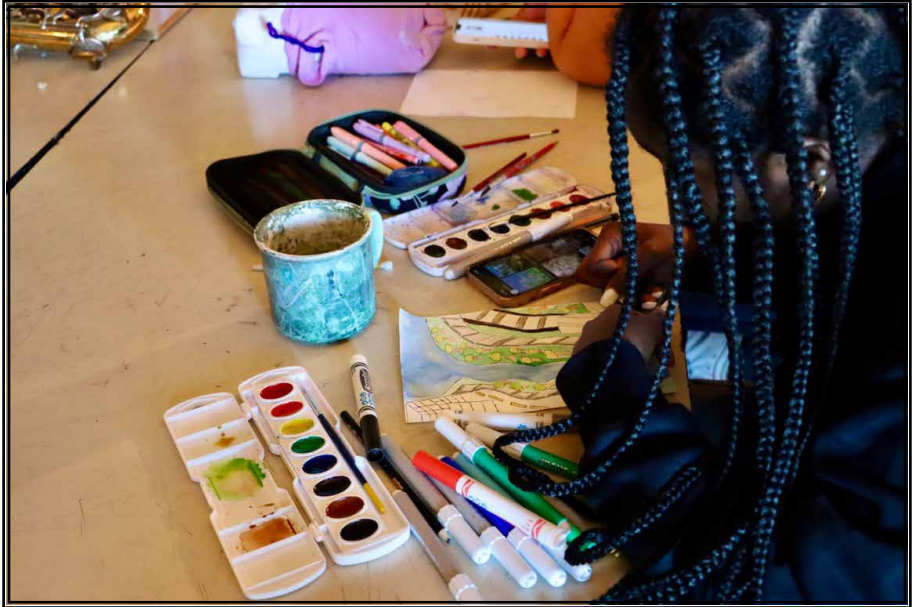


Figure 1. Photo of student participating in the project in New Brunswick

Toward the end of the session, as students finished their artwork, they were invited to flip over the page and write an artist's statement on the back, underlining any keywords that represented the intention of their work. If students wanted to share their ideas and their work with the class, they were given the opportunity to do so. Typically, younger groups (grades 5-8), and university students were more willing to share their work with others than high school aged groups. At the end of each session, the artwork was collected in envelopes labelled with the name of the teacher, class, and school.

To help capture the unique experiences and ideas of each session, a local professional artist was often invited to participate through observation, note-taking, and discussion with participants, and to eventually create a piece of their own, which we commissioned to anchor the gallery showing of all the students' work. Specifically, the artists took inspiration from the students' pieces and created a composite image based on those ideas in the artists' medium of choice.

Professional artists who attended and participated in the sessions were given 60 days to complete their work. All artists were paid for their time and efforts, at standard commission rates, and reimbursed for shipping costs to send the original works to the researchers. Composite images were a minimum of 24 x 24 inches in size and a maximum of 36 x 36 inches, with most landing at 24 x 30 inches (in either portrait or landscape). This provided some consistency in the sizing so that when the collection was shown in gallery settings, there would be cohesion regarding framing options.



Figure 2. Promotional poster for the first gallery showing in Toronto, Canada

Facilitator Observations and Feedback Received

As facilitators of this project, we documented the process of workshop design, delivery, and iterations/changes in daily note-taking and ongoing communication, in addition to keeping meeting minutes of our team meetings which covered logistics, planning, and debriefs of each session. With permission from participants' parents (included in the consent forms) we also documented the sessions through videos and photography, which we later referenced when checking our notes and memos to ensure accuracy. These cross-checks between notes and photos/videos were done on a weekly basis, limiting the time which had elapsed since the sessions.

Across Canada, 1067 students participated in 21 sessions. In total, just over 1000 pieces of art were collected (some students didn't finish their work during the session or felt strongly about keeping their piece). Twelve professional artists were engaged to create composite works, one from each province, plus Yukon and Northwest Territories.

A curated version of the collection was displayed at the Papermill Gallery, Toronto Canada in August/September 2024, attracting several hundred visitors in foot traffic. A second public showing was held in September/October 2024 at McMaster University's Wilson Hall, Hamilton, Canada.

Students' Perspectives

We did not formally solicit feedback from students on this project as we wanted to allow the full time in-class for students to complete the work, and we were more interested in the process (for both us as facilitators and the students) of running these workshops than in the specific art being produced. We note that future work might conduct an analysis of the artwork produced; however, that is beyond the scope of this practice report.

We did ask teachers to report back to us on any feedback they received from students, and overwhelmingly, the feedback was positive. We also had some students in high school and university groups reach out to the facilitators directly to thank them for coming and for offering the workshop. Examples of responses received directly are included here:

"I haven't really thought about it [climate change] like that before, but this made it easier to wrap my head around it and not get bogged down in the bad news."
(12th grade student from Charlottetown, Prince Edward Island)

"Art class is usually just about how to make art, not about what the art is actually supposed to show, so this was different. But I really liked it. And it was cool to see what other people did." (12th grade student from Charlottetown, Prince Edward Island)

“This stuff is on my feed a lot, and I’ve taken classes that touch on some of this stuff, but I hadn’t drawn it before, and that felt cathartic even though I have no art skills and it turned out pretty bad.” (2nd year university student at University of Toronto)

The limited student feedback we received suggests that at least for these students, the workshops were successful in helping students to understand and address the topics of climate change, social injustice, health and economic crises. Based on this informal student feedback, it seems the positive lens shifted the affective landscape typically associated with learning about some of these issues. Students referenced a range of affective responses to the workshop, including catharsis, relief, and joy, even if that was simply linked to a more pleasant way to spend an hour than another typical class. As one 10th grader put it, “this was so much better than the math class I was supposed to have this period.”

Teachers’ Perspectives

In the weeks following each workshop, emails were sent to the principals, teachers, and university professors whose classes had participated, inviting them to provide critical feedback on the workshop and to share any follow-up discussions they had with their students after the workshop. Here again, feedback was overwhelmingly positive, and no negative or constructive feedback was received with the exception of three comments which expressed that they wished they had more time (two teachers), and that they regretted not having invited more students to participate (one principal).

“I mean, they’re sixth graders, so I don’t think they’ve really considered many of these issues before except for the wildfires and heat, because it’s so obvious out here. And we talk about it in science class, but this project really drove it home for them, and in a way that made them feel empowered to address it and find solutions.” (Teacher in West Vancouver, 6th grade)

“Thank you for showing interest in my students’ work! We don’t often get people coming up to visit this part of Canada, so having you here and giving them the opportunity to think about some of these issues differently was really refreshing and led to quite a few conversations in our class in the days following the session. Overall, they really enjoyed it, and I think it made a difference. Especially for some of our quieter ones who don’t speak up in class but were really engaged by this activity. They really shone.” (Teacher in Northwest Territories, 11th and 12th grades)

“These kids, they have a lot of challenges. It can be complicated to get their attention and hold it for even 10 minutes, let alone an hour. But they were locked in the whole time. And they all were able to do it, and stay positive for the hour, and engage. It was cool.” (Teacher in Manitoba, 10th grade)

Artists' Perspectives

When each artist sent us their final piece, we invited them to share an artist's statement about the work which would be shown with the piece (online and in galleries). They were also invited to provide critical feedback about the process of attending the workshop, engaging with students, and creating their own composite artwork after the session. Again, feedback was overwhelmingly positive.



Figure 3. Picture of FLOURISH, a painting by Kaydence Clarke, based on ideas from students in Corner Brook, Newfoundland

“Being a part of this workshop was such a privilege! It was a lovely experience to be able to see the students visually document their ideas on what they would like to see in our world/country in the future. I was pleased to see some ideas such as clean oceans, peace amongst world leaders, and an improved climate. After the workshop took place, I was inspired to take some visual symbols from

a handful of the students ideas/drawings and incorporate them all together into one large artwork. As a whole, I loved this project. Both the workshop and working on the painting was such a delightful experience and I can't wait to see what the other students and artists have come up with.” (Kaydence Clarke, Artist from Newfoundland and Labrador)



Figure 4. Picture of needle-felted tapestry PRAIRIE OPTIMISM by Mary French, based on ideas from students in Beechy, Saskatchewan

“Beechy is a farming community, and many of the ideas that students had were about weather, crops, and farms. The love for the land and the rural way of life was obvious, and many students plan to stay in the community to farm. Since farming depends very much on weather, climate change could present significant challenges, but the students were optimistic. Some predicted more rain, which would be a boon to this area, which is, historically, very dry. Others hoped for a reversal of the current trend toward ever-larger farms and a declining rural population, predicting that in the future, there would be more farms and farmers. I thoroughly enjoyed getting a peek into the students’ thoughts, and I was, frankly, surprised and encouraged by their positive and hopeful vision for the future.” (Mary French, Artist from Saskatchewan)



Figure 5. Design titled HEALTHY PLANET, HEALTHY PEOPLE by Tanya Handley, based on ideas from students in Whitehorse, Yellowknife

“The more I thought about the kid’s ideas, the more I realized that they had followed the instructions even better than I had first understood them. They were to imagine a world where we had solved the climate crisis, what would our world look like then. Once that crisis was averted, they envisioned us working on people issues, making individuals’ lives happier and healthier, mentally and physically.” (Tanya Handley, Artist from Yukon)

Facilitators’ Perspectives

From our perspective as workshop facilitators, a few lessons were gleaned in early iterations of the workshop that made it go more smoothly in later iterations. For example, we learned that the longer sessions (90-120 minutes) tended to produce better results in terms of the number of students who completed their piece, and the level of engagement students showed to the topics. In sessions that ended after 60 minutes, students appeared somewhat rushed and a few expressed frustration at not having enough time to complete their work. Some of these sessions also yielded more surface-level responses, as the time allotted did not allow us to explore topics or associated feelings in greater depth. Based on this, we realised that increasing the length of the workshop – ideally between 90 and 120 minutes – would benefit the creative process.

It also became apparent early in the process, that being able to offer a range of media options was important to ensuring engagement. While watercolor

and pastels proved popular, collage was less popular or perhaps required more concrete imagery to spark ideas. Most students chose to work with markers or pencils as it seemed most familiar given the time restrictions. Still, the choice of media reliably generated excitement among the student groups and reinforced the underlying messaging of the workshop around students having the agency to craft their own futures – literally and figuratively.

Some of the workshop structure had to be finessed over a few pilots and the first couple workshops in this series. For instance, after conducting three pilot workshops with letter-sized (A4) paper for the participants' art, we pivoted to a half-letter sized (A5) paper by cutting the sheets in half. This proved less intimidating for participants as they had less area to cover with their work, and thus consistently generated complete pieces. Additionally, we experimented early-on with the icebreakers: whether to do just one, or both, and which one to use with which age group. We also chose to forgo the icebreaker activity in one workshop due to time constraints and felt it was a *miss* – students struggled to get into the right headspace to think of positive visions of the future. We also experimented with how to help students understand the timeline (2080), and it took a few different prompts before we landed on the “how old will you be in 2080?” question, which really seemed to help the student envision themselves in the future, and frame the task in a more personal and tangible way.

Additionally, working with professional artists in the room was a huge boost to the project, for both the students – who benefited from an artistic role model and someone who could provide immediate support for their work – and the teachers, who enjoyed having an extra set of hands in the room to help guide the students and share the load with the two facilitators.

We perceived that room configurations had some effect on the outcomes in the workshops. We found that having students sit together at tables was more fruitful for discussions than having them sit alone at desks in rows. This isn't always possible to facilitate depending on the class and time constraints, but this is a recommendation we provide to teachers who are interested in running this workshop in their own classes, and to teachers whom we visit in future.

Seeing teachers engage with the workshop was one of the most interesting (and unintended) developments of the workshop. Some were wonderful artists themselves and produced beautiful and complex images. Many expressed how nice it was to have a break from teaching; some noted that they would be using this method again in their classes to teach challenging topics. Building rapport with teachers and relating to their struggles (as fellow educators) was also a meaningful part of this process for the facilitators.

Some students, during the introduction of the workshop, expressed feelings of overwhelm with how many issues needed solving. Some were able to articulate their feelings of fear, grief, dread, and hopelessness which arose toward the topics being raised. While the majority of students were able to harness their feelings in a positive way, a few struggled more visibly in the workshop and

required more direct one-on-one engagement with facilitators to solidify their ideas. Following a PPI approach, and with support from the teacher who knew the students better, we (as facilitators) would engage students who struggled with this by inviting them to talk to us about their views and experiences in small groups or one-on-one with a facilitator or teacher, ask questions about how they felt about these experiences, and as they felt comfortable, support them in moving toward considering solutions. For instance, in the Northwest Territories, many students had personal traumatic experiences with wildfire (e.g., evacuations, near-miss home loss, or actual home loss). In response, a longer small-group discussion was led by the lead facilitator and the teacher with those students who shared these experiences and emotional responses. In the small group, we invited students to share their experiences, if they felt comfortable doing so, and then invited students to consider what might help them to feel safe, supported, and better prepared in future. The core idea that emerged as a solution was fire-safe and universal housing for people in the Territory – which was what two students chose to depict in their art.

Finally, while a full content analysis of the art is beyond the scope of this practice report, here, we describe a few stand-out observations we noticed as facilitators. In the artists' statements describing their work (professional artists and older student participants), some common themes emerged, centred around animal welfare and stronger animal-human relationships, less pollution, and greener cities with fewer vehicles. Most works depicted more concrete ideas (i.e., a pedestrian street with no cars and plenty of tree cover) while few were abstract (i.e., a watercolor painting that blurred pastel reds, pinks, and yellows, which the student described in their statement as "the feeling of warmth we'll feel in the future because we'll be more happy").

Discussion and Limitations

Following 21 iterations of the workshops with different age groups, classroom environments (science class, art class, university courses), and geographies across Canada, the Canada 2080 Workshops were well received. Based on the feedback we collected from artists and teachers and the interactions we had in classes as facilitators, we conclude the project was largely positive and impactful.

Consistent with previous research which incorporate PPIs in school environments (Galafassi et al., 2018), and arts-based interventions for supporting individuals to address and emotionally process complicated challenges like climate change (Mreiwed et al., 2021), the Canada 2080 workshops were generally effective insofar as – based on the facilitators' observations and feedback received – participants were able to engage the question ("what will Canada look like in 2080 if we get everything right?") with a positive lens, imagine new stories about the future, and process a wide-range of emotional responses to major socioecological problems.

The process of designing and delivering these workshops was iterative and changes were made to suit the unique needs of each group. We anticipate additional changes will be needed if this workshop design were to be repeated by teachers or other external facilitators, reflecting the differences in age groups, class topics, and teachers' areas of expertise. Still, the core structure of the workshop (introduction, icebreaker, art making, idea sharing, closing) remained consistent and offers a template that can be replicated.

In its simplest form, the workshop featured limited touchpoints between external facilitators, teachers, students, and artists. For these sessions, there was little communication between the facilitators, artists, and teachers ahead of the sessions except to coordinate the logistics of time and place, and to share the parent/guardian consent forms with the teachers so these could be signed ahead of the day. While this format proved successful, our team's experience was that the sessions which had more advanced communication with teachers progressed more smoothly. In particular, introductory calls ahead of time to help set expectations, discuss the purpose and goals of the workshop, gather information regarding teachers' and artists specific areas of expertise, and understand the particular challenges and dynamics of each participating group contributed to the fullest student engagement and art works created.

Teachers and facilitators should anticipate reluctance or outright exasperation from some students who are frustrated by the current state of the world, and those who have already experienced severe impacts of climate change. We learned from the first few minutes of each workshop (the introductions and the opening icebreaker) that some students struggled with the immense scope of the polycrisis, and the prospect of imagining a positive future – either because they voiced these concerns directly, or because the facilitators and teachers noticed they struggled to jump into positive framings in the icebreaker. While our positive psychology approach focused on positive ideas about the future, we were committed to holding space for students with negative or uncomfortable feelings about the polycrisis and invited any students who struggled with the ice-breaker or the opening introductions and framing of the workshop to chat one-on-one with the teacher or facilitator, or to discuss this in small groups with those at their table. Generally, our discussions about the varied emotional responses to the polycrisis highlighted how these feelings are often framed as inherently negative, but that these can be useful emotions and a healthy response to a scary phenomenon. In better understanding the usefulness of various eco-emotions, we can begin to harness the affective dimensions of the climate crisis to reject the narrative of guaranteed climate disaster and encourage others to take the threat of climate change seriously (Comtesse et al., 2021).

By having external facilitators lead the workshop, teachers also benefitted from an opportunity to engage in a supportive, participatory role alongside students. This allowed them to understand the student perspective more fully as

they were not solely responsible for managing the classroom and were provided necessary respite from the ever-increasing workload they face as educators. External facilitators bring fresh energy to the classroom, mixing up the daily routine, and increasing students' sense of excitement and meaning in the learning activity. Giving students the opportunity to have their perspectives be seen, heard, and celebrated by adults proved critical to the success of these workshops, as students began to understand the value and impact of their ideas. We suggest that teachers looking to replicate these workshops take the extra step to ensure students' work can be appreciated by other community members, whether by featuring it in their school, public spaces such as local libraries, or sharing completed works with local politicians and decision-makers.

The Canada 2080 workshop design and this practice report has several limitations. First, on the workshop design and delivery, it must be noted that delivering this national series of workshops in schools and universities was a time and resource-intensive undertaking. A significant amount of travel was involved including three separate two-week trips to distant regions of the country, plus three shorter trips to nearby provinces. We also invited schools through their school boards and worked with those who responded to the open invitation, thus there was some positivity bias in the level of interest in the workshops coming from teachers. Finally, the funding for this project was substantial and made it possible to purchase art materials, travel across the country, produce a gallery exhibit that was shown at two venues in the fall of 2024, and pay researchers, facilitators, and artists. Smaller and cheaper iterations of the workshop could be achieved using art materials already available in a school and having a teacher or a volunteer facilitate the workshop using the outline and guidance above (instead of a paid facilitator).

As for this practice report, the data included is largely observation based (using facilitators' notes from each session and from the design process) and solicited responses from teachers and professional artists, alongside a few unsolicited bits of feedback from student participants. Our team is considering an arts-based approach to analysing the 1000+ pieces of artwork that were produced in the workshops (e.g., contextual and interpretive analysis) and a longitudinal round of surveys of student participants to measure whether the workshop produced any long-term outcomes on how they consider the polycrisis or their own agency in shaping futures – noting that the two years that have elapsed since these workshops were conducted which might dilute the findings. Future iterations of this workshop might consider a pre-and-post workshop survey design to assess any shifts in students' affective responses to the polycrisis and to measure other outcomes of the workshop (e.g. any new ideas generated through the workshop, changes in participants' sense of agency, etc.), or at least include a more formal mechanism for collecting student feedback on the process.

This workshop is highly adaptable and can thus be incorporated into a variety of school subjects, including sciences, languages, social studies, politics,

or any type of art class. We are hopeful that future iterations of these workshops might include dramatic arts, movement and dance, language arts, photography, video production, and more.

Conclusion

This project highlights the transformative power of arts and storytelling in climate education and contributes to a global movement for social justice and change. It allowed for the voices of students to be heard both within the class and beyond, as the students' ideas and artworks were publicly displayed in gallery exhibits in the fall of 2024. The workshops also provided teachers with the scaffolding of prompts, icebreakers, and arts-based activities that can be repeated in the future to revisit some of the topics explored in the workshop (i.e. climate change, social justice) or other sensitive topics as they arise. By emulating and iterating on the Art Hives model, we offer a rich description of the workshops which can be used as a resource by educators to deliver workshops of their own. Through this work, we wish to tap into the creative and affective power of young people and foster a sense of empowerment and possibility among future workshop participants

Notes

¹ Georgette is the solo project of Quebec-based singer-songwriter Emily Skahan.

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Ecologizing Bildung: (Re)Framing five questions for future environmental education practice

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Abstract

This paper develops a critical and ecological re-interpretation of Bildung, a German educational concept commonly translated as self-formation, but more accurately understood as the formation of persons in relation to culture, society, and the world. The paper is structured in three parts. First, we outline and “ecologize” critical-constructive Bildung, a particular strand of Bildung theory. We argue that this approach offers a generative framework for linking education to aims such as eco-social justice, cultural transformation, and mutually beneficial forms of human and more-than-human flourishing in an age of eco-social-cultural polycrisis. Second, we return to the work of the German educational theorist Wolfgang Klafki, one of the main architects of critical-constructive Bildung and revisit his five central educational questions. We re-read these questions through a lens that explicitly seeks to challenge anthropocentrism, human exceptionalism, multiple forms of injustice, and the extreme individualism of late modern humanism. In doing so, we propose an alternative, eco-democratic and dialogical orientation grounded in concerns for justice and flourishing across human and more-than-human worlds. On this basis, the third part points toward the kinds of environmental education practices that might be generated by these reframed questions and goals, while also attending to the forms of community, institutional culture, and ecological relations that would be required to sustain them over time. Together, the paper offers a theoretical contribution to environmental education by articulating how an ecologized concept of Bildung can reorient educational purposes, questions, and practices in the Anthropocene.

Résumé

Cet article réinterprète le concept pédagogique allemand de Bildung de façon critique et sous un angle écologique. Souvent traduit par « autoformation », ce concept se définit plus précisément comme la formation des personnes en relation à leur culture, à leur société et à l'ensemble du monde. L'article est divisé en trois sections. Dans un premier temps, nous tentons d'écologiser la Bildung sous sa forme constructiviste critique. Nous soutenons que cette approche offre un cadre pédagogique riche pour atteindre des objectifs de justice écosociale, de transformation culturelle et des formes d'épanouissement mutuellement bénéfiques pour l'humain et le plus-qu'humain à une époque de polycrise écologique, sociale et culturelle. Dans un second temps, nous nous tournons vers le travail du théoricien de l'éducation allemand Wolfgang Klafki, l'un des penseurs principaux du Bildung constructiviste critique, en revisitant ses cinq questions pédagogiques centrales. Nous en faisons une lecture qui se veut une critique de

l'anthropocentrisme, de l'exceptionnalisme humain, de l'individualisme extrême et des multiples formes d'injustice qui caractérisent l'humanisme moderne tardif. D'un même élan, nous proposons une autre approche, écodémocratique et dialogique, centrée sur la justice et l'épanouissement des mondes humains et plus-qu'humains. C'est à partir de ce socle que nous dressons, dans la troisième partie, les grandes lignes de nouvelles pratiques d'éducation à l'environnement, ainsi que les formes de communauté, de culture institutionnelle et de relations écologiques qui seraient nécessaires pour soutenir ces pratiques à long terme. En conclusion, l'article articule de manière théorique comment une Bildung écologisée peut réorienter les objectifs, les questionnements et les pratiques pédagogiques dans l'anthropocène.

Keywords: Bildung, Eco-bildung, Klafki, Environmental Education, values

Introduction

This paper acts as a continuance, a deepening, and a complexifying of a paper published in 2024 for CJEE (Blenkinsop & Wilhelmsson, 2024). In our reviews one reviewer suggested, quite generously, that we were onto something but that because of the restrictions of paper length we hadn't really been able to cover the discussion, particularly the move to practice, as completely as they would have liked. Thus, this paper is an answer to that invitation. Sadly, it is incomplete as well. Cultural change, from modernist humanism into something else, from democracy into eco-democracy, is complex and ever-shifting work.

To clarify the conceptual point of departure for this paper, we briefly introduce the German term *Bildung*, which has no direct English equivalent. While often translated as self-cultivation, self-formation, or self-development, *Bildung* refers less to individual achievement than to an ongoing process of becoming human in and through one's relation to the world (Brückner & Paulsen, 2026). In the modern educational tradition associated with thinkers such as Wilhelm von Humboldt and later Wolfgang Klafki, *Bildung* is understood as a transformation of the relationship between self and world, that is, a process in which the individual develops through encounters with what is other, unfamiliar, and beyond the self. Rather than denoting training, socialisation, or the acquisition of predefined competencies, *Bildung* names an open-ended, reflective, and relational formation of ways of knowing, being, sensing, and acting in the world. It is in this sense, as a theory of education concerned with how selves are formed in relation to the world, that we engage *Bildung* in this article.

Part 1: Ecologizing the theory of Bildung

In the previous paper, the focus was first defining Bildung for an audience that might not know that much about it and then doing an initial analysis of its historical arc to see if there might be components that were supportive of an educational project seeking eco-social-cultural change (Blenkinsop *et al*, 2021; Fettes & Blenkinsop, 2024). In terms of the latter, Bildung's history as allowing space for more radical cultural critique (e.g. freeing the individual from the enforced oversight of the church or from the enframement of reality by restrictive metanarratives) and as asking educators to engage themselves and their learners actively in these projects of change were rallying points for that work (Blenkinsop & Wilhelmsson, 2024). It is important to acknowledge that the Bildung tradition is at least 800 years old and likely older if we include its pre-cursors in the Greek and medieval periods – Paideia and Humanitas. It is a rich and diverse tradition (Paulsen, 2021) that is also steeped in worrisome pre-modern and modern western tropes and assumptions. As such, it is not accurate to suggest that the elements we focus on above are found across Bildung and throughout its history. In fact, even Bildung, as discussed today, means different things for different thinkers, nations, and educators (Tahirsylaj & Werler, 2021). Thus, here we follow Paulsen's (2021) work and turn to the critical-constructive strand of Bildung, a strand shaped by critical theory and later developments in continental philosophy. We focus on Wolfgang Klafki, one of the most influential twentieth-century Bildung theorists, because his critical-constructive didactics translates Bildung into a practical pedagogical framework and explicitly negotiates the tension between education, socialisation, and key questions of justice present at the time. This strand offers sufficient space for self-reflexive critique and for proposing educational reorientations beyond the tradition's worrisome modernist, Holocene-based (Paulsen, 2023) assumptions and ways of thinking. Moreover, Klafki is among the first major modern Bildung thinkers to explicitly identify environmental issues as an epochal key problem for education (Kvamme, 2021), making his work a particularly relevant point of departure for an educational project concerned with eco-social-cultural transformation.

We will start by deepening the exploration of the critical-constructive Bildung tradition (Klafki, 1995) with a focus on what it has to offer as it is and what it might offer if and when it is reimagined through an "ecologizing" lens (Blenkinsop & Kuchta, 2024). One of the central foci of the critical-constructive tradition is to name and explore the relationship and differences between socialization and Bildung itself. Embedded in this work was a critique of education for socialization and a particular interest in individual freedom, including educational encouragement and support of individuals to form and position themselves and their ways of being in the world. However, this was done from the critical standpoint of realizing the full potential of humanity (understood as including the widest possible range of understandings of

humanity). Thus, individuals should not be pressed or manipulated to adopt any narrow conception of what they should become, whether imposed from outside or above, or derived from narrow ideas about supposedly naturally given, internally fixed potentials that merely need to be cultivated (Paulsen, 2022b). Rather, individuals might best be supported educationally through encouragement and practices that help and motivate them to take up, how they might, could and should be in the world. This involves reflecting on the extent to which they should say “yes” to the culture and socialization they grow up in, and the extent to which they should say “no” and pursue cultural change. As such, *Bildung* becomes an educational project that is not comfortable with simply and unreflectively repeating the cultural status quo or pushing towards homogeneity across the population. According to this tradition human beings are born unfinished, vulnerable and radically open. Their essence is not fixed beforehand; they are, in this sense, “becomings,” and part of the educational project is to support learners to be a self (Biesta, 2013; Biesta, 2021) and keeping oneself open to what is other (Eckberg & Schwieler, 2020).

Alongside this interest in individual freedom the critical-constructive *Bildung* sees the larger culture as being both open for critique and change (Eriksson, 2019). For Klafki, this becomes part of his educational discussion in relation to epochal key problems (Klafki, 2001; Paulsen, 2021; Sörlin, 2019), large-scale cultural challenges being currently faced (e.g. climate change, social injustice, etc.). Further to this, critical-constructive *Bildung* understood humans to be growing up in particular social settings. Settings from which individuals necessarily take up the specific language, culture, interpretative frameworks, and ways of being (Paulsen, 2022b). As a result, none of us are ever actually independent, blank slates of development. Historically, in this tradition and much of Western educational theory for that matter, this has meant that developmentally one must first adopt one’s cultural frame and then be educated into a place where one can begin to reflect on whether these frames, lenses, ways of being, etc. are “the best” (remembering that determining “best” is marinated in one’s cultural frame) or whether and how they might, could, and even ought to be different (from the standpoint of humanity as such). Thus, in this conceptualization, though the aim might be the independent expressions of freedom by self-reflexive humans there is tension in this process as the educator must also support the child’s development into and then hopefully outside of and responsive to their culture.

For the critical tradition, all this implicit learning, adopted without the advantage of critical reflection, freedom, and an understanding of the other potential options comprises the “socialization” (Ryen, 2020). Intriguingly for the critical tradition, it is the very variety of such socializations – societal and cultural interpretative frameworks, languages, and ways of being (historically and cross-culturally) – that “proves” the flexibility of human possibility (Paulsen, 2022a). It is this “unfixedness” of oneself and the non-essential nature of human culture

that forms the shape of human history and becomes the heart of Bildung in this tradition (Uljens, 2014). This recognition of one's developmental flexibility through deep immersion in a more or less *given* but also *changing* social frame is what creates the impetus for a Bildung that stresses human potential and the ability to reflect upon how one is in the world. This context opens the space for questions about how oneself and one's community might, could, and should be in the world. That is, what are the range of responses available for these questions, and in what ways have we been socialized by the implicit curricula of the culture in which we are situated? To cultivate these questions is the main task of Bildung in this critical-constructive tradition (Lovlie, 2002).

Here, though, we should note two potential critiques, beyond the anthropocentrism, individualism, and human elitism we explored in the last paper, that we will take up in a little more depth in this paper. The first is related to the assumptions of human development that are baked in. The underlying aim of this Bildung tradition is to create independent, responsible, and free individuals – ideal citizens – which is likely not the “end point” of an ecologizing post-human (Taylor, 2017) since ecologizing is a more relationally focused and immersed developmental process. Put another way, our critique is that the independent, autonomous, individual citizen is a modern construct and the implied alienation, even if they are socially aware and responsible, is not necessarily what the mature adult looks like, developmentally and even ontologically, in an interconnected, dialogical, polyvocal, mutually beneficially flourishing (Blenkinsop & Morse 2017), multi-species eco-democracy of the future (Blenkinsop & Wilhelmsson, 2025). The second critique has to do with the linear assumption of the developmental process implied here. Why does educational theory assume that we are first socialized into our culture and then we can begin to critique things? Why is it not possible to theorize a more complex development that can be both socializing and undoing at the same time, or even socializing into undoing? Part of our response here has to do with the modernist trappings that are still attached to the critical tradition, but there is also an assumed gap between the individual and a generic culture or Humanity – the universal – that is not part of the theorizing. Philosophically this ignoring of the small-scale community, of the local, of the classroom, of the familial unit (in whatever form), of the myriad bio-geographical cultural spaces we all inhabit is deeply embedded in humanist thought. Here, modernist thought, given its belief in universals, focuses on either the specific individual or the abstract general/universal, and those tentacles have long been wrapped around environmental education and educational change as well. By recognizing the myriad intermediary places, communities, relationships, etc. that exist between singularity and the universal we seek to draw learners more explicitly into their relationality and suggest that change will likely only occur when education works at levels other than simply changing individuals in the hopes that will eventually change the general.

Yet, to be fair, it is important to consider how Klafki and other critical-constructive Bildung thinkers would respond to the questions we raise. From within the critical-constructive tradition, one response would be that critique is itself a social phenomenon, rooted in language, culture, and shared forms of life. As children, we are socialised into language and culture before we can articulate critical reflection. Growing up within a particular linguistic and cultural world, one learns that language and way of being first, and only later may encounter alternative languages, cultures, and perspectives that make critique possible. While contemporary conditions of multilingualism, migration, and globalisation complicate this picture, the basic argument remains that socialisation and language precede the development of explicit critical capacities. At the same time, critical-constructive Bildung would insist that education should encourage and support children, as early as possible, in beginning to question, reflect, and critique what they are socialised into. Critique, however, always presupposes participation in society, language, and culture, and thus cannot exist independently of them. From this perspective, education is neither reducible to socialization nor opposed to it. Rather, it entails both critically engaging with tradition and working to transform tradition, culture, and society in new and different directions. In this sense, the critical-constructive tradition would say that Bildung should not be identified solely with socialization but should also be understood as a project of educating into undoing. This may include forms of socialising into undoing, understood as cultivating a self-critical culture, but it also involves encouraging individuals to take up traditions reflectively and to consider whether, how, and to what extent they ought to be transformed.

So, at this point the critical-constructive Bildung tradition has positioned itself in such a way that the best the educator can do is to encourage, invite, and challenge the student to “think for themselves,” to begin the process of self-Bildung, of becoming a self, in a form of critical dialogue with the specific tradition they grow up within. Yet this is not an absolutely individual project. For although we are “unfixed” and possess “freedom,” our individual existence is essentially and intimately bound up with the collective. Not only in the sense described above, that individuals always grow up within specific socio-cultural and linguistic settings, but also in a normative sense. According to Bildung thinkers, everyone’s self-development can and should be understood as part of the development of humanity as such. This involves encouraging individuals to evaluate themselves, their ways of being in the world, and the particular culture and society they grow up in from what modern Bildung theorists describe as the highest horizon, namely what is possible and best for humanity as such, rather than, for example, what is best for a particular family, corporation, or state alone. Thus, the critical tradition focuses predominantly on the generality of human history, implying that individual development must go hand in hand with the development of a true Humanity (Paulsen, 2022b). This leads to a second task for the Bildung educator. Alongside encouraging self-Bildung, the educator must

challenge learners to evaluate every possible way of being in the world from the perspective of how it contributes to the maintenance and further development of what is best for all (i.e. humanity), a way of being that actualises “living well” together in the world as human beings. Here, the reader can see elements that are clearly useful for our ecologizing project: supporting students in becoming critically reflective, in challenging the status quo, in living into ways of being that are relational and more authentic, and in recognising themselves as necessarily part of, and dependent upon, a larger community. At the same time, however, this framework also reveals its limitations: a predominant focus on the individual and on the human, with little reference to the more-than-human world or to the many cultures, communities, and diverse overlapping relationships that exist in practice between the individual and “humanity,” as well as a reliance on a particular form of rationalisation as the primary mode of critique.

Many things can be discussed here. But for our purposes we want to stress that it is this theoretical reflection about socialization and *Bildung*, individuality and society, and our fundamental possibilities, that is part of the core of what critical-constructive *Bildung* thinking has to offer; a rich tradition to consider today in this time of deep social and ecological crisis because these crises are calling us to reconsider who and how we are, as humans, in the world. Yet on the other hand, as noted above and in our previous paper, it is exactly this core and its premises that need to be rethought if this tradition is possibly going to be helpful today. So here are three key re-thinkings which we will play out in the next part as we return to five questions that Klafki proposes as important to ask, aligning content and form, in any educational activity:

1. Human beings are not – or ought not – *only* to be defined by being born unfixed (vulnerable) and with the potentiality for reflexivity (rationality, freedom). They are *also*, and before anything else, relational beings, co-existing with other beings, animate and otherwise, in a shared world. Human *being in the world* is therefore always and already being-together-in-the-more-than-human.

Thus, in the process of ecologizing *Bildung*, the horizon of inclusion, interpretation, and responsibility must be broadened well beyond humanity to include the more-than-human in a way that recognizes a shared co-existence; individual well-being and that of the larger communities surrounding the individual are intrinsically connected to that of each and every particular other being therein. The aim then becomes mutually beneficial flourishing for each and all. This all implies of course that the self-becoming work described above is not solely a human prerogative. Eco-*Bildung* assumes that each tree, each animal, each fish is also on a trajectory of self-becoming.

2. All beings are not – or ought not – to be considered as separate, or emancipated, from concrete, immediate, situational relationships. The work of undoing meta-narratives and restrictive cultural constructs is important

and should continue. Humans are *also*, which is often intentionally ignored, part of dialogical, local, communal, and unique living relational zones. In fact, this move, historically to separate humans from these relationalities, has made much of the destruction and violence perpetrated upon other beings possible.

Thus, in the process of ecologizing Bildung, the horizon of care, consideration, and relationality must expand to include the life zones where one lives. This includes not only the communities and ecosystems of relationships in which we all exist but also our physical bodies and engagement within place. Beyond this is the recognition that this is not a solely human-led endeavour, that extending care also means recognizing the rights and the ability to give and receive care of all those involved in whatever level of relationship in the actual places where they occur.

3. Humans are not – or ought not – to be considered the only location for thinking, ideas, creativity, and answers to these crises and, even more specifically, a particular form, stressed by the critical-constructive Bildung tradition, of human rational reflection must be decentred. This anthropocentrism and commitment to a particular form of abstract human rationalizing have allowed and often justified the marginalization and degradation of myriad humans and more-than-humans.

Thus, in the process of ecologizing Bildung the horizon for consideration with regard to challenges, questions, and answers must be expanded such that there is a polyvocality, deep listening, and multi-species engagement. And, room is made for inter-species dialogue, relational knowing and being, and an ecosystemic horizon of care.

With these three re-thinkings we are ready to move out of the theorizing phase and towards the practical, for Bildung, in whatever tradition, is always seeking to bring together theory and practice, connecting aims with the outcomes (Gustavsson, 2017; Biesta, 2009). Thus, we return to Klafki's five questions for educators—but with the intention of an ecologizing re-write.

Part 2: Ecologizing re-write of Klafki's Questions

In our previous article (Blenkinsop & Wilhelmsson, 2024) we walked through Klafki's five questions for educators seeking to align content with aims. Here, we do a similar thing but build on what we previously did through taking seriously the critiques of modernism explored above. This move allows us to hold the earlier work that de-centres the human, the individual, and the teacher while also taking up the challenge of the relational and the post-human. In more practical pedagogical terms, we are hoping to do two further important pieces of work with these new questions. The first, is to undo the, it is planned out beforehand,

assumption that appears in Klafki. For us, this mythical sense of human teacher in control is problematic and if ecosystems are dynamic relational places, then an ecologizing education project must leave room for the unplanned, the spontaneous, the wondrous and the unimagined (Biesta, 2017; Caputo, 2018; Jickling et. al., 2018). The second is to actively bring forward both the natural world and the local. Again, for us, this mythical sense that the world is the stage, background, upon which humans play and the provider of the resources that humans use and make meaningful is a deeply troubling cultural trope of modernist humanism and if the myriad other beings that along with humans make up the more-than-human have agency, value, and rights then ecologizing education can't further this instrumental and resourcist sense (Nørreklit and Paulsen, 2022). The upshot is that we rewrite the questions such that they can be considered throughout and alongside any educational encounter, experience, or process.

To do this, we offer an ecologizing re-write of Klafki's questions with the aim of posing frameworks for eco-Bildung in environmental education. Please note – rewriting these questions is tricky because they are in fact doing two things at the same time. They are seeking to ask design questions from a different, as yet unclear, context – framework – while at the same time critiquing the context from which Klafki was asking his. These critiques are in no way the final word, and we will try and take the questions up ourselves as environmental educators in part three. Finally, it is also important to mention that in our tentative rewritings, we have tried to make explicit that an important underlying aim of the educational encounter is to cultivate a caring, both giving and receiving, way of being-in-the-world that supports, and is supported by, a commitment to mutually beneficial flourishing for each and all living beings in the more-than-human world.

It may further be helpful to note that Klafki's five educational key questions (Klafki, 1995) are intended to encourage educators to reflect on the content they choose for teaching, both in terms of whether alternative content might be more appropriate and in terms of how to work pedagogically with the content they do choose. For example, a teacher who plans a unit on the Second World War might consider whether it would be useful to work with German newspaper articles from that period. Klafki's five didactical key questions are meant as resources to think with in such situations, making it more likely that both the selected content and the way it is used in teaching can support students' Bildung processes. In short, as outlined above, these are processes that simultaneously open the world to students in relevant ways, from the perspective of humanity, and open students to the world in ways that foster their own interest and engagement in the topic. As a brief reminder, the five questions are mutually interdependent. They are not necessarily answered in a fixed order, and the answers to each question are only fully understandable in light of the other four (Klafki, 1995). In our re-articulation, each section will therefore begin with Klafki's original question

as it is formulated in Klafki (1995), followed by a summary of our previous critique, which is in turn extended through further discussion. Accordingly, each section concludes by extending this critique through our proposed ecologized version of the question.

Question #1: Exemplifying what ...

Klafki's (1995) original:

I. What wider or general sense or reality do these contents exemplify and open up to the learner? What basic phenomenon or fundamental principle, what law, criterion, problem, method, technique, or attitude can be grasped by dealing with these contents as 'examples'? (p. 22)

In our first run through of this question, we allowed it to stand as the question that asks the human educator to take seriously the larger aims of the cultural change through education. In that case, the question is open enough to allow the ecologizing to come to the fore as educators work with nature as a co-teacher, enact ways of being in a classroom that more eco-socially just, and leave the work open for the spontaneous and unpredictable. These measures are still appropriate and yet, given the above critique of the critical-constructive – that it tends to focus on the individual in relation to the universal level – we might now also seek to undo the assumption that remains in this question: that general knowledge is in fact what education is after. The risk here is that we overlook the concrete place, the community immediately around and amongst the learners, the actual relationships and interconnectednesses of this group, and the unique realities of a particular locale. Not everything is or needs to be applicable to some larger universal or detached knowledge. Importantly this move to include place also undoes an assumption that any part is really just an instance of something that can be generalized. This also pushes against deeper epistemological assumptions that every question is somehow answerable and every tension potentially resolvable. These assumptions, often written onto the universe, tend to channel what knowledge is into measurable, fragmented, and progressively expanding forms. This, in turn, does two things that are troublesome in this context. First, the universal, generalizable, becomes ultimately more important than the particular, communal, and messy. And second, the intermediate groupings, entanglements, and assemblages that exist, the messinesses and incompletenesses of knowing are, at the very least, found to be lacking – understood as a weigh-point on the trajectory towards “true” knowing – or worse, ignored completely. As the reader can tell, this prioritizing of the universal, the exemplary, and ignoring of the unknown and under-known, messy middle, is simply a sneaky form of meta-narrativism that has been carefully undone over the last 25 years of activist theorizing. And so, if we want to take seriously the ambition of reimagining Bildung in a time of

ecological crisis and social inequity, in this case by opening it up to situational, incompleteable, and relational thinking, we have to significantly re-articulate this question.

Our ecologizing Bildung re-write:

A. What inspiring forms of caring and being-together-in-the-more-than-human-world might this educational opportunity point towards as open-ended, relevant, and *generative* for the learners? What phenomena, traditions, approaches, challenges, attitudes, or interpretive frameworks that sustain, support, and/or undergird, either explicitly or implicitly, themselves, their relationships, their community, and their ways of life can be seen, valued or devalued and explored by dealing with these encounters and these contents, in these ways, with these beings, and in these places? What ways of knowing and learning, both planned and unplanned, embodied and imaginative, might this educational work honour and situate as possibility for the learner/s, their communities, and their becomings? Where is the space for the polyvocal and mutually beneficial flourishing in this work?

Question #2: Involving and Engaging the Learners

Klafki's (1995) original:

II: What significance does the content in question or the experience, knowledge, ability, or skill to be acquired through this topic already possess in the minds of the children in my class? What significance should it have from a pedagogical point of view? (p.24)

In our first run through of this question, we noted its progressive nature in relation to finding ways to include the learner as knower and contributor. Unsurprisingly, we challenged the question to also include the natural world as knower and to be careful with the interpretation of "significance," moving it beyond the often narrow view of "for humans" (or even just a particular form of human). But with this second re-reading it is also important for us to recognize that the positioning of knowledge "in the minds of the children" not only ignores the natural world as knower and teacher but also ignores the physical and emotional body as knower. More subtly, knowledges that might be better considered as shared knowings (e.g. traditions, cultures, interactive ways of being in the world) slide into obscurity, disuse, and/or disrepute. There is a very real way that leaving Klafki's question as it is causes the educator to further the colonization of knowledge and continuation of a global cognitive injustice (Zembylas, 2017). And if part of the work of ecologizing Bildung is to find ways to undo the focus on humanist and, at times, unjust forms of knowledge and include more relational and culturally diverse epistemologies, then care should be taken with questions being asked along with opportunities for being surprised. For questions can, in and of themselves, foreclose on possibilities and thrust care, place, the more-than-human and relationships into the background (Plumwood, 2002).

Our ecologizing Bildung re-write:

B. How are the teaching's intended caring forms of being-together-in-the-more-than-human-world – and/or its invitations to explore certain phenomena, traditions, knowledges, approaches, challenges, attitudes, or interpretive frameworks related to the relational lives of the learners and their communities and thus, received, engaged with, and even enacted by the different learners involved in these educational encounters? What opportunities, gifting reflections, could these local educational experiences – all their possibilities and challenges – bring (if framed, offered, and flexed in this or that way) for developing and furthering knowledge/s, ways of being, and an educational praxis and community where both humans and more-than-humans are involved, learn and flourish?

Question #3: Addressing the Future

Klafki's original:

III. What constitutes the topic's significance for the children's future? (p. 24)

In our first response to this question, we knocked at it pretty hard after first supporting the vision of education as something other than recapitulating the status quo. Key points we made were around how much of the practice of current public education in Canada and many other countries appears not to take into account either the present as it currently exists, filled with uncertainty and injustice, or the future that is going to need a different set of skills and ways of being than the humanistic tradition envisioned or prepared for. The one piece we want to add here is how intertwined the fates of all beings are in relation to the future. For current human children to flourish in the future they are necessarily going to need to be situated in flourishing communities, ecosystems, and cultures. They are also going to have to be able to learn and enact their learning in a multiplicity of relational ways. And given this, we sense that educators are going to be tasked with offering/facilitating educational experiences and a diversity of learning encounters that can bring out concrete opportunities for working towards a better tomorrow. This might include learning encounters that focus on supporting local life, giving more than taking, furthering regeneration and generative collaboration. Ultimately this is about improving the conditions of mutual co-flourishing at all levels, and recognizing, maintaining, and even extending all the good life of today, so it can continue into the tomorrows that are coming. Here we are pushing back against the critical-constructive Bildung tradition that relies on modern developmental premises that students should become "world citizens," members of a "universal" humanity, and that only happens by emancipating themselves from the local. This is also a move towards conceptualizing a political, living, framework that includes all denizens of the more-than-human world. Thus, the ecologizing project is pointing towards an eco-democracy filled with the voices, needs, and becomings of diverse and

different flying, swimming, photosynthesizing, and patiently crumbling citizens – citizens beyond the anthropocentric.

Our ecologizing Bildung re-write:

C. How can these teachings, topics, educational experiences and encounters – with their intended forms of caring and being-together-in-the-more-than-human-world and/or their invitations to enter into relation with certain phenomena, traditions, knowledges, approaches, challenges, attitudes, or interpretive frameworks support learners to become co-able (together with others) to imagine, support, learn from Bear, Birch, and Salamander, and re- and co-generate futures where humans and more-than-humans can co-flourish, locally and globally, in the near future and far futures? What makes these educational experiences significant for acknowledging relations “in and between” individual – local – global, human and more-than-human, the present and the future, the known and the unknown? How is this work concretized in place, in varied concepts of time and space, and in the lives of all the myriad of beings involved in these diverse and different learnings?

Question #4: Structuring and Re-structuring

Klafki's (1995) original:

IV. How is the content structured? (which has been placed in a specifically, pedagogical perspective by questions I, II and III)? (p.24)

As pointed out previously, this is the classic practical teacher question. Our proposed ecologizing moves were reminders that education is not simply content but also pedagogy, and that often in projects of education for change, challenging and invigorating “whats” are undermined by stayed and traditional “hows” of delivery. We also asked about the who involved in the structuring and seeking to include the more-than-human and decentre the human teacher as overseer, designer, and expert. Here we might even push the latter a bit further as we consider knowledge in relational and more diverse ways. Historically, humanism has assumed a fragmentable and propositional knowledge that can be located in an orderly fashion in books or educational content. The educator simply needs to line the fragments up and feed them to the learner in the correct order and education is happening. But what happens if knowledge is not simply fragmented and orderly? What if it is interlinked, overlapping, and oddly complex? And what if some knowing isn't reached through a process of building but appears as a whole, a blinding insight as it were (Zwicky, 2019), or remains paradoxical or somewhat unknown? And what if some knowledge is deeply relational, tied to community and place in ways that attempting to abstract it makes it disappear like so many clouds on a windy day? Also, the assumption that “good” teachers can structure everything beforehand is worrisome in terms of the implied need for control (Jickling et al, 2018) and because it suggests learning is a kind of universal project, a set structure that makes individual learners, places, educators, quite strangely, easily interchangeable and therefore

ignorable. This upfront fixedness and structure to educational planning leaves out a diversity of educators, humans and more-than, and makes it unresponsive to the spontaneous, the unique, the local, and the changing needs of the learners as they engage with each other and the world in their own projects of self-becoming.

Our ecologizing Bildung re-write:

D. What are the possibilities in this local context for *structuring* and *restructuring* the teaching in ways so that it accords with the aim of developing caring forms of being-together-in-the-more-than-human-world – and/or cultivate invitations to critically and imaginatively explore certain phenomena, traditions, questions, knowledges, approaches, challenges, attitudes, or interpretive frameworks that can bring out important knowledges about how to support flourishing of human and more-than-human life? Who is/is not involved in these structuring and restructuring processes? And what restructuring possibilities, imaginaries and creativities can perhaps emerge, given what is happening in place, who is present, how each is being held beyond the assumption of human exceptionalism, where the learning is occurring, and when all involved are listening carefully to each other while supporting and sustaining differences to emerge and be honoured? What are the assumptions that underpin the choices being made in content selection and structuring process?

Question #5: Knowledge/s Present in the Teaching

Klafki's (1995) original:

V. What is the body of knowledge which must be retained ('minimum knowledge') if the content determined by these questions is to be considered 'acquired', as a 'vital', 'working' human possession? (p. 26)

In our previous examination of this question, we focused on trying to undo the individualistic, competitive, hierarchical, and narrowly focused assumptions that undergird this question for Klafki while also confronting the challenge of assessment which can, at times, actually drive the content and the form knowledge takes in learning opportunities. To this discussion we might further the previous question in seeking to undo the pre-planning and linear time assumptions built into this work and think about inverting that process entirely. For example, where the educational encounter or experience – with a snow drop in the spring or a dead mouse (Heggen et al, 2019) near a tree – leads the process. Then, through good questioning, thoughtful engagement with the learners, an awareness of what possibilities for learnings and dialogues between the students and teachers exist nearby, and careful observation of the goings on the educator can bear witness to the learnings that are appearing here and now. Concepts like “minimum knowledge” and “human possession” are troublesome for many reasons considered throughout these two papers.

Our ecologizing Bildung rewrite:

E. What life important knowledges and values are sought, received, exchanged, or created through engaging with this place while also expanding experiences and caring being-together-in-the-more-than-human-world explorations and encounters of phenomena, traditions, questions, approaches, challenges, attitudes, or interpretive frameworks? What is happening in this time and place? What is drawing the attention of the learners, who is asking to be attended to, who is not being heard from but still needs attending, and how are all the members of this community engaged in their own and their overlapping projects of self-becoming? How might these experiences and encounters be connected to rich learnings that support and further the educational, individual, communal, human and more-than aims? And what forms of assessment do justice not only to those aims but also to the range of knowledges being present in every moment concerning both human and more-than-human life, resulting from this work together?

Part 3: Eco-Bildung in action

In this section we are proposing to employ these rewritten Klafki questions to ecologize an educational example, something more practically concrete that can be used as a reflective device, though not as a standard of any kind, but as inspiration to think further and differently. Note, however, that our purpose is neither to bad-mouth educators nor to offer this example as poor teaching. In fact, this example is edgy, pushing against the norms of the current, humanistic, modern framework in which it is operating, just as many in environmental education are doing right now. What needs recognizing is that ecologizing education is about creating, finding, and re-creating a different underlying frame. Thus, the search is for pedagogical and curricular possibilities that rise from, are sustained by, different ways of being/becoming, knowing, learning, and valuing in and with the world (Biesta, 2021): toward a potentially post-humanist and more eco-socially just world and an education that supports, sustains, and paradoxically, arises from it. As such, we are not even sure if our offerings, the ecologizing re-framings, would be considered good teaching if and when that new frame becomes more common. The hope is that they might serve as a conversation starter, an offering that we can think with, push against, and return to, as a vector for thinking differently about how to nurture life.

An Example: The River of Relationships

This is a tale of a high-school biology teacher and their desire to both cover the required curriculum related to rivers and share their love and concern for the actual river that flows right past the school's doors. The plan is to create an arc of learning, start indoors, get through some of the key ideas, and then move to the river for more immersive, experiential learning to occur. The class gathers and the teacher opens the space for a shared discussion that seeks to find out what is known by the group in relation to the river. How it works? Why it is important, ecologically,

socially, culturally, etc.? The conversation is rich and the teacher notes key ideas and important facts on the blackboard as they arise. Throughout this process the teacher is getting a rich sense of what is not known and also, what might need correcting. It is odd how much is wrongly or incompletely known. At a certain point this discussion runs its course, so to speak, and the teacher takes the lead, filling the gaps on the board, explaining some of the deeper nuances of how the river works, and undoing some of the misguided thought threads. Some points from the discussion are ignored completely because there are just too many rabbit holes. One of the key points that the teacher hopes to make is to outline how the river, when polluted or overly managed, is less able to fulfill some of its key functions and that that in turn affects lots of beings connected to the river and that humans are at least partly responsible for this.

The next day starts with a perfect blue sky and the excited voices of students wandering along and even in the river doing some of the assigned tasks. They are collecting water, insect, and plant samples, seeking examples of human influence along the way, and documenting their findings in their "researcher" notebooks. Time is starting to run short, so the students gather up their belongings and findings and return to the classroom, where they are divided into groups. Each group is tasked with different projects that will continue over the next few classes. Some analyze the water, looking for chemicals, various pollutants, and other contents. Some try to identify the plants and insects and do further research into where they come from and what their presence might indicate about the health, or not, of the river. Still others are asked to find out as much as they can about the river as it "used to be" so they get a sense of biodiversity baseline and something of the human history of the area. Eventually each group will present their findings to each other and, more officially, to the teacher as written science reports. As a final activity the whole class will gather to consider and debate their shared findings and come up with suggestions on how the river's water environment can be improved.

It is our sense that from a critical-constructive didactical analysis (Klafki, 1995) the above example is a positive one. The students work with an epochal key problem, namely environmental issues, which is relevant for both Humanity as such and each of the individuals in the class. The concrete river, the field trip, and the various activities are used as mediating tools by the teacher to open up the world (i.e. questions about the environment) to the students, and at same time, turn the students (e.g. building knowledge and care) towards the world. Further, we think this kind of rich lesson might arise as a result of planning in concert with Klafki's five questions *before* they are ecologized. There is a connection built to the students using a local river and exploring knowledge already possessed. The topic is important for the learner's future and there is a desire to emancipate the students from not-knowing such that they can actually work towards a sustainable future. The content flows towards achieving general knowledge, it follows the well-known problem-solving form and there is a clear

sense of what the teacher thinks students should know about river and how to answers questions. And yet . . .

What happens to this example when explored using the critiques of modern humanism, the ecologizing lens, and the 5 eco-re-questions offered above? How might these lessons be changed, tweaked, or seismically overhauled? Can Bildung actually become an ecologizing project all the way down?

Discussion

We will now attempt to thread the questions and challenges that we have raised in a reflective back and forth with the above example. In order to keep this work contained a bit, we have chosen to focus on three key discussion points relating to values, knowledge, and being. We ask the reader to remember three things as this discussion progresses. First, that this not about suggesting the above example is bad. Second, that, at best, we are simply pointing in the direction of a new, different, more eco-socially just cultural frame out of which, and in support of, this eco-Bildung ecologizing education might appear. And third, although these points are separated for the purposes of discussion, they are interconnected and overlapping in much the same way as Klafki's questions, and life itself for that matter.

Point #1: The Epochal Challenge: Prioritizing of Values

This first point is a bone-rattler because it is about the very heart of education. What are we doing it for? And our question then, in this context, is what happens to education if the explicit ends change? What if the epochal change that is sought in the ecologizing Bildung project is to change the very frame upon which Western, modern, humanistic education has been built? In the example, the aims of education are likely about supporting the development of thoughtful and engaged human citizens. As we have discussed this has ecologically and socially problematic explicit assumptions (e.g. anthropocentrism, species elitism, universalism, etc.) and dangerous implicit assumptions (e.g. patriarchy, Western humanism, rationalism, etc.). Thus, the ecologizing project is both one of new ends – we have proposed mutually beneficial flourishing – and of new means – education that helps, not hinders, this project of eco-social-cultural change. In our five ecologized questions for such an enterprise, we have articulated this project as very much about forms of caring being-together-in-the-more-than-human-world. This is not just about flexing the culture as it currently exists by noting a sustainability problem, it is about changing it – what it values, what its assumptions are, how those choices, decisions, and priorities are made manifest.

As the reader has likely noted, there are sets of values and normative ethics that adorn these choices under the umbrella of mutual beneficial flourishing. Nature has intrinsic value, rights, agency, knowledge, and wisdom. Humans

are part of the more-than-human and not ontologically, axiologically, or epistemologically above and separate from. Community, place, situationality, and relationality are part of, and important to, the way we are in the world. And ultimately it is this onto-epistemo-axiological field that clatters into the example above from all kinds of directions. For, where is River and its community in the planning and enactment of these lessons? The human teacher might start with River, opening an equitable dialogical space for the human learners to engage, allow for the questions that this place is interested in to come forth. What happens to the educational process if the rights of all beings are honoured and decisions about what can and can't be done, can and can't be asked, can and can't be prioritized are made with a view to those rights? In the example, we see the rights of humans to learn, and likely not even learn that much, out-weighing the rights of others to not be disturbed, moved, and even killed. Hereby the human learners are encouraged to treat the life in and of River as objects and resources for their own learning processes, extracting knowledge of a particular kind and centering the human learners as the only creatures who have value in themselves. River and the entire community are reduced to being treated as mere resources (Paulsen, 2023). The humans involved in this learning project might instead be supported to pedagogically model the honourable harvest (Kimmerer, 2013) to start from a place of humble respect and, over the course of the lessons, enact both reciprocity (i.e. honouring that which is offered by River and their community) and responsibility (i.e. actively engage in having their learning be of benefit to all). This might include careful listening to River, foster imagination that helps deepen that understanding, ongoing recognition of what is being offered and taken, opening space for wonder and questions to appear and then developing the collective capabilities and wherewithal to follow those that are the most (re)generative. In the example, we also have a final gathering that is all human, even though there is clearly an agenda of advocacy, River is not even present. In response, this gathering could take place near River with lots of activities that include the voices of those living in the Riverine community (Seed et al, 2017), bringing the unique needs and rights of this place, "home" to the human students. One of the challenges is to include River throughout the educational process, as teacher, as community member, as interlocutor, and as a being immersed in the wild process of its own becoming alongside the human learners. This move then challenges the humans in the equation to better understand their responsibilities in relation to their neighbours and to notice how their learning and self-becoming, self-Bildung, is sustained and supported by the health and self-becomings of the myriad beings in their community. What does a mutually beneficial flourishing eco-democracy look like in action, and not at the universal theorized level but at the messy, incomplete, "we have what we have" level of the communities in which these kinds of challenges are necessarily played? How, for example, do voices get heard (particularly those that don't speak the way humans do), or does consent exist or might kindness

get offered throughout the community with this lesson? Here, education and educators might start to understand themselves as in support of what Simpson (2023) calls world-building – understood to be about doing what we can with what we have right here and right now.

Point #2: The Knowledge Challenge: Undoing the Singular Colonial Form

The second point is subtler than the first but no less substantial. The example above is rife with a particular form of knowledge, and the corollary particular form of learning, that has, for a long time, been the bread and butter of the modern humanistic West. It has been wonderful in some ways, but it has also been a weapon used in colonization as other knowledges, ways of learning and educational practices are denigrated, denied, and disappeared (Zembylas, 2017). In the example, we see the prioritizing of a rational, scientific way of knowing. We also see assumptions about what learning is and of how knowledge is built (by humans), of where knowledge is located (hint: not at, with, or through River), of its colonial extractive nature (human learners have a right to know about the other and they may gather that knowledge in whatever way they wish). There is no consent being sought or offered. River has no right to choose how to be known or to choose to not be known at all, and of its resolvability, generalizability (i.e. answers are sought and found, there is no sense that they might not be found, might not actually resolve, or that they might be ever incomplete). We can see this most explicitly in the debate activity. Here, humans share the answers they have found based a particular form of questioning, information gathering, and argumentation and then they work to show how theirs' are right while others are not.

An ecologizing human teacher could suggest that the class engage in a dialogue sitting next to, or even in, River where the express purpose is to try to come to an eco-sharing-caring about what has been learned, what is now known and not known, by and in this gathering. In leaving space for the place and community to be heard, knowledge takes on different forms. Forms that are more relational, shared, incomplete and located across the community in various forms both within individuals (e.g. Human, Duck, Water-strider, Cottonwood) and between and amongst members). This would include asking questions from a more-than-human perspective, even if those questions don't have any answers, and thereby acknowledging undoing and the unknown. Knowledge might even, at times, becomes a celebration of all involved and what is being brought to the table. Being able to step through the epistemological restraints of subject/object, solely human, and totally knowable makes the educational project much more expansive, inclusive, equitable, unknowable, spontaneous, and wondrous. This also means that particular answers, interests, and perspectives are of value in and of themselves without needing to be resolved into larger issues applicable to all of Humanity. Here the educational work is about creating communities of learners that are re-generative, that allow the space for self-Bildung – self

creation, and that are filled with care in both its giving and receiving forms. Also of note, is that the ecologizing educator is not necessarily restricted to the assumed developmental model (i.e. critique and self-creation is happening before socialization is complete) so central to the critical constructive Bildung tradition and much of progressive education.

Point #3: Being in the World filled with Difference Differently: Care and Self-Bildung in Flourishing Communities

This third point is about being and becoming and the recognition that how each becomes is related to the freedom and possibilities afforded to all other beings. For rich and authentic becoming requires support, examples, and the kinds of communities that are generous in allowing the widest range possible for all. When the rights of other beings are ignored in the educational project the implicit learning is about humans as more important than, but more diffusely, it also lets the learner know to whom to attend, one is not allowed to learn patience from Granite or Blue Heron for example, and this in turn narrows the range of encounters and possibilities those same learners experience and can choose from. For who is to say that witnessing and engaging with River, Duck or Cottonwood living their best lives, or difficult ones as a result of human negligence, might not challenge, touch, and teach human learners? Might these exchanges provide them options, insights, and imaginative gifts (Sheridan and Longboat, 2006) that expand the range of experiences and encountered possibilities that they can embody, feel into, and think with as they play with creating themselves in the midst of their communities? Ultimately, any singular becoming, project of self-Bildung, is meaningless if it is the only one allowed.

This point is also about digging deeply into relationship. Not just as a facile “we are all one” universalized concept but as a living, breathing, messy, spontaneous, confusing, confounding, caring, working project that each is always and already involved in the right here and now, a now where past and future are equally present. In the example, there exists a sense of individuality and separateness in how activities are framed and enacted. River is a separate entity rather than many varied relationships entwined, entangled, and physically engaged together and the human learner work focuses predominantly on determining, at a detached mind-based level, River’s health in relation to the human community. Here the ecologizing educator might lean into having learners think, feel, sense, bodily be with Duck, Cottonwood, Trout, and Water-strider to differently know River and to recognize how changes to River change how they live and be in these spaces. For what is it like to glide across the surface of the water or eat the sun or eddy through water in three dimensions and how do these encounters change what we know about water, air, or sun? Or more politically, what is it that Duck does when they are sickened by River filled food they are eating, and how are they letting the world know of this? Or, who does Trout become in waters

that are too warm for its best functioning? Pragmatically we can see elements of the arts, the language skills, the mathematics, and the sciences appearing in this discussion, but we also see the more-than-human as participant, teacher, and fully fledged interlocutor celebrating unknowing. Beneath this, there is also an importance placed on a wider array of knowings which hopefully open up more ways of being human adding questions of care to the core. This move to consider the becoming of Trout or Duck is part of education in a post-humanist world as we decentre the human and reach for more equity across difference. This is also where the human educator becomes a facilitator of relation, creating the space for re-generative caring community, for the polyvocality of rich local ecosystems and for being able to choose to be differently.

In this way, we think that teaching (in the example) could perhaps be reframed more into “just being there” in careful listening ways in and with River and its myriads of lives, attentive to this specific unique multitude of life, trusting that it might have something important to say when listened to. Approaching life in such a way, as a potential dialogue partner, the human learners might begin to learn both *from*, *through*, and *with*, and not only *about* this life (Paulsen, 2023). When and if River and any of its myriad beings choose to share of themselves, offer up what they care for, how they live and relate, perhaps they will offer humans a range of lessons, inspire them to wonder, take care of, or be more attentive to this place and these beings, but also their own life and their own aliveness, and perhaps also develop a deeper relationship to this place and its singular life critters, bringing out a sense of the wonderousness of life, this place, and themselves.

And so ends this next offering. Take it as something to think with, push against, and feel into. There is so much left to do but maybe that is the way of a more eco-socially just, eco-democratic mutually flourishing world. Where the focus on care, respect, justice, eco-self-Bildung, ecologizing community, and relationality grows is right where finding the answers, perfecting Humanity, and being socialized into modern humanism will ever remain undone.

So, to sum up our little collective journey in this paper: What we have tried to do is to take some initial steps into possible ways of ecologizing Bildung thinking and practice – searching for answers to what could be offered and gained by interrogating the long and rich Bildung tradition, if it is renewed from ecological ways of thinking. In the first part of the paper, we have done this by offering 3 rethinkings of the *theory* of critical-constructive Bildung thinking. In the second part of the paper by suggesting how the five didactical key questions offered by Klafki could be re-written to push ourselves as educators in an ecological direction, where we do not think so much of teaching *practice* as something we plan and then carry out, primarily in classrooms, setting nature in the background (and only enter now and then on excursions), but more as an ongoing educative interaction imbedded *within* and together *with* the more-than-human-world, taking place in local life settings we care for. In the third and last part of the paper

we have tried to take these steps further into a discussion of how to ecologize a specific example of *how to do* teaching that begins to undo Modern Humanism and re-do a more – from our point of view – sensible, careful, and life-friendly way of being-human-together-with-and-within-a-more-than-human-world.

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“Paying respect to the land”: Futures-making through land-based education in the face of climate change

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Abstract

An ancient mode of learning, Land-based education holds great potential for youth learning in the face of climate change through increased understanding of the Land as it changes due to warming temperatures, strengthening of Indigenous ontological systems and Land relations, and ultimately contributing to informed decision-making about the Land. Despite these possibilities, Land-based camps have not been robustly studied for their impacts on youth climate learning and visions for the future. Through research with youth in Łutsël K'é Dene First Nation, this paper traces how Land-based camps emphasize the importance of “paying respect to the Land” as a key climate response, one that is a collective and community endeavour. Sharing how Land-based camps foster Dene knowledge and language, enable youth contributions to community thriving, and provide spiritual connections with the Land, youth participants describe how Land-based education provides an integrative response to climate change.

Résumé

Dans le contexte des changements climatiques, la pratique ancestrale de l'éducation sur le territoire est très prometteuse, en ce qu'elle aide les jeunes à comprendre les transformations du milieu. Ce mode éducatif renforce les systèmes ontologiques autochtones et les liens au territoire, ce qui contribue à des prises de décisions éclairées concernant ce dernier. Malgré tout ce potentiel, les camps sur le territoire ont jusqu'ici fait l'objet de peu d'études quant à leurs retombées sur les jeunes, sur leur vision de l'avenir et sur leurs apprentissages sur le climat. Fruit d'une recherche menée auprès des jeunes de la Première Nation des Dénés de Łutsël K'é, l'article expose comment ces camps font valoir l'importance de « respecter la Terre » en réponse aux changements climatiques dans une optique collective et communautaire. Cet article fait également place à la parole des jeunes, qui décrivent comment ces camps leur permettent d'apprendre la langue et les savoirs dénés, de contribuer à leur communauté et de nouer un lien spirituel au territoire. Ils et elles expriment ainsi comment l'éducation sur le territoire offre une réponse holistique aux changements climatiques.

Keywords: climate change education, land-based education, stewardship camps, Indigenous knowledge, Dene

Introduction

Set on the East Arm of Tu Nedhé, also known as Great Slave Lake, the Indigenous Protected Area of Thaidene Nēné is fast changing in accompaniment to climatic shifts, but it remains deeply imbued with ancestral knowledge and care. Characterized by rivers and waterfalls, dramatic rock cliffs, a deep freshwater lake, and the migration of barren-ground caribou, the Land has sustained Dēnesų́nē for generations. Established by Łutsël K'é Dene First Nation (LKDFN), the vision for Thaidene Nēné is: *Nuwe nēné, nuwe ch'aníé yunedhé xa*, which means “Our Land, our culture for the future in Dēnesų́nē” (*Our vision*, n.d.). With its future orientation, Thaidene Nēné is dedicated not only to care for the Land through climatic changes but also to education through Land-based camps. Through a suite of ongoing Land-based camps, ranging from culture and language revitalization camps to canoe trips and stewardship camps, LKDFN combines learning of traditional Dene knowledge with skills for scientific research and climate adaptation.

Land-based education is not a new mode of education; it is the way Indigenous communities have shared and developed knowledge for thousands of years (Steeves, 2023; Wildcat et al., 2014). In comparison with mainstream forms of climate change education, many of which aim to spur individual behavioral change by providing accurate knowledge about climate (Stein, 2024, p. 6), Land-based education begins from a fundamentally different starting point: Land and Land relations. As a longstanding way of knowing and learning, Land-based education holds great potential for youth learning in the face of climate change through increased understanding of the Land as it changes due to warming temperatures, strengthening of Indigenous ontological systems and Land relations, and ultimately contributing to informed decision-making about the Land.

Land-based camps hold great potential for climate learning, as they have already been shown to respond to climate change in relation to food security by supporting knowledge and harvest of wild food (Wesche et al., 2016), along with stewardship of resources (Parlee et al., 2021). By reconnecting young people to culture, traditional knowledge, and the Land itself, Land-based programs also support the health (Lines et al., 2019) and wellness (Ollier et al., 2022) of youth. Dene communities have long been involved in Land-based education, leading research and practice in support of resurgence and decolonization (Ballantyne, 2014; Datta et al., 2024; Woodworth et al., 2025). While each of these aspects is interconnected with climate change – as, for example, food systems change in response to shifting weather patterns and young people seek stability and wellbeing in the face of uncertain climate futures – Land-based camps have not been holistically studied for their impacts on youth climate learning and visions for the future (McDonald, 2023, p. 12). Due to ongoing colonial approaches to research, youth experiences are insufficiently attended to, as “Indigenous

people's stories are often implicitly positioned as anecdotes rather than legitimate knowledge that should inform policy" (p. 8). A few recent studies in Dene territories work directly with youth to explore the ways on-the-land camps support youth connections with the Land (Woodworth et al., 2025), and more specifically to foster adaptive capacities in response to climate change (Datta et al., 2024). Our work here builds on emerging research with youth by taking up a relational approach to a desire-based (Tuck, 2009, p. 417) and futures-oriented methodology grounded in Nuwé ch'aníe, the Dene knowledge system, to attend to the experiences and future visions of youth in the context of climate change. As Thaidene Néné and LKDFN are dedicated to "ensuring the well-being of the Land and our people long into the future" (*Our Vision*, n.d.), careful exploration of their programming may provide deep insights into the role of Land-based education in Indigenous futures-making as the climate changes.

We approach this research collaboratively, as the Dene Manager of Thaidene Néné, Iris Catholique, and as a settler researcher, Carrie Karsgaard. Living in Łutsël K'é since shortly after birth, Iris spent weeks and months living and learning on the Land with her adoptive mother and extended family – that is, when she was not sent away to school. Because of her experiences, she carries both Land-based and western academic knowledges, which she shares with her sons and brings to her work as Manager of Thaidene Néné. A hospitable host, she also welcomes visitors, such as Carrie, who is not original to Łutsël K'é but has worked in the region for several years. Carrie has supported youth across the Makenzie River Basin to inform climate policy grounded in Indigenous knowledges (MacKay et al., 2020) and co-developed teaching materials grounded in those knowledges (Karsgaard et al., 2024). Her dedication to reorienting education away from colonialism shapes her engagement with LKDFN and modes of sharing research.

Working together relationally across our two positions, we sought to attend to youth knowledges, in response to the following questions: what concerns and visions for a better future do young people have in the face of climate change, and how does the holistic education provided through Land-based camps contribute to young people's futures-building in the face of a shifting climate? Through a collaborative and multimodal workshop with youth from LKDFN who had previously attended various Land-based camps, we found that young people are concerned about climate change and its impacts on their community's way of life, despite that their contributions to causing climate change are relatively minimal. They also understand climate impacts as combining with intergenerational trauma stemming from colonization, which deeply impacts young people, including their wellbeing and future prospects. In light of these realities, Land-based camps reinforced for young people the importance of "paying respect to the Land" (as they put it) as a key climate response, one that is a collective and community endeavour. Sharing how Land-based camps foster Dene knowledge and language, enable youth contributions to community thriving, and provide spiritual connections with the Land, youth described how Land-based education provides an integrative response to climate change.

Land-based Education and Climate Change

Inherent to Indigenous knowledge systems, Land-based education begins from a fundamentally different place from dominant forms of education. This grounding potentially offers Indigenous young people methods of understanding changes to the Land and to community life in the face of climate change, ways to strengthen Land relations, and knowledge to contribute to decisions about their futures. Land-based education understands Land – including water and air (Styres et al., 2013, p. 37) – as the basis of life and “first teacher” (Bowra et al., 2021, p. 135; Simpson, 2014), who can speak directly to learners. Spending time on the Land, therefore, is central to learning, enabling experience and direct encounter with the dynamism of interconnected life, which is fundamental to Indigenous philosophy (Bowra et al., 2021, p. 135). Highly integrated with daily activities, such as hunting, gathering, and fishing, Land-based education holistically recognizes Land as woven into the fabric of life (Corntassel & Hardbarger, 2019). Such learning is not merely cognitive but also social, as learning occurs within inter- and intra-generational relationships on the Land, including in connection with ancestral knowledge (p. 136) and language (p. 138). Learning on the Land is also spiritual, as “simply being on the Land is seen as a spiritual process in itself” (p. 136), shaping the ways learners see themselves in relation to all beings. Holistic in nature (Steeves, 2023), Land-based education can therefore support healing and cultural regeneration (Corntassel, 2012).

Considering that many Indigenous peoples, including those in LDKFN, have been cut off from Land-based knowledges by colonial processes, Land-based education can contest and indeed transcend colonial education by resurging and sustaining Indigenous life and knowledge towards greater self-determination (Corntassel, 2012; Wildcat et al., 2014, p. 3). In comparison with the deleterious impacts of such colonial systems as the Indian Residential Schools, Land-based education can support:

sustainable self determination . . . focusing on individual, family and community responsibilities, regenerating local and regional indigenous economies, and recognizing the interconnection of social, spiritual, environmental and political aspects of self-determination. The ultimate goal is for indigenous people to have the freedom to practice indigenous livelihoods, maintain food security and apply natural laws on indigenous homeLands in a sustainable manner. Critical to this process is the long-term sustainability of indigenous livelihoods, which includes the transmission of these cultural practices to future generations. (Goodyear-Ka’ōpua, 2009, pp. 60–61)

By putting “Indigenous epistemological and ontological accounts of Land at the center, including Indigenous understandings of Land, Indigenous language in relation to Land, and Indigenous critiques of settler colonialism” (Tuck et al., 2014, p. 13), Land-based education can support Indigenous agency and Land rights, including for instance, LKDFN governance over Thaidene Nēné.

In the face of the profound impacts of climate change on communities, Land-based education may be a way to repair and transform relationships between young people and the Land, towards thriving futures (McDonald, 2023, p. 13). Indigenous scholars and activists are identifying the ways climate change compounds with colonial processes to profoundly affect communities and youth wellbeing specifically (Hill & Plume, 2024; Whyte, 2017). Many communities, including LKDFN, live in ways that are highly reliant on Lands exceedingly impacted by climate change. As a result, such communities face the loss of traditional knowledge due to rapidly changing ecological conditions, along with subsequent shifts in cultural practices and community make-up, as some people are driven to live elsewhere (Whyte, 2017). Such issues compound with intergenerational trauma and other forms of destabilization resulting from colonial processes (Bowra et al., 2021, p. 138; Hill & Plume, 2024). At the same time, Indigenous climate scholars resist victim framing, instead pointing to the origins of climate injustice in colonial displacement and erasure of Indigenous knowledge (e.g., Whyte, 2016, p. 15). Centring stories of abundance instead of crisis and scarcity narratives (Curley & Smith, 2023, p. 8), such folks look towards present and future possibilities grounded in the wisdom and agency of the Land and communities.

Land-based education, when oriented around life and survivance (Vizenor, 2008), may be a way to enact climate justice (McDonald, 2023, p. 13), centre the futurities of Indigenous youth (Tuck et al., 2014, p. 8), and open up alternative futures. Indigenous scholars and activists both point to how Land-based education can invigorate Indigenous knowledge systems (Pugh et al., 2019) and connect with the realities of young people who are not always recognized in education research (Karsgaard & Shultz, 2022, p. 8). For example, Land-based education might help young people connect with “Indigenous worldviews that centre interdependence, reciprocity and respect[, which] offer alternatives and act as a counterforce and antidote to the extractivist worldviews that are driving the climate crisis” (Decolonizing Climate Policy in Canada: Report from Phase One, 2021, p. 8). In other words, it may provide an antidote to dominant, colonial forms of climate change education by providing “embodied and affective immersion in and ethical commitments towards building alternative worlds and relations” (Nxumalo et al., 2022, p. 103). Youth are arguably well-positioned to reclaim Indigenous knowledge and ethics available through Land-based education, where the holistic nature of learning across ecological, spiritual, cultural, and linguistic spheres have been shown to support their wellbeing in the face of compounding climate and colonial impacts (Hill & Plume, 2024). In fact, some early empirical research is beginning to point to the ways Land-based education can, through a “holistic and experiential approach, [foster] a profound understanding of the environment, ecosystems, and the impacts of climate change on Indigenous territories” (Datta et al., 2024, p. 1). By learning on the Land, early studies show

how young people not only begin to witness the effects of climate change but also learn how to practically respond, drawing on the skills and knowledges of their communities. We are building on existing research by pointing to not only the adaptive but the futures-building potential of Land-based education in climate affected areas.

Land-based Education in Thaidene Nënë

Education through Land-based camps is central to the activities of Thaidene Nënë, which means “Land of the Ancestors” in Dënesųłiné. Across this Indigenous Protected Area, homeland of the Łutsël K'è Dene First Nation (LKDFN), camps take diverse forms in accordance with specific locations, including a language and culture camp at Old Snowdrift, a community hunt and culture camp at ʔedacho Tué (Artillery Lake), a spring camp at Tsa Kuzúze (Little Beaver Pond), and a youth canoe trip along the Snowdrift River. Youth living in or visiting the community are welcome, regardless of whether they are members of LKDFN or whether they are Indigenous or non-Indigenous. While climate change is not the explicit focus of all camps, they all inevitably address emergent climate realities as participants of all ages spend time on a climate-changing Land. Elders are the prime teachers, sharing in a holistic way a blend of history, stories, language, and skills. For example, campers may spend a full day learning to identify and harvest traditional medicines, such as spruce boughs or labrador tea. Throughout the day, they may learn Dënesųłiné vocabulary, navigate safely to key harvesting locations, utilize both their senses and technology (such as plant identification apps) to locate medicines, listen to historical narratives, and notice changes to the Land. Practicing Dene culture together with Elders provides intergenerational connection, potentially contributing to cultural revitalization and continuance even through profound ecological shifts.

Camps are situated in Thaidene Nënë, which sits along the northeastern edge of Tu Nedhé, also known as Great Slave Lake. Climate change is having profound effects on Tu Nedhé from shifts in water and snow levels to changes in patterns of animal and fish life.¹ Snow levels are decreasing, and water levels are dropping across the region, shifting river currents, exposing sand bars, and ultimately impacting travel. Changes to ice freeze-up and break-up make it difficult to travel, impacting harvesting routes and cultural practices. As the Land changes, wildlife that has previously not been seen before, such as white-tailed deer, coyotes, cougars, magpies, and crows, are being spotted in the region. In the meantime, other wildlife are seeing shifts to migratory patterns and habitats, with more moose in the barren Lands and musk ox in the treeline. Caribou, who are profoundly significant to the Dënesųłiné, no longer follow the same migratory patterns (*ʔetthën (Caribou)*, n.d.). Such changes impact animal harvest, affecting community life, practices, food sources, and traditions.

As the Land changes, LKDFN cares for the Land through co-governance of Thaidene Nënë, which was established in 2019 as an Indigenous Protected Area according to Dene Law (*About*, n.d.). Spanning a vast area of boreal forest and tundra, Thaidene Nënë is governed by LKDFN in cooperation with Parks Canada and the Government of the Northwest Territories. On these vast Lands, LKDFN has long partnered with researchers to host Land-based camps outside of the formal education system that connects youth with Elders and harvesters and supports young people's learning about the Land in the face of intensifying changes. These camps are directly shaped by Thaidene Nënë's vision (*Our Vision*, n.d.) for strengthening Indigenous leadership and governance, fostering Dënesų́łné language and culture, building community capacities, and maintaining ecological and cultural integrity into the future. While the camps have important epistemological and cultural implications, they are also profoundly practical as spaces for youth to develop knowledge towards professional positions as Land Guardians with Thaidene Nënë. Land Guardians are hired into full-time positions to work on the Land; engage in harvesting; practice language, culture, and teachings; and give back to the community by passing on their knowledge (*Ni Hat'Ni Dene*, n.d.). Among other forms of training, from traditional knowledge development to various skills (e.g. wilderness first aid, navigation) and safety protocols (ice rescue, gun safety, bear safety), Guardians are expected to be knowledgeable about Land-based camps and ready to act as guides. Guardians are important ambassadors, who hold accurate knowledge of the Land and are responsible for sharing it within the community.

Thaidene Nënë's camps can be understood as expressions of Indigenous Land-based education grounded in Nuwé ch'anie, the all-encompassing knowledge that informs Dene ways of being. Here, Land-based education brings together Dene and western knowledge in a way that serves community wellbeing and sovereignty. Through an integration of skill-building and cultural healing, camps support holistic learning about climate change, while centering Dënesų́łné learners within their own communities, languages, cultures, knowledge systems, and territories.

Researching with Nuwé ch'anie for Desire-based and Relational Futures-making

In keeping with Thaidene Nënë's vision for "Our Land, our culture for the future in Dënesų́łné," we grounded our methodology in a relational approach to desire-based and futures-oriented research with and for Dene youth, which we made concrete by ensuring our research followed Nuwé ch'anie, Dene values and knowledge systems. Research on climate change often begins with narratives of intensifying devastation and the resultant growing concern and fear among young people. However, by centering climate damage, including

how it compounds with colonial damage, we may lose sight of youth agency and future imaginings. By instead beginning with desire, we can “[account] for the loss and despair, but also the hope, the visions, the wisdom of lived lives and communities” (Tuck, 2009, p. 417). For young people learning from the deep time of the Land and the deep wisdom of their ancestors – even as they navigate present climate realities and look forward to an unknown future – desire provides an inter-temporal lens on youth insights, as desire is “about longing, about a present that is enriched by both the past and the future” (p. 417). Our methodology thus understands youth desires and visions as holding the past, present, and future together in relation to climate change, potentially containing loss, life, and learning at the same time.

Our methodology thus builds upon desire-based research to explore how desire and “anticipation of the future animate our relations to one another and the earth” (Curley & Smith, 2023, p. 6). Relations are central to the Dene worldview, and we therefore seek to understand young people’s experiences with the Land and Land-based education in connection with Land relations – both geographical and temporal. Such a grounded approach contrasts with the linear and global metanarrative often evoked by climate change, which prioritizes universalized solutions configured within the trajectory of modernity (Curley & Smith, 2023, p. 5; Stein et al., 2023, p. 990). Linear climate metanarratives problematically bypass relational rifts (Whyte, 2020) by instead prioritizing expert knowledge and technological innovations as solutions to climate change. Instead, our methodology attends to young people’s “relational worlding outside dominant epistemic apparatuses” (Jackson, 2021 as cited in Curley & Smith, 2023, p. 13), attending to the webs of relations that are part of their futures-making.

Research Design

To ensure our research supported the desires and futures-making of Dene youth, we followed the principles of Nuwé ch’anie – Dene knowledge and values – in our research methods. Nuwé ch’anie brings together past, present, and future by ensuring the wellbeing and cultural continuity of the people, while ensuring care for Land, water, and wildlife (*Relationship Plan*, n.d.). By prioritizing future generations, it emphasizes the importance of listening to youth voices. In LKDFN, Elders are dedicated to serving youth, but youth are often quiet and reserved in public places; Nuwé ch’anie reminds us that we need to create room for youth to speak. The Guiding Principles (Figure 1) central to good relationships and planning were woven throughout our research design, as described below: economic reconciliation, for future generation, consensus, collaboration, accountability, and cultural continuity. Research was also approved by Cape Breton University (File 2023101) and the Government of the Northwest Territories (Scientific Research License No. 17454).

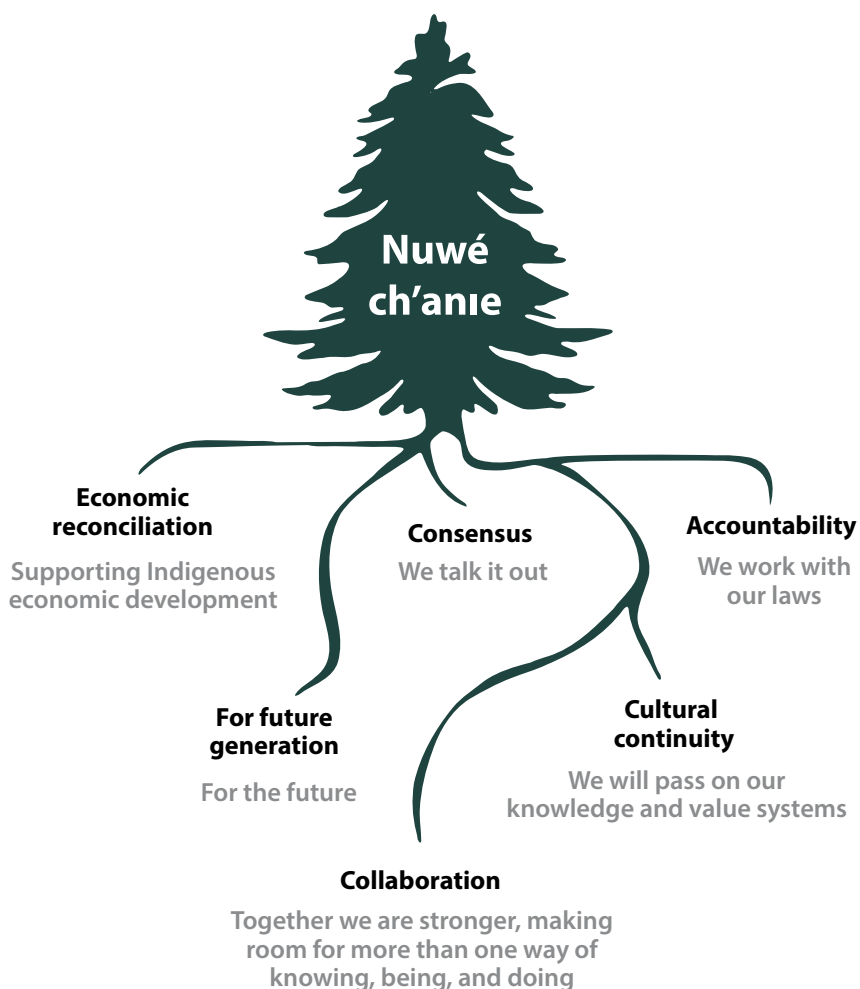


Figure 1. Nuwé ch'aníe Guiding Principles
Note: Used with permission from Thaidene Néné.

Through processes that follow Nuwé ch'aníe (Figure 2), we brought together a group of six young people in a two-day, collaborative workshop hosted in LKDFN in May 2024. Using LKDFN's channels (posters around the community, Facebook and Instagram posts, and word of mouth), we put an open call to former camp participants between the ages of 18-30 to participate in a two-day workshop. To ensure we could contribute to young people's economic wellbeing – and to ensure that we did not only hear from the most climate-focused youth – we compensated participants for their time. A challenge to recruiting participants is that many young people leave the community for work or family

responsibilities elsewhere, so we were limited to those who were present in Łutsël K'ê. The youth who generously shared their knowledge with us and have consented to sharing their names are Ashton, Dacho, Dennay, Madison, Nalze, and Robin. While we had intended to host the workshop out on the Land, ice on the lake prevented travel. So, we hosted the bulk of the workshop at a community hall, with one afternoon spent at a fish camp close by in order to connect with the Land.

Guiding Principle	Research Practice
Economic reconciliation	The bulk of external funding directly supported LKDFN, through hiring of a youth researcher, provision of supplies (e.g. laptop for youth researcher, workshop materials), and payment of youth participants.
For future generation	Explicitly oriented around youth futures-making, this research responded to a key question determined by Thaidene Nënë about what young people are learning at Land-based stewardship camps.
Consensus	Research was designed and run in partnership between Thaidene Nënë leadership (Iris), LKDFN organizers, and an education researcher (Carrie). Planned over a period of months, partners discussed and collectively determined research methods, locations, and funding, before together carrying out a youth workshop in May 2024 according to agreed-upon methods.
Collaboration	Land-based camps in Thaidene Nënë welcome dialogue between Dene and western knowledges, and both were also brought into this project. For example, Land-based education is put into dialogue with mainstream education research.
Accountability	Research followed OCAP principles in data collection and sharing, which ensured LKDFN and Thaidene Nënë maintained ownership, control, access, and possession (OCAP) of the research data and dissemination. The first output of this research was a youth-designed mural, and Thaidene Nënë also received a practical report to inform future planning for Land-based stewardship camps.
Cultural Continuity	Research questions and methodology are grounded in Dene knowledge and visions for the future. As a concrete example, the visual documentation of knowledge, both directly by the youth during the workshop and through their collaborative creation of a mural, reflects the holistic nature of Dene knowledge and a desire to share this knowledge in an accessible way with current community members and future generations.

Figure 2. Examples of Nuwé ch'aníe put into research practice

Collaboratively developed according to Nuwé ch'aníe's principle of consensus, workshop activities were designed to ensure the participants felt comfortable expressing their knowledge in verbal, written, and artistic forms (Figure 3). Following Indigenous storywork (Archibald, 2007; Archibald et al.,

2019) methodologies, we encouraged youth to share stories through prompts. For instance, while collectively exploring a map of Thaidene Nënë, youth drew their fingers along locations where they had travelled during camps and shared memories of what had occurred along the way. Activities moved through three phases, sharing and documenting (a) knowledge of climate change impacts in the region, (b) experiences with Land camps, and (c) recommendations for future Land camps based on the young people's knowledge of climate realities. During the interactive workshop, participants shared stories, documented their knowledge themselves through written text and imagery, and discussed what they wanted to share with both the organizers and participants of future Land camps. Their discussions and deliberations were audio recorded and illustrated by Dene artist Cody Fennell.



Figure 3. Workshop photos, clockwise from top left: a sign welcoming visitors to Thaidene Nënë; workshop participants beside Tu Nedhé, at the site of the fish camp; a youth participant and Elder working together to clean a fish; youth mapping their camp experiences during the workshop; youth hiking back to town from the fish camp; participants at the community hall, documenting their experiences.

The final stage of the workshop involved youth collaboratively determining, with Cody, how to visualize their discussions in a mural which has been posted publicly in LKDFN (Figure 4). Created after an image from a culture camp at Fort Reliance, this mural can be understood as a first, youth-articulated summary of the workshop findings. Under the heading, “Paying respect to the Land,”

the mural articulates climate impacts as experienced by the youth (pink/purple) and how Land-based camps support their climate learning (blue/green). Taking the lead from how youth chose to express their knowledge, this mural will structure the discussion of the findings, which we develop further utilizing the visual documentation and transcripts of youth conversations from the workshop.

Findings: Paying Respect to the Land

Both in describing the impacts of climate change on their community and in expressing how their learning at Land-based camps shapes their visions for the future, youth continually reiterated the importance of “paying respect to the Land.” Because of its centrality, this refrain became the title of their mural. To ensure youth visions drive the discussion, their words on the mural and as shared throughout the workshop are integrated throughout the following sections.

Dacho’s words centre the role of the Land in shaping knowledge, relations (across time and beings), and future visions:

The Land is a powerful place for us. You have to be mindful of where you are. There’s a lot of things that happen throughout the years, throughout the generations. And they have to pay respect to Creator and the Land that he made for us, that he provided for us. And like especially the caribou, the animals, the Land, the water. ‘Cause everything that was made was so that we can live in harmony and coexist in this great balance of life. And it’s important that we respect the ways that we were taught and how the Land works and how we can respect all the areas. Because so much happened that predates before we even can remember. (Dacho)

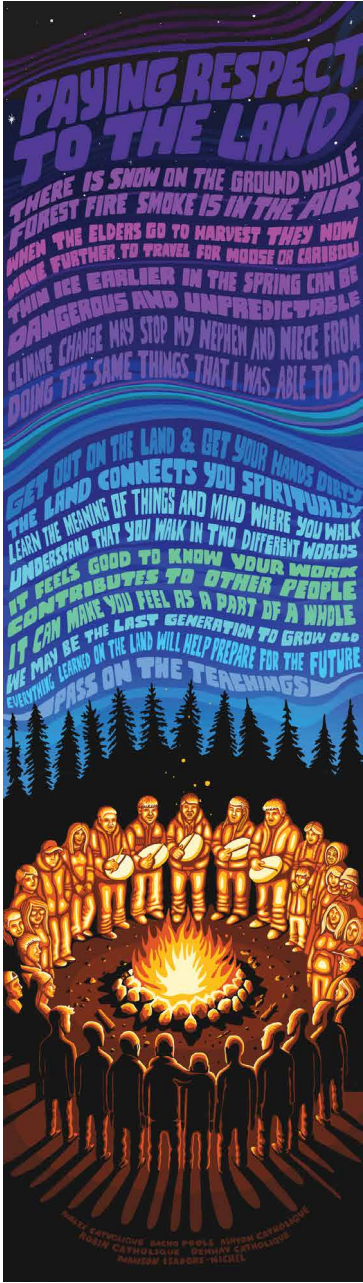


Figure 4. Co-created mural, designed by Cody Fennell. Used with permission.

As theorized in Land-based education, youth experienced the Land as central to learning, and that learning was deeply implicated with respect. For the youth, respect is both a value and a practice, a blend of material and spiritual. Practically speaking, it may involve everything from cleaning up after yourself to ensuring against over-harvesting. Spiritually, it involves repaying the Land through prayer, along with offerings of spruce boughs and tobacco. In the face of climate change, paying respect means learning to “read the Land” and adapt to changes according to Dene knowledge, shared on the Land and through Elders’ stories. Camps helped young people read the Land through climate change and learn to care for it.

Concerns About Climate Change (pink/purple)

Familiar with the effects of climate change in the Lands around LKDFN, youth expressed concern about the future of their community, discussing their fears about climate change in conjunction with intergenerational trauma stemming from colonization (e.g., Hill & Plume, 2024). Learning about climate change throughout their young lives has been profoundly unsettling, as Dacho described: “When we were first taught about climate change, we were just kids. . . . And now we are watching it unfold in front of us. It’s not a good feeling.” While changes are concerning, they are not unexpected; for a long time, “Elders kept telling us that everything was going to change, that nothing would be the same” (Dacho). In this sense, climate change is not a new or unpredicted shift to life in LKDFN but anticipated within the longstanding knowledge of the community.

Based on Elder stories and their own experiences on the Land, youth are familiar with climate impacts associated with rising heat and changing seasons, which have resulted in lower water levels, changes to permafrost, and thinning ice, in an overall drying of the Land. Less water has in turn resulted in increased fires, along with changes to animal and fish migration patterns. In the winter, climatic changes create dangerous conditions for travelling on the ice and hunting caribou; in the summer, shifts in animal migration have resulted in difficulties harvesting. The young people understand these changes as impacting their community’s entire way of life with unknown impacts reverberating into the future: “It’s frightening to me at night thinking my nephew won’t be able to do the things that I did or that my father did” (Dacho). Since their community understands themselves as “Caribou People,” Madison wondered about their community identity once the caribou leave the region, expressing fear for subsequent generations who may not have the same experiences that have been important to them.

In expressing concern for fellow young people, participants wove into their discussion of climate change a very deep concern for the inheritance of colonial histories, from natural resource development and colonial conservation policies to youth experiences of intergenerational trauma and neglect. They are very familiar with the impacts of extractive projects like diamond mines,

which they describe as “disruptive to the environment” (Nalze), with impacts on caribou migration (Madison). They also pointed to colonial conservation practices that curtail Dene rights and stewardship of caribou. This complexity of colonial impacts not only compounds with climatic changes but also limits Dene sovereignty and cultural continuance into the future.

Youth also alluded to the Indian Residential School system and its residual impacts among present and future generations. As young people face the twinned challenges of climate change and colonial legacies, they have few healthy ways to spend their time in Łutsël K’ë. Whether at school or in their spare time, young people have “nothing to do” and “no way to remove this internal feeling that they are so caught up with all the time” (Ashton). As a result, young people are prone to getting “angry and upset, and they break things” (Ashton). Such struggles make thinking about the future difficult; as Nalze described, as a “coping mechanism” he allows himself to think “only two days ahead.” At the same time, the young people expressed care for fellow youth and hope that their younger friends and relatives will learn “not only just to survive [but] to live” (Nalze). Recognizing that other youth “want to do things [and] their bodies are made to do things” (Ashton), Dacho therefore turned to Land connection as a method of healing, recommending “taking them out into the field, getting their hands dirty.” In fact, throughout their discussion of Land-based camps, youth addressed climate impacts and colonial injustices together as they envisioned healthier futures for other young people. Throughout, they continued to reiterate that their community has “adhered in the face of adversity” (Dacho) and are capable of doing so again.

Land-based Camps and Youth Futures (green/blue)

Holistic in nature, Land-based camps supported youth to connect with community knowledge and language grounded in the Land, along with skills to maintain community life, towards spiritual integration and hopefulness for resilient futures. While many of these community connections are already recognized as benefits of Land-based education (Fast et al., 2021; Lines et al., 2019; Redvers, 2020; Woodworth et al., 2025; Ximiq (Paul) & Gunn, n.d.), youth explicitly link them with futuring in the face of climate change.

Connecting with Elder Knowledge and Dënesųłiné Language

Elder knowledge and Dënesųłiné *language are central to young people’s memories of the camps. Elder teachings are central at all camps, with oral knowledge and stories shared as young people are out on the Land* (e.g. Antoine et al., 2018, p. 72). Such storytelling stood out to Robin as the most important aspect of the camps, as it enabled a “different perspective” on how to live off a climate-affected Land without all of the modern technologies that pervade young people’s lives today. In addition, Elders’ historical knowledge is how young people come to

understand climate change and learn to read the Land. They listen to “Elders talk about how it used to be, the ice used to be thicker, there used to be caribou crossing right in front of here” (Ashton), establishing baseline knowledge for the changes that have already happened and instilling curiosity about what changes are yet to come. Grounded in Elder knowledge, young people can now “kinda see what’s being affected. You’re able to notice it more” (Ashton).

Elder knowledge is typically shared orally, on the Land, and in the Dēnesų́nē language. While the youth are not (yet) all fluent, they appreciate the importance of immersive language learning, emphasizing that all Land-based camps should involve “zero English” (Nalze), being instead characterized by “total immersion” (Dacho). Remembering the learnings she was offered during Land-based camps, Dennay shared: “what I wish impacted more with me is my language.” Language is tied with traditional knowledge of locations, plant identification for foraging medicines and food, and maintaining cultures of respect for the Land that are central to Nuwé ch’anie and continuity into the future. Because of the importance of language, Robin recommended translators be present to guide those who are still learning Dēnesų́nē. Overall, the youth were comfortable with the fact that since they do not fully understand the language, learning might be slow. For them, learning the language and listening to Elders were more important than the pace of learning.

Contributing to Community Life

Learning from Elders and the Land, and within the context of community, gave youth a strong sense of their role in supporting mutual aid, or helping one another in the face of climate change (e.g., Cunsolo et al., 2017). Practical, hands-on learning is central to the Land-based camps, and youth excitedly shared their favorite activities, such as learning how to fix fishnets, chop wood, make drums, identify medicines, dry fish, tell stories, play Dene hand games, harvest, and make traditional food. In relation to regional climatic shifts, some had learned skills of western science, such as reading tree rings for signs of wildfires (dendochronology) or reading roots for shifts in caribou migration patterns. In describing camp activities, they did not isolate different types of learning but clustered practical skills for survival with scientific learning and cultural activities such as drum-making and language-learning, reflecting the holistic nature of the Dene knowledge system and openness to western science where it is helpful (e.g., Desmoulins et al., 2023).

When asked about why they enjoy learning this holistic range of skills for community survival and cultural maintenance in the face of climate change, youth emphasized how they were developing confidence as contributing members of the community. They proudly shared what they could offer to the community, celebrating their learning. Madison, for example, described her capability to filet fish – and the nice “wiggly feeling” she gets when the knife passes skillfully

through the flesh. Ashton gave a play-by-play of setting fishnets in winter, expressing his knowledge of both traditional jiggers and modern fish locators. Such learning instilled in youth a meaningful sense of community contribution: “Feeling good about it. Being able to do that stuff confidently. That’s what it’s all about. Building confidence. Like your ability to do something” (Nalze). Linked with confidence was a sense of purpose and understanding that action is not an individual matter but a collective and community endeavour. As Ashton described, it is “nice just feeling helpful. Like a sense of purpose. Knowing that your work contributes to other people. Makes you feel good. Makes you feel like you are part of a whole.” For them, skills development helped them “pay respect to the Land” and protect the water in the face of climate change, responsibilities they understood were shared by all people.

Experiencing Spiritual and Emotional Integration

While Land-based camps enabled concrete contributions to community thriving, the camps also nurtured spiritual and emotional connections with the Land, which gave the youth a sense of peace (e.g., Sawatzky et al., 2019), even in the face of climate crisis. When he is on the Land, Ashton likes to “enjoy the scenery, the peace, the serenity that it brings.” Similarly, Robin describes the Land as “very therapeutic,” making him feel “very connected, spiritually.” This sense of spiritual connection strengthens Madison’s sense of self:

I felt more connected with my mind and my body when I was out on the Land. And when I got disconnected with the Land I felt like I didn’t know who I was. So that’s what the camps did to me. It made me feel like I was more of a bigger person.

For these young people, the Land is not a setting for learning but is deeply enmeshed in who they are. Following the camps, therefore, they found opportunities to get out on the Land when they could, especially when life was overwhelming. They might go harvesting with family members or simply walk or drive out of town for a bit of peace.

Connected with their sense of identity, spending time on the Land also helped the youth feel more spiritually integrated. For them, the Land was a place for prayer – and prayer was a way of responding not only to climate realities but also to other struggles. When life gets “a little overwhelming,” therefore, Dacho follows his Elders’ guidance to head out on the Land, pray, and make an offering – a process that he says “works wonders.” Similarly, when watching climate change unfold around him, Ashton shares that he responds with “strong prayer.” Prayer and “repaying the Land through forms of appreciation [such as] spruce boughs, tobacco” (Dacho) are ways to return the respect and care that the Land has shown for them. For the youth, connection with the Land is mutual: “as long as you take care of the Land, the Land will take care of you” (Dacho).

Recognizing Community Resilience in Creating Futures

Across various types of learning – spiritual, practical, and cultural – young people learned how their community has been resilient in the past, which provided them a vision to not only survive but to “live,” long into a climate-affected future. An exchange between Dacho and Nalze evokes this vision:

Dacho: To learn to live on the Land is to be self-sufficient. To help others who need help without question. So if things are going to change and maybe one day a fire blows through here or for some god knows reason we would have to move, I feel like everything I have learned from grandparents, parents, uncles, aunts, will help me survive, as it did for them. As it did for my people.

Nalze: Not only just to survive; to live.

Dacho: Yeah, to live. Like I say, as humans we adhere in the face of adversity. So I still have hope.

Part of living involves not only facing adversity but also working proactively to “prevent the changes that are happening by providing alternatives” (Robin). While he recognizes the community cannot stop climate change, Robin recommends shifts to local energy systems and practices of care for the Land that can “be a really big help to the ecosystem.” In this way, the community will not only look backwards but be “prepared for whatever may come” (Nalze).

Finally, while they described multiple ways of facing challenges of climate change and colonial legacies, youth also expressed in a most concrete way the importance of fun. If given the opportunity to design their own camp, they would ensure they had time to relax by the water and play hand games. Youth described how Dene games like snow snake, finger pull, and ear pull provide a fun way to connect with Dene culture while featuring Land-based skills like strength, memory, and accuracy. Games are also a way to include young people who may be struggling with neglect and boredom, providing them a way to connect. As Dacho stated, “I need them to know that there is still hope here.”

Discussion and Conclusion

Youth participation in the research workshop was willing and active, demonstrating their dedication to Land-based camps as a valuable method for futures-building at the intersection of the climate crisis and intergenerational trauma. As Dacho said during our final minutes together: “what we’re trying to do in this community [is that] we’re trying to get as many camps, get as much youth involved as we can. We are going to keep trying.” It is the vision and agency of these youth that we are carrying into the final paragraphs of this article.

While young people in LKDFN are concerned about the impacts of climate change on both the Land and their community, the integrative learning offered through Land-based camps strengthened their confidence and spiritual

identities in relation to their communities, helping them see future possibilities for collective living – not merely surviving – on the Land. Grounded in Dene knowledge and the importance of paying respect to the Land, youth expressed how their learning integrated cultural, linguistic, practical, spiritual, and social knowledges. Youth learning took place on the Land and water – not in a classroom – in a multiplicity of ways: beside campfires, in canoes, and in the bush, and as young people listened to stories, practiced Dēnesųłíné language, harvested fish and caribou, prayed, played hand games, and ultimately contributed to the wellbeing of their community. Their learning was intergenerational and inter-temporal, with their imagined futures being infused with stories from the past, Elder knowledges, and Land relations that extend deep into history. Importantly, it also provided a sense of contributing to mutual aid, where climate action is not an individual matter but a collective and community endeavour.

While Land-based camps foster youth learning about climate change and contribute to youth wellbeing, they may also contribute to informed decision-making and Indigenous sovereignty as youth develop knowledge and confidence that can serve their communities. Following his participation in Land-based camps, for example, Dacho became employed in Thaidene Nēné by Parks Canada as an Operations Trainee, where he hopes to contribute to preserving his people's Lands and resources long into the future. By extension, others like Dacho may become involved in Thaidene Nēné's governance. Dēnesųłíné are primarily responsible for the Indigenous Protected Area but work together with the Government of the Northwest Territories and Parks Canada. Where young people develop knowledge about climate change through Land-based camps, they may be better equipped to exercise their rights and take an active and informed role in decision-making that supports their dignity, wellbeing, life, and rights in the face of climate change, including as expressed in the United Nations Declaration on the Rights of Indigenous Peoples (2007). In this way, Thaidene Nēné may provide an example for how education and governance can work in a nation-to-nation relationship, in keeping with the broader "Principles respecting the Government of Canada's relationship with Indigenous peoples" (Government of Canada, 2017). Such efforts may indeed be crucial to the healthy futures of young people as climate impacts intensify in Indigenous communities not only across Canada but also globally, as Indigenous youth seek to inform climate governance (MacKay et al., 2020).

In addition to supporting Indigenous governance, Land-based education as expressed by the young people in this study may also inform Indigenous as well as formal education systems in keeping with the "potential for Indigenous-led Land-based programming to effect social change for the benefit of all people and living beings in the context of reconciliation and global climate justice" (McDonald, 2023, p. 5). Where some Indigenous communities already integrate Land-based education, this research supports their efforts in youth futures-making in the face of the intersecting realities of climate change and

colonization. Such communities could conceptualize Land-based climate education in relation to their own knowledge systems, local climate impacts, and future goals. In addition, as climate change education is increasingly prioritized in relation to hard-to-ignore climate realities (Canada, 2024), formal education systems are beginning to integrate Land-based climate education (Ximiq (Paul) & Gunn, n.d.). In Canada, for example, the Yukon territory has created an interdisciplinary climate unit grounded in Indigenous knowledge (Yukon Grade 8-9 Cross-Curricular Unit: Climate Change, 2017), and the province of Nova Scotia is integrating a course on Netukulimk, the Mi'kmaw concept of sustainability. While the Land-based education enacted by Thaidene Néné cannot be replicated across diverse locations, learning from the youth and the methodology of Nuwé ch'anie may inform how Land-based education can work against appropriation of Indigenous knowledge for its use-value by dominant groups, instead supporting careful and accountable work across knowledge systems as education is reimagined.

As we stated at the outset of this paper: Land-based education is not a new mode of education but a longstanding form of knowledge generation and sharing within Indigenous communities. However, climate change is shifting the context, requiring deepened understanding of how Land-based education can support young people in the face of uncertain futures. Thanks to the contributions of young people as part of this research, we can see how Land-based education can support deep learning of the Land, spiritual health and practical capacities. It enabled youth participation in the collective futures-making of the community, and the strengthening of Indigenous knowledge systems and Land relations, or “paying respect to the Land.”

Notes

- ¹ Community knowledge of the changing Land can be found at Tracking Change (<https://trackingchange.ca/indicators/>) by selecting the Great Slave Lake watershed for each of the various questions. Community knowledge of the changing Land can be found at Tracking Change (<https://trackingchange.ca/indicators/>) by selecting the Great Slave Lake watershed for each of the various questions.

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Iris Catholique is the Manager of Thaidene Nënë and has worked in her community of Łutsël K'è Dene First Nation for 20 years in various roles. She can often be found on the land, sharing traditional knowledge and skills with her sons.

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Land-based education and place-based education: Mapping the terrain and resisting conflation

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Abstract

In recent years there has been growing interest in both land- and place-based education in research, scholarship, and K-12 practice. Yet without robust definitions and guiding principles, land-based education is vulnerable to misinterpretation and cooptation by non-Indigenous practitioners. This article maps the historical and conceptual distinctions between land- and place-based education, with specific focus on the “where,” “what,” “why,” and “how” that orients each field. The authors offer examples of how they have implemented land- and place-based education in their own practice. Ultimately, we argue that while land- and place-based education are both valuable approaches to teaching and learning in the Canadian K-12 system, more careful differentiation is needed.

Résumé

Au cours des dernières, l'éducation fondée sur la terre et l'éducation fondée sur le lieu occupent une place de plus en plus grande en recherche, en sciences de l'éducation et au sein des pratiques pédagogiques au primaire et au secondaire. Toutefois, l'éducation fondée sur la terre, lorsqu'elle n'est pas accompagnée de définitions et de lignes directrices claires, est à risque d'interprétation erronée et de récupération par les éducatrices et éducateurs non autochtones. Cet article schématise les distinctions historiques et culturelles entre les deux approches en se penchant sur le « quoi », le « où », le « pourquoi » et le « comment » qui orientent chacune d'elles. Nous y exposons des exemples d'application de ces deux approches dans notre enseignement. En conclusion, nous plaçons en faveur du recours à ces approches dans le système scolaire canadien à la maternelle, au primaire et au secondaire, tout en insistant sur l'importance de les différencier.

Keywords: Land-based education; place-based education; K-12 education; Indigenous education; Canadian education

Why this Article? Why Now?

All education takes place somewhere. Over the past twenty years, attention has grown around local contexts of schooling and education, particularly around the materiality of land and place. Land-based education (LBE) and place-based education (PBE) have emerged as interventions into abstracted

learning and what Gruenewald (2003a) calls a “placeless” curriculum (p. 8), grounding students and their learning in lived experience and locally specific geospatial and socio-political contexts. The rising interest in land- and place-based education is, therefore, a response to the need for a more meaningful, context-aware approach to teaching and learning, one that acknowledges the importance of specific places in shaping identities, cultures, and knowledge systems.

However, while much has been written around both LBE (e.g., Corntassel & Hardbarger, 2019; Ermine, 2024; Hansen, 2018; McDonald, 2023) and PBE (e.g., Anderson, 2017; Gruenewald & Smith, 2008; Vander Ark et al., 2020), we contend that these approaches to learning remain under-theorized from a practical standpoint, which can be especially problematic for Indigenous education. As Stansberry et al. (2023) assert, “there is no single definition of place-based or land-based education being used to guide research with Indigenous K-12 studies” (p. 168), which has often led to educators and practitioners conflating two very distinct approaches to the role of land and place in learning. With the recent rise in popularity of land-based approaches to learning, some scholars warn about the possibility of “co-opting” this pedagogy without fully understanding the importance of Indigenous knowledge systems (Cluderay et al., 2022). Both of us feel it prudent that scholars and practitioners proceed with a robust understanding of how these two approaches intersect and, more importantly, how they diverge. In this article, we ask: What are the conceptual distinctions between LBE and PBE and what does that mean for practitioners? In posing this question, we intend to further theorize and delineate land-based and place-based approaches to learning, paying particular attention to the distinct worldviews and objectives that animate these pedagogies.

Based on our experiences designing and teaching LBE and PBE courses for in-service K-12 teachers in central Canada, we suggest that the key distinction between these approaches arises from their ontological orientations, particularly in how land, place, and knowledge are understood. While LBE and PBE may overlap in practice and pedagogy, their orientations shape both how pedagogy is enacted and the kinds of relationships formed with land, community, and knowledge. We contend that one cannot easily replace or stand in for the other and that these approaches require more careful differentiation to avoid collapsing their ontological differences in practice. To make this case, we attend to the conceptual distinctions and places of overlap, delineating the “where,” “what,” “why,” and “how” that orient each field. It is our contention that all students in the Canadian education system would benefit from both of these approaches, but educators and practitioners need more awareness of how LBE and PBE differ in their orientations to knowledge, land, and learning and what the implications are for their practice.

Positioning

An anchor for this paper is recognizing that our lived experiences as educators are tied to the responsibilities we carry, and that these in turn influence how we navigate our work. Melissa is an Anishinaabe scholar and writer from the Netmizaagamig Nishnaabeg community in Northwestern Ontario. Her work explores Indigenous knowledge systems, pedagogies, and critical unschooling. Will is a settler scholar who immigrated to Manitoba from England as a youth. His current work focuses on place-based pedagogies, climate change education, and interdisciplinary approaches to the K-12 curriculum. We aim to bring these fields into dialogue to shape educational frameworks that are culturally accountable and responsive to learners' needs, identities, and aspirations.

The impetus for this paper came from our experience of considering the epistemological and ontological roots of our respective course curricula. It began with an honest question from a colleague who asked if our course content would be different enough from one another, indicating a preconceived notion that land and place were essentially the same. This question turned into an earnest dialogue about the perceived similarities between land- and place-based learning, like cultivating relationships and a sense of community, critical inquiry, and experiential learning. There are also significant differences, yet we have found these two approaches are often conflated with one another despite differences in their ontological and epistemological orientations.

To explore these tensions, we reviewed and synthesized the literature, citing influential works in both Indigenous land- and place-based education. We paid attention to how each study defined, operationalized, and applied land- or place-based education in real-world teaching settings. We critically examined the existing definitions and interpretations of the two learning approaches, identifying areas of overlap and divergence, noting instances where the terms were used interchangeably and identifying potential misconceptions. This process helped us to clearly differentiate the approaches, highlighting their distinct characteristics and the pedagogical implications of conflating them.

Mapping the Conceptual Terrain

LBE and PBE approaches both emphasize local relationships and community engagement, yet they emerge from distinct conceptual frameworks. Land-based approaches to education are derived from centuries-old Indigenous educational practices, rooted in specific, local relationships with the land (Bowra et al., 2021). These relationships are often understood as reciprocal, involving not only human communities, but the more-than-human world that includes animals, plants, and the land itself. Today, these approaches are attuned to (re)asserting Indigenous presence and fostering meaningful cultural relationships

with lands and ancestral territories (McDonald, 2023). As such, LBE is often viewed as a means of sustaining Indigenous cultures and supporting a holistic view of community well-being that extends beyond human needs (Corntassel & Hardbarger, 2019).

PBE is a more contemporary approach to teaching and learning in K-12 schools (and elsewhere), emerging in the 1990s and growing out of and alongside environmental and civic education (Smith & Sobel, 2010). Targeting the intersection of communities and ecosystems, PBE sought to address the disconnect between what young people were learning in classrooms with the world beyond the school walls, paying particular attention to the local, emphasizing the need to build relationships with community and heal the natural world, predominately to support human health (Gruenewald & Smith, 2008). PBE is informed by experiential learning and inquiry or project-based approaches (Vander Ark et al., 2020; Yemini et al., 2025).

Despite these distinctions, the conceptual boundaries between LBE and PBE remain blurred, and the lack of distinct and unified definitions complicates the comparison and measurement of outcomes (Stansberry et al., 2023). In the next section, we dig into the differences between these two approaches to articulate the specific goals, objectives, and orientations of each.

Different Roots

While scholars have been theorizing Indigenous approaches to learning and to the natural world for several decades (e.g., Barnhardt & Kawagley, 2004; Cajete, 1994; Kirkness, 1981; Simpson, 2001), “land-based education” as a term has been applied widely and loosely, including outside of Indigenous circles. Thus, finding consistent wording for land-based programs and initiatives can be challenging. As Redvers (2016) indicates, various disciplines, agencies, and organizations have employed a variety of terms to describe learning that happens on the land, including wilderness, nature-based, environmental, outdoor, Land, and land-based education.

Most often, LBE is used to refer to any education or learning that takes place on the land and immerses students in nature (see, for example, Card & Burke, 2021). In practice, this has come to include working with students to build ecological knowledge and cultural skills, (re)establishing or maintaining connections to land, and developing curriculum and lessons that blend Indigenous and Western knowledge systems (Lowan-Trudeau, 2013). However, as Macdonald (2023) asserts, LBE is not simply teaching and learning outdoors, rather it is an orientation to learning that must be rooted in Indigenous onto-epistemologies.

In the 1960s and 1970s, Indigenous peoples throughout North America experienced what has been characterized as a “renaissance,” marked by a florescence of literature, rapid politicization, and cultural renewal (Cook-Lynn, 1996; Nagel, 1995; Warrior, 1995). This era saw an increase in urbanization

for Indigenous peoples and a rising number of high school and post-secondary students who began to grow weary of tribal leaders caught up in federal bureaucracy (Cardinal, 1969; Nagel, 1995; Steiner, 1968). For LBE, the most relevant impacts of this tumultuous period were three-fold: first, a nationalistic political identity was formed, making it possible to describe the “political reality of ‘being Indigenous’” for the first time (Niezen, 2000, p. 120). Second, political and academic leaders advanced the argument that land is central to Indigenous sovereignty and self-determination to counter ongoing threats to Indigenous land bases and land rights (Burke, 1976; Fidler, 1970; Steiner, 1968). Third, Indigenous activists began their calls for cultural renewal and the redefinition of education that opposed assimilation and centered Indigenous ways of being and doing (e.g. Adams, 1975; Cardinal, 1969).

Indigenous critiques of the education system carried into the 1990s, with a push for culturally-relevant pedagogies (Dawson, 1988; Maina, 1997), increased control of Indian education (Hampton, 1995; Kirkness, 1998), and the recognition and employment of Indigenous epistemologies, ontologies, and methods in both research and education (Battiste, 1998; Simpson, 2001). This push was supported by the Royal Commission on Aboriginal Peoples which “unequivocally embraced the importance of IK [Indigenous knowledge] in the reconciliation and renewal of relations with Aboriginal peoples” (Battiste & Henderson, 2009, p. 6). LBE emerged within this context, rooted in critiques of colonial education and the struggle for Indigenous sovereignty and self-determination.

Because of this context, we understand Land as something more than place, representing a web of relationships that are inextricably linked to one another. This understanding of land is also enfolded within a socio-political history that has dispossessed Indigenous peoples of their connections to land and place. As Wildcat et al. (2014) note, “if colonization is fundamentally about dispossessing Indigenous peoples from land, decolonization must involve forms of education that reconnect Indigenous peoples to land and the social relations, knowledge, and languages that arise from the land” (p. i). A vital part of LBE is the resurgence of cultural practices that foster connections and relationships to self, identity, community, as well as land. LBE’s commitment to localized curricula is necessary because at its core, its pedagogy is rooted in the specific landscapes, waters, and territories of Indigenous nations. What sets LBE apart from PBE approaches is its reliance on intergenerational knowledge, languages, and customary practices that have developed in relationship with those lands over time. This foundation of cultural continuity and historical connection is central to LBE and distinguishes it from broader place-based approaches that may not always integrate the same depth of cultural and ecological reciprocity.

While LBE is rooted in Indigenous knowledges, practices, and political struggles for sovereignty, PBE emerged in response to compulsory school attendance laws and the observation that what happened in school was often divorced from the lives of students outside of the classroom (Smith, 2016).

Early scholars began to theorize educational approaches that emphasized how local culture and history directly related to the lives of students and their communities. The evolution of PBE can be marked by three periods, each informed by related theories or practices: community revitalization, the critical turn, and settler-colonialism.

Although traces of PBE go as far back as the post-war period when Newman and Oliver (1967) claimed that the “fundamental objective of education is the development of individual human dignity, or self-realization within community” (p. 61), it was established as a pedagogical theory in the late 20th century with Orr’s (1992) call for a more concerted effort to situate K-12 learning outside the classroom. This was followed by Theobald (1997), who argued for K-12 classroom teachers to “focus their pedagogical energy on the immediate place inhabited by the school; that is, they must make the word local in the phrase ‘local school’ mean something” (p. 1), where education systems and the community would collaborate towards a “democratic imperative” (p. 114). If not always explicitly stated, this call was also grounded in recognition that globalization had led to the deindustrialization of some communities in North America (Sobel, 2013).

Theobald’s (1997) work was followed by Gruenewald/Greenwood (2003a, 2003b) who built off the “spatial turn” of the late 20th century and considered how human thought and action were informed by the built environment. Critical geographers such as Davies (2006), Harvey (2010, 2012), and Haymes (1995) began theorizing how human-made constructs – cultural, economic, and historical – controlled people and populations to maintain structural oppression. By the late 20th and early 21st century, progressive educational scholars and practitioners picked up the potential for youth to engage more deeply in what was happening in their communities (human and more-than-human), and why (e.g. Gruenewald, 2003a). Gruenewald (2003a, 2003b) specifically called for environmental education and critical pedagogy to work together with place as the focus for inquiry and action.

As PBE attracted more attention, Indigenous scholars and critical educators (Bang et al., 2014; Calderon, 2014) contested some of the assumptions of PBE, calling out its silence on the historical and contemporary violence that settler-colonialism brought to North America, questioning the extent to which PBE perpetuates white-European normativity and erases Indigenous peoples and their claims to place (Tuck et al., 2014; Schindel Dimick, 2016). As a result, this third iteration of PBE increasingly integrated critical attention to settler-colonialism into its theory and practice (Greenwood, 2019; Scully, 2020). However, while PBE is evolving to address these concerns, it can still overlook the depth of Indigenous sovereignty and relationships with land that LBE explicitly emphasizes.

The disparate origins of each approach are not the only distinguishable characteristics between LBE and PBE. To further clarify the distinctions between land- and place-based education, the following section examines and maps out the “where”, “what”, “why”, and “how” that orient each field. This structure

serves as a framework to highlight key differences while acknowledging intersections and overlaps between both approaches.

Conceptual Landmarks

WHERE: Defining Land and Place. LBE and PBE both reject abstract, detached views of land but they diverge in where meaning and agency are located. The term *land* is often used to refer to a physical or geographic location, but Indigenous paradigms see beyond material definitions of land as object, resource, or property and take a more holistic view of land as kin, embodied through a network of relationships that includes plants, animals, natural elements (i.e. air, water, minerals), spirits, ancestors, as well as human beings (McDonald, 2023; see also Zinga & Styres, 2011). Land, in this context, is grounded in culturally-rooted, interdependent relationships between all living beings and their situated environment. For Indigenous peoples, land is literally spirit and culture (Ermine, 1995; Haig-Brown & Hodson, 2009). Further, Redvers (2016) points out that land-based “doesn’t automatically assume an on the land location”, suggesting that “fundamentally, land-based connection can take place anywhere... because we aren’t never separate from the land in the first place” (p. 75). By affirming that all land is Indigenous land, LBE disrupts the urban/rural binary, emphasizing that humans are always embedded in ongoing, constitutive, material, and ethical relationships with land, regardless of location (Bang et al., 2014; McDonald, 2023).

In contrast, *place* is constituted through human interpretation and meaning-making (Tuan, 1977). Space becomes place “when we get to know it better and endow it with meaning” (p. 6), rather than reflecting relationships that are understood to exist prior to and beyond human experience. *Place* is often used interchangeably with *community* (Sobel & Smith, 2010), but they are distinct terms because *place* is used to more broadly to encompass a range of sites that do not neatly confine to the definition of community (Siskar, 2008). For PBE to be meaningful to students, it often seeks to focus on places within a community in which students reside or schools are located. Here, through teacher or student-led inquiry, curriculum is meaningfully connected to context and utilized as a location or context for deeper understanding and application of learning. As meaning-making develops, the place or places that serve to focus the inquiry may lead students to shift from a passive to a deeper more holistic understanding. Here, we can see PBE often deploys humanistic interpretations, emphasizing the role of human experience in constituting place. However, Indigenous conceptions of land as kin articulate a fundamentally different relational ontology in which land is not an object of human meaning, but a living, agential relation.

WHAT: Core Processes and Community Foundations. In practice, both LBE and PBE organize learning around specific sites, activities, and relationships, utilizing the surrounding environment and community as active partners in teaching and learning. A key difference lies in who the educators are, what

resources are drawn upon, and how learning activities are structured. Taken together, these organizing principles constitute the pedagogy of each approach. LBE differs from dominant Western educational traditions not in its use of experiential or situated learning, but by grounding knowledge within a relational ontology that understands land as the “first teacher” (Styres, 2011) and as an active interface for learning (Simpson, 2014). Learning with the land is therefore understood as a holistic, relational, and embodied experience (Cluderay et al., 2022). LBE relies on Elders, knowledge keepers, and the land itself to impart knowledge. Elders are important teachers because they have lived on and with the land their whole lives. They pass on their teachings by modeling behaviors, demonstrating skills, and sharing stories while being out on the land, in situ. It then becomes the responsibility of each learner to participate in a “perpetual cycle of observing, listening, doing, and sharing” (Cluderay et al., 2022, p. 55) for themselves. Within this model of learning, typical classroom hierarchies between those considered “experts” and learners are disrupted, reflecting a relational understanding of knowledge in which expertise is not fixed in individuals but emerges through ongoing relations among people, land, and practice. Community members are recognized as teachers, and knowledge moves fluidly across and within generations rather than being fixed within particular roles or age groups.

Places are pedagogical, writes Gruenewald (2003a); inherent in this claim is that people can learn differently, if not more effectively, in place, by attending to and being-in-place. This perspective provokes (re)conceptualizing teaching and learning that takes place in places, *with* places and *for* the benefit of places. Learning begins with an examination of the places in which students reside, whether that be neighborhoods or locations of cultural, economic, environmental, or historical significance beyond immediate proximity to schools or students but nevertheless of relevance. Like LBE, there are repeating cycles of concrete experience, reflection, conceptualization, and experimentation (Kolb, 2014). Resources in PBE may include people and institutions such as libraries, museums, community centers, businesses, and government agencies. While this work can occur inside classrooms, PBE literature generally advocates for getting youth outside of the school building where they can learn *in situ* (Anderson, 2017; Vander Ark et al., 2020).

WHY: Teaching and Learning Outcomes. LBE programs are often oriented around multiple outcomes and intentions. In her review of land-based programs in the Canadian North, Redvers (2016) found that funded initiatives have addressed diverse needs, including “suicide prevention, outdoor leadership, land and science education, intergenerational cultural continuity, and healing from residential school experiences” (p. 25). These initiatives have frequently been designed to support student well-being by fostering connections to the natural world, alongside Indigenous cultural education grounded in land-based and traditional skills.

Likewise, McDonald's (2023) review of Indigenous LBE identified four themes related to programming goals and outcomes. These included: 1) Indigenous self-determination; 2) health and well-being; 3) environmental stewardship; and 4) reconciliation and climate justice. These varied outcomes and intentions demonstrate how LBE is responsive to and grounded in differing community needs. Rather than a singular educational approach, LBE has been understood as both a nation-building practice tied to forms of Indigenous governance (Simpson, 2014; Yerxa, 2014) and a holistic, socio-cultural process that grounds learning in relational contexts (Bowra et al., 2021). As McDonald (2023) suggests, LBE is "a way to transform and restore humanity's relationship to land" (p. 4). The aims of LBE are firmly rooted in support for Indigenous self-determination, strengthening relationships to land, and fostering holistic well-being through relational ways of learning.

PBE draws on several pedagogical approaches familiar to progressive models of K-12 education that explicitly disrupt normative notions of what content is valued and which pedagogies constitute effective teaching strategies. One concept that is central to PBE theory is Gruenewald's (2003b) definition of 'place-consciousness', which is particularly insightful:

[It works] against the isolation of schooling's discourses and practices from the living world outside the increasingly placeless institution of schooling. Furthermore, it aims to enlist teachers and students in the firsthand experience of local life and in the political process of understanding and shaping what happens there. (p. 620)

Pathways towards cultivating place-consciousness including "enlist[ing] teachers and students in the firsthand experience of local life and in the political process of understanding and shaping what happens there" (Gruenewald, 2003b, p. 620) offering a "vibrant counterpoint" (p. 621) to traditional approaches. These educators might be guided by a series of questions Greenwood (2013) posits: what happened here? (historical); what is happening here now and in what direction is this place headed? (socioecological); and what should happen here? (ethical). In this way, PBE can be utilized as a tool for "unsettling" colonized places, and in recent years, scholarship has actively pursued this line of inquiry (see Conrad, 2022; Seawright & Hayes, 2025).

More recently and partly in response to important critiques from Indigenous scholars, some practitioners of PBE have understood that to live well in and with a place, understandings of the first inhabitants and caretakers of places before European settlement is a critical foundation. Understanding Canadian history and treaties, participating in reconciliation, and supporting resurgence is stronger when the temporal intersects with the spatial. The ultimate aims of PBE are that the knowledge, skills and attitudes developed by learning in and with places during the K-12 education system will bridge into adulthood. To this end, PBE can be an effective tool in teaching for reconciliation (Burton, forthcoming; Poitras-Pratt & Bodnaresko, 2023).

HOW: Practices in the Field. LBE is not confined to formal K–12 curriculum contexts but is instead enacted across a range of educational and community-based settings, including non-profit organizations, local Indigenous governments, collectives, and informal, ad hoc groups (McDonald, 2023). Most often, programming is focused on taking youth out on the land to participate in traditional skills like hunting, fishing, trapping, processing game, and/or harvesting and processing plant foods and medicine. Other programs are less intensive and involve land-based activities situated within the school or local community, like students working with Elders to build an igloo on school grounds (Snow & Obed, 2022) or planting a community garden together (Lever, 2020). These examples illustrate forms of situated and experiential learning that are also common in PBE. In the context of LBE, however, these activities are situated as part of broader relational engagements with land, where learning is not only situated in place, but constituted through relationships with land, Elders, and community, including more-than-human beings. At times, these practices may be constrained by school commitment to mainstream curricula, limited funding, or policy restrictions around logistics and safety concerns (Bowra et al., 2021; Redvers, 2016; Snow & Obed, 2022).

Unlike LBE, PBE practitioners may not necessarily seek to fundamentally transform the underlying structures of state-sanctioned education but instead operate within existing curricular and institutional frameworks (Vander Ark et al., 2020; Yemini et al., 2023). For example, PBE has been deployed across a range of disciplines, including English language arts (Mendoza, 2018; Wason-Ellam, 2014), environmental studies (Hutson, 2011; Mnyusiwalla & Bardecki, 2017; Sturrock & Zandvliet, 2023), fine arts (Brook, 2016; Inwood, 2008), mathematics (Showalter, 2013), science (Semken et al., 2017; Winters, 2022), and social studies (Anderson, 2017; Senechal as cited in Gruenewald & Smith, 2008). Some examples of place-based learning include early-years students mapping their community and connecting with businesses and organizations that support newcomers (Anderson, 2017); middle-years students learning from elders and developing personal territorial land acknowledgements (Burton, forthcoming); and high school students collecting air quality data from a neighborhood and advocating politically at the municipal level for improved public transit (Senechal as cited in Gruenewald & Smith, 2008).

In these contexts, PBE grounds curriculum in local places and communities while remaining aligned with prescribed learning outcomes and standards. While some critical strands of PBE explicitly challenge dominant educational structures (Gruenewald & Smith, 2008), curricular adaptation often remains the focus, rather than systemic transformation. While barriers such as transportation or admission costs can be prohibitive, the siloed and timetabled school schedule is often a bigger barrier to facilitating sustained experiences beyond the school building. K-12 PBE teachers can still work towards undoing the “placelessness” of curriculum by contextualizing curriculum to the local.

Putting Theories into Practice

In the summer of 2024, both authors had the opportunity to facilitate two different courses on land- and place-based education to in-service K-12 teachers as part of the post-baccalaureate in education diploma (PBDE) program at the University of Winnipeg. In this next section, we share our personal experiences of teaching our respective courses to both explain our perspectives and approaches to learning and to demonstrate how land- and place-based education were differentiated and practiced between us.

Melissa: Land-Based Pedagogy and Anishinaabe Art Practices

Approach. This course was designed to introduce students to customary Anishinaabe art practices, like basketry, quillwork, and beading, as an expression of land-based pedagogy. I wanted students to consider aspects of land-based learning by directly engaging in hands-on skills and developing relational awareness to land within Winnipeg. Anishinaabe art practices are slow and intentional. Their materials, forms, and aesthetics are deeply rooted in the land they derive from, and it was this relationality and intentionality that underpinned the course.

Implementation. Our course had several learning objectives: 1) to explore foundational principles of land-based pedagogy; 2) to identify traditional knowledge embodied in Anishinaabe art practices; 3) to utilize and gain experience in working with natural materials sourced from plants and animals; and 4) for students to develop a habit of critical reflection of their place in the world and the relationship between land and their own lives. Throughout the 8 weeks, teaching moved fluidly between classroom discussion and land-based engagement. Readings and discussions that took place during classroom sessions critically framed land as politically and culturally embedded. We explored ethical relationships with natural materials, considered the agency of more-than-human beings, and discussed our responsibilities as kin. This provided theoretical framing for our field experiences and linked Indigenous art and craft practices to LBE theory and Anishinaabe worldview. Field days consisted of land encounters in the morning and studio-based work in the afternoons. This provided experiential, hands-on learning to practice relational engagement with both land and materials. Students practiced relational awareness with plants, animals, and water ecosystems while engaging with plant and animal-sourced materials in culturally informed ways. These field experiences allowed students to have direct, relational experiences with land that later informed their creative work in the class.

Assessments included a self-positioning assignment as an introduction to relationality, where students had to consider the people, places, practices, and things that have shaped them into who they are. Students were also assessed based on reflective writing that served to decenter the instructor

as the “expert in the room,” allowing students to explore and articulate how knowledge arises through embodied, sensorial experience. In their final projects, students were asked to complete a creative work utilizing skills taught in class, accompanied by a reflective essay that described how this course experience altered, influenced, strengthened, or validated their personal philosophy and relationship with land.

Challenges. The main challenge encountered in this course was attempting to disrupt the assumption that land is separate from urban environments, or that authentic LBE can only occur in rural or remote settings. This binary shaped some of my own assumptions and was evident in our classroom discussions, particularly around what counts as “legitimate” engagement with land. Working with a relational understanding of land meant unlearning these distinctions and recognizing that LBE is not limited to subsistence-based activities like hunting, trapping, or gathering.

Will: Places are Pedagogical: An Introduction to Place-based Education

Approach. This course was designed to build foundational knowledge on PBE theory, providing concrete examples through text and field experiences, and strengthening teachers’ knowledge about place, specifically Winnipeg, where all teachers were currently assigned. As I sought to model PBE on location, the five full days emphasized experiential course design.

Implementation. An introduction to settler-colonialism and PBE theory prefaced the course. Students were tasked with responding to Sinclair’s (2023) call for shifting away from tokenistic territorial acknowledgements in favor of those that held personal stories, recognition of land, people and personal action in meeting the Truth and Reconciliation’s Calls to Action (Truth & Reconciliation Commission, 2015). The link between settler-colonialism and the local context was complemented by readings from Toews (2018) whose text on racial capitalism in Winnipeg was read and discussed.

Building on this were readings and discussions on PBE theory. Seawright’s (2014) paper on the three camps of PBE, coupled with Gruenewald’s (2003a) critical pedagogy of place framed PBE’s origins and how content and pedagogies can shift towards engaging critically with place, particularly given the context of settler colonialism which continues to permeate K-12 schools and communities in Winnipeg.

With these ideas in mind, we spent a second day at The Forks, a place loaded with meaning at the confluence of the Red and Assiniboine Rivers. It has been a meeting place for Indigenous peoples from time immemorial and is known as the historical birthplace for Winnipeg. Students participated in a Métis Walking tour led by a local Indigenous K-12 teacher, who dwelled with us in specific historical spaces and shared personal stories that provided contextual details. This was juxtaposed with a boat tour that provided a “touristy” perspective on Winnipeg’s history from the river.

In the second half of the week, readings and field experiences were designed to draw in ecological shifts seen in Winnipeg. Our class spent time learning with the Red River with an educational program coordinator from an outdoor learning center, who guided us through a series of water testing experiments. This led to conversations about how humans have transformed the environment in various ways, including terraforming and the seepage of industrial chemicals and human waste into local water systems. Seeing how Winnipeg could be many places simultaneously – Manitoba, Treaty 1, Lake Winnipeg Watershed, prairie ecozone, distinct political and zoned boundaries – offering different ways for students to understand this place through both a Euro-centric and Indigenous lens.

PBE theorists have offered that one way to have young people care for places is for them to dwell in them repeatedly over time (Gruenewald, 2003a; Orr, 1992). In a week-long course, located on a university campus that students had little connection to, how could I meet this aspiration? I decided to embed three visits across the week to an Indigenous Learning Garden that had been established a few years prior. In this place our class met on the first day to share their personal connection to place; on the third day students used an app featuring local elders that explored the Indigenous plant life in the garden, learning Anishinaabe words for the native plants; and on the third day, each student was invited to share their reflections and key takeaways from the week.

Challenges. Despite strong positive feedback from students, the course presented two challenges. Firstly, an intensive course denied a sustained inquiry over an extended period of time. Providing an understanding of PBE theory, exploration of Winnipeg as a pedagogical location, and providing bite sized examples of practice was deemed to be a more effective use of time. Secondly, the course was more accessible to those students who were familiar with and practicing inquiry approaches to teaching and learning, which is foundational to much PBE practice. Requesting inquiry or project-based courses as a prerequisite and offering the course over a semester would greatly benefit students and mirror actual PBE education practices in the K-12 system.

Implications

Taken together, our experiences illustrate how our ontological orientations shaped not only course design and classroom practice, but the kinds of relationships students and teachers develop with land, place, and knowledge. Melissa focused on developing students' relational awareness with land through customary arts practices and by ethically engaging with natural materials. While academic scholarship provided theoretical framing, this course was firmly grounded in Anishinaabe worldview. Through multisensorial, embodied experiences, students reflected upon their roles within and ethical responsibilities towards land. Will created a course that critically framed PBE theory to address settler

colonialism and the history that lead to the founding of Winnipeg. Through a layered exploration of Winnipeg as place, students were introduced to key tenets of PBE that included respectful inclusion of Indigenous peoples and perspectives. To say that our approaches within our respective courses are one and the same obscures and flattens the differences in our purpose, perspective, and worldview. These experiences highlight how LBE and PBE are guided by distinct ontological orientations that cultivate ethical, relational, and contextual learning in unique ways. Recognizing these differences is essential for educators who seek to implement these pedagogies thoughtfully and with intention.

Where now?

As we have noted, scholarship on LBE and PBE has steadily grown over the years, resulting in greater application of these pedagogies (Bowra et al., 2021; Yemini et al., 2025). This includes public education in our home of Winnipeg, where school divisions are taking seriously the importance of Indigenous education broadly and LBE more specifically (Anderson, 2024; Macintosh, 2024). Both of us are excited by this shift as it reflects a broader recognition of the importance of community-based and culturally-relevant pedagogies. These approaches challenge traditional modes of teaching and learning that have potential for harm and move us towards an education system grounded in an ethics of care for one another, for our communities, and for the environment.

We stress that in an education system dominated by settler educators (Winnipeg Indigenous Executive Circle, 2024; Skelton & McMahon-Flett, 2025), Euro-centric curriculum, and unequal power structures, care must be taken to avoid appropriating or co-opting programs like LBE. In a settler-colonial state that continues to struggle with the legacy of genocide against Indigenous peoples and ongoing violence against the natural world, PBE practitioners can learn from LBE, while respecting the cultural boundaries that distinguish the two approaches.

We take heed from Tuck and Yang's (2012) notion of settler "moves to innocence" whereby settler educators adopt Indigenous content and pedagogies to absolve themselves of the harms of the Canadian settler-state without meaningfully challenging the structures that perpetuate settler-colonialism. We argue that LBE represents a distinct orientation to learning, grounded in and informed by Indigenous worldviews that currently have not been fully realized within contemporary schooling systems. While elements of PBE may share overlapping practices in its more critical or progressive forms, LBE differs in its ontological grounding and in its refusal to position land as merely contextual to learning.

Our intention with this article has been to prompt educators and practitioners to be clear about what they are engaging in when they say they are doing LBE or PBE and to think more deeply about the implications of their practice. We argue that the ontological differences are vulnerable to being

flattened when not attended to properly. Land- and place-based education offer distinct but overlapping approaches to teaching and learning that both have the potential to have significant benefits for young people and the communities in which they inhabit. Our hope is that non-Indigenous educators will find ways to bring Indigenous perspectives into their work in respectful, engaging, and thoughtful ways without engaging in damaging forms of cultural appropriation or co-optation.

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Phenomenological writing at an island beach: Encouraging connection with nature . . . and its limits

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Abstract

This article explores the value and limits of phenomenological writing aimed at helping students “connect with nature” in outdoor settings. It focuses on a fieldtrip to the beach whose purposes are many-layered: to help students in the social media age be fully present to the natural world around them; to help them recognize, articulate and develop their capacity to perceive the natural world and feel engaged with it; and to feel related to each other as sensate creatures. My ultimate goal is ontological: 1) to help students gather bodily experiences and reflections as fuel for questioning the modern notion of the self as acquisitive, separative, rational, self-interested, and embedded primarily in commercial and social media networks, and 2) to let experiences in nature inspire them to imagine alternative understandings of who and what we are. Students later engage with decolonial writings to put their experiences into fuller cultural context (e.g., Vine Deloria Jr.’s distinction between tourist, settler and Indigenous relations to land). This is where the most serious limits of phenomenological writing activities aimed at enhancing “connection to nature” appear; namely, the need at some point to understand experiences of “connection to nature” in the context of Indigenous/settler realities.

Résumé

Cet article s’intéresse aux avantages et aux limites de l’écriture phénoménologique en plein air pour aider les élèves à « se lier à la nature ». Il présente une excursion à la plage aux objectifs multiples : à l’ère des médias sociaux, cultiver chez les élèves une présence entière au monde naturel; reconnaître, articuler et développer leur capacité à percevoir le monde naturel et à en faire partie; se sentir lié·es les un·es aux autres en tant que créatures sensorielles. Mon but ultime est ontologique. D’une part, aider les élèves à réfléchir et à expérimenter le monde de manière incarnée, pour leur permettre de questionner la notion moderne du soi comme un être possédant, séparé du monde, rationnel, égoïste et principalement inscrit dans des réseaux commerciaux ou des réseaux sociaux numériques. De l’autre, laisser leurs expériences en nature inspirer d’autres manières de comprendre ce que nous sommes. Après l’excursion, les élèves replacent leurs expériences dans un contexte culturel plus vaste en étudiant des textes décoloniaux (ex. différence entre les relations au territoire touristiques, colones et autochtones, selon Vine Deloria fils). À cette étape apparaissent les limites les plus importantes de l’écriture phénoménologique visant à améliorer le « lien à la nature », c’est-à-dire la nécessité de comprendre les expériences de « lien à la nature » dans le cadre des réalités colones et autochtones.

Keywords: Connection to nature, conceptions of self, phenomenological writing, Indigenous/settler relations to land, ontological inquiry in EE

Introduction

Every September, I take my students on a fieldtrip to a beautiful and isolated island beach whose existence is unknown to most tourists – and to most Prince Edward Island residents. I don't tell the students ahead of time where we are going. I don't want them to come to the fieldtrip filled with preconceptions about "going to the beach," though of course the consent forms are suitably detailed. My aim is for the fieldtrip to be a revelation in phenomenological inquiry, especially for any students who have never knowingly done such inquiry – namely, inquiry focused on describing and interpreting their perceptions and immediate experiences, NOT on cataloguing objects. Second – and equally important among many other aims – I want the students to experience *together* that unique connection to nature, and the transformative *peacefulness*, that being at the ocean can engender for us, especially when our being at the ocean is an unexpected gift in the middle of a busy day.

And it *is* a busy time for students. I teach philosophy and environmental studies at the University of Prince Edward Island in Atlantic Canada. The students attending the field trip are in their first or second week of classes. Some are settling into university or into PEI or Canada for the first time. They are just learning new schedules, meeting new people, settling into new apartments, getting supplies, and juggling school demands with part-time work. The contrast is awe-inspiring: the busying whirl of the start of classes ... and the entrancing peacefulness of being at the beach. This contrast is part of what makes the activity so easily successful.

But most schools are not located 15 minutes away from an island beach. Are there possibilities for this activity and inquiry for classes with more limited geographical resources? The answer is – yes, though it may take a little more direction and preparation. I have led this activity on snow-covered campus grounds, with still valuable but admittedly *much* less impactful results.

The motivation for this beach activity is *to help students in the cellphone/social media age* to be present to the more-natural world around them, to experience and share with each other the peacefulness yet energy that being at a beach can bring, to experience in a collective setting a feeling of connection to nature, and to describe, interpret and later, share with other students their own experience of being at this beach and perceiving the patterns around them.

My ultimate aim, through these objectives, is ontological. In the course, I am trying to help students explore the fundamental nature of our selves and our world. I hope they can store up enough experiences in nature to provide fuel and stimulus for questioning our modern notion of the self as acquisitive, rational, self-interested, and intrinsically separate from each other and from nature ... and let nature inspire in them an alternative understanding of who and what we are, revealing itself as something fundamental they are related *to*. The activity occurs in the context of a 3rd year philosophy/environmental studies course where we explore also the ethical, epistemological, economic, political and ecological aspects of human-nature relationships.

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The first time I saw Kinlock Beach, I was overwhelmed by its subtle beauty – hidden from the road by “ocean-view” houses. I was surprised also by how at-home I felt in its waters. But it wasn’t home. I was a settler and new to Prince Edward Island. The beach is on the unceded land of the Mi’kmaq. Their ancestors probably swam and fished in these same waters before British settlements sold their land out from under them to “proprietors” in England.

So how does a settler *be* at this beach and swim in its waters while honouring it as Mi’kmaq land and reckoning with these tragic colonial realities? To help find answers to this question, I undertook several teaching initiatives at UPEI with Mi’kmaq colleagues and elders. Taking students on a fieldtrip to this beach was in part a way to share this enquiry. But the fieldtrip begins with the students exploring their relationships with nature at a more fundamental level.

In this article, I describe the phenomenological writing activity, student responses to it, and the philosophical and educational considerations behind it. In part 1, I query the concept of “nature,” and examine the role and limits of phenomenological and other educational activities aimed at helping students engage with nature, especially when that aim is understood as “connecting” to nature. Here, I address the criticism that “connection to nature” is an ineffective educational ideal, born out of colonial and economic privilege, attempting to impose a romantic vision of nature on students whose vision lies elsewhere, at best providing distraction rather than traction for critical engagement with the problems of climate change our students will have to face.

In part 2, I more fully describe the beach activity, outlining its objectives, design and implementation, including the guide questions that frame the writing assignment and initial student responses. In part 3, I share some student reflections and discuss student reactions to engaging with decolonial literature, including Vine Deloria Jr.’s (1999) distinction between aesthetic and spiritual experience where he distinguishes between tourist, settler, and Indigenous relations to land.

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As teacher-researcher, I am describing the method and the pedagogical and philosophical underpinnings of this beach activity, describing and interpreting its results, and trying to evaluate its pedagogical effectiveness and limits. This comes with the obvious *research limitation* of practitioner bias. Further, this project does not involve qualitative data analysis beyond the teacher observations and interpretations I offer. But the reflective outdoor activity I explore here is valuable for other teachers to consider, and I hope this exploration provides a good guide. Is the activity relevant to elementary or secondary school contexts? Yes, minus the more difficult readings and concepts. Many environmental educators use somewhat similar phenomenological writing activities suitably scaled for whatever level, even pre-school (see: Mortari, 2004 for a primary school example).

My goal in this research is also interventionist for EE in a broad sense. I aim to contribute to exploring the complexities of helping students “*connect to nature*.” This remains a vitally important goal. But it is one that requires more careful conceptualization than in the early days of EE when we lacked widespread recognition of the need or the ways to respond to the decolonial and multicultural complexities that intersect with this seemingly innocent educational aim. Understanding what it is to connect to nature also requires an engagement with ontological questions about what it is *to be* a human experiencing nature, what it is to be a part of nature encountering humans, and the relationship between the two ... along with related questions about the technologies we use to navigate our interactions with each other and with nature, from clothing to computers.

Part 1: The Decolonial and Multicultural Limits of Helping students “Connect to Nature”

First, the Conceptual Query: “Nature”? “Natural World”?

The terms “nature” and “the natural world” as used in this paper are not intended to restrict our vision of EE to sites or schools where students have the geographic or financial privilege to access marvellous landscapes. I use them to refer to places in our world where wild plants and animals have not been eradicated from the land by human development, and where the environment is not under constant human control. In other words, places where students can see biotic communities following their usual patterns free of direct constant human interference, even if their range or freedom has been limited by urban, rural, or industrial development ... and even if they owe their very existence in that place to development.

Thus, “nature” is intended to include not only beaches, forests, mountains and meadows but also a patch of lawn in front of a school or apartment building,

plants growing in a pot, crows flocking in treetops, a waste-strewn field near a factory where plants still find a way to grow, and so on. Whatever can inspire and sustain a child's or an adult's wonder at life and their witnessing of earth patterns is worthy of inclusion in the curriculum. Indeed, as Sean Blenkinsop and Estella Kuchta (2024) have noted, "the capacity for ecologizing education doesn't begin with a chunk of wild land. It begins with a radical shift in orientation, values, and understandings, and from that shifted perspective, education unfolds differently, regardless of the locale" (p. 7). But of course, the more humble the setting, the greater the teaching talent and student responsiveness needed to make the educational activity work.

Whose nature? Cultural, Bodily, Ideological and Conceptual Diversity

It is important to connect EE not only to the places where students live, but also to their social-economic-cultural background and bodily circumstances – for example, whether they are comfortable in outdoor settings or fearful; whether they are able-bodied or mobility- or endurance-limited, etc. In addition to all this diversity of individual experience, nature is also *conceptualized* in culturally and historically specific ways. It can be understood as sacred creation, object of reverence, Mother Earth; OR as a complex set of systems to be studied; OR as an illusion or site of temporary suffering; OR as a stockhouse of resources for human use; OR as a jungle of pests and scary creatures (e.g. Courtenay-Hall, 1995, Cronon, 1995, Russell, 1999). Thus, as Connie Russell (1991) has noted, when we talk about helping students engage with nature, we need to ask "Whose nature?" (p. 124).

It is important to respect this diversity and welcome it into the classroom even as we try to lead students to a fuller appreciation of nature in its many manifestations. Otherwise, we risk functioning as educational imperialists, imposing on our students our vision of nature and what it means to connect to it (Pivnick, 2003; McKenzie, 2004), perhaps reproducing in our educational practices "the very patterns of social domination" that we work to resist in other contexts (Russell, 1999, p.125).

A practice built into the debriefing for the beach activity is to bring the diversity of conceptualizations of "nature" explicitly into the curriculum, engaging students in respectful investigation of diverse and sometimes competing understandings and experiences of nature. This strategy is in keeping with the principle that environmental conflicts in the larger community are often best handled as sites for respectful inquiry in the EE classroom (Courtenay-Hall, 1997).

But that question, "Whose nature?" leads us to consider not only "Whose *conception* of nature?" but even more importantly, "Who has access to nature?" and "Whose *land* is it that we are encouraging students to connect to?"

"Whose Nature?" *Global Inequalities and Decolonial Concerns*

The "engage with nature" vision of EE that animates the beach activity – and a large part of the EE work done in Canada – operates with gifts of geographic and economic privilege that most people do not have. Many children in the world live in urban centres of high rise apartments and concrete, where they rarely if ever see grass or trees, and where plants, if any, are in pots. Many live in places where going outdoors can at times mean increasing their likelihood of developing respiratory or coronary diseases. The World Health Organization (2022) reports that 99 % of the global population live in regions whose air quality exceeds WHO limits. As well, 1 in 4 children around the world under the age of 5 live in poverty and without reliable access to food (UNICEF, 2024), and more than a billion school-age children live in habitats threatened by climate change (Institute for Development Impact, 2025). In these contexts, the urgency for EE is less about "connection to nature," and more about survival – learning how to grow food, or cope with pollution, or find shelter from heat, floods or cyclones (Mitchell, 2022; Tsepa, 2008).

Within all this global diversity, the most ethically charged dimension of the question "Whose nature?" lies in its bearing on the history of Indigenous peoples. "Whose nature?" there transforms into "Whose land?" ... and centuries of Western educational institutions ignoring this question come back to haunt any thinking educator.

Thus, environmental educators in Canada in the 21st century are faced with two aims which stand in complex relations of synergy and tension with each other:

1. The Ecological Aim: To help students experience, understand and respect a natural world that is a) dramatically receding from their view due to the intensification of urbanization and the ever-increasing attraction of social media and hand-held, always-available electronic entertainment, and b) dramatically changing in its hospitableness for human beings (and all animals and plants) due to the increasing impacts of climate change and environmental degradation, and
2. The Decolonial Aim: To help students understand the importance of connection to the land for Indigenous peoples – and to recognize that these connections have been unjustly interrupted, derailed, or suppressed ... by exile, by land appropriations and by attempted cultural genocide involved in the very "development" processes *that built* the students' homes, schools, and hand-held devices.

The synergy between these two aims is obvious, but there is also tension between them. The tension manifests in two mutually opposite reactions. One is the response of denial. The other is the response of white or settler guilt. Either of these responses can impede learning across the range of ecological

and decolonial educational aims, and so the educator must address both. There is a growing literature that can help.

Part 2: The Beach Activity: Educational Objectives, Design, Guide Questions, Implementation, and Initial Observations

Immediate Objectives and Long-term Aims

When I first developed the beach activity, I was teaching in the Faculty of Education at the University of British Columbia. My objectives then were to help pre-service and in-service teachers experience the ways that directed phenomenological journal writing can inspire thoughts about their own relationship to nature ... so that they could, in turn, use this EE method in some form with students in *their* future classes.

When I left UBC to take up undergraduate teaching at UPEI, the context changed entirely. Here, I was faced not with teachers wanting to learn more about EE, but with undergraduate students most of whom had little time for engaging with nature in their day-to-day lives, and not much interest. The median was somewhere above having had a pet as a child, but somewhere below having an ongoing interest in hiking or in neighbourhood wildlife.

I had tried more modest methods and places to encourage engagement with nature, but with equally modest results. So I decided to launch the beach activity in my third-year environmental philosophy course in an effort to give the less engaged students a jump-start at having more active interest in the natural places around them. And it worked!

Kinlock Beach is on the south shore of PEI, on the Northumberland Strait. Despite its location in a residential area, it has an astonishing capacity to inspire contemplation, even when there are many people around. It is not the classic tourist brochure beach one sees on the north shore of the Island – and this is a good thing. It helps avoid stereotypical associations with being “at the beach.”

The beach has dark red sand and widespread plant growth, its shore laden with washed up eel grass and seaweed. It is surrounded by tall cliff embankments with upscale cottages scattered all around. Nevertheless, it is abundant with features that help carry the activity – the infinite extent of ocean, the heartbeat steadiness of waves rolling to the shore, the breath-giving fault-forgiving freshness of ocean air, the forever endless sky, the horizon beckoning across the impassable stretch of ocean, the living red-brown sand of the shore, the green reeds and sea grasses, the infinite grains of sand, the tidal pools teeming with life. All I had to do was get the students there with the right mixture of focus, educational structure, and non-expectation.

My immediate educational objectives with the beach activity are *to help students in the cellphone/social media age:*

1. Be present to the more-natural world around them
2. Experience and share the transformation of energy it can bring
3. Experience in a collective setting a feeling of connectedness to nature, and
4. Describe, interpret and share with other students their own experience of being at the beach and of perceiving the patterns around them.

Let's explore each in turn.

Objective 1) Being Present to the More-Natural World: Noticing Nature

Before the mid 20th century and the invention of television, technology *helped* people in their interactions with nature. It didn't *replace* nature. But today, technology includes the internet, video games, social media, instant foods, instant transport, and communication devices so elaborate that most people in urban areas can go through their whole day having no contact with uncontrolled nature beyond the air they breathe and the sky they glimpse. The devices we buy don't typically guide our interactions with *nature*. They guide our interactions with the *internet*. We are layers of mediation apart from nature. Human-nature (and human-human) separation takes on new meaning, manifested with every purchase from e-bay or Amazon.

So the task is *to set students up in a natural setting provocative enough, with questions simple enough and directive enough, and with classroom patterns of expectation strong enough, to open up their time and space habits to something different*. The phenomenological writing assignment is designed to do just that. It is a first step in discovering or returning to the long-ago childhood activity of noticing what is going on in the natural world right outside your door. The setting doesn't have to be a beautiful beach. Even schoolyards can inspire contemplation — from the magic of maple keys germinating in early spring to the wonderlands that snow creates in mid-winter.

The importance of developing nature perception habits is, in part, that you can love or respect only that which you can perceive, as Aldo Leopold (1966) noted. And you can understand who you are only if you understand where you have come from – which *ultimately* includes a part of the earth, however much our cultural messaging systems teach us otherwise.

The natural world we are part of hosts our existence as individuals, as communities, and as a species. Becoming familiar with some part of nature is a first step toward coming to understand what nature is . . . toward reckoning with nature as the source of our being (Jonas, 1984; Rolston, 1988; Plant, 1989), toward coming to understand its patterns (Jickling, 2015; Leopold, 1966; Rodman 1983), toward coming to understand our dependence on the forces of nature outside us and within us as “strands in a larger pattern” (Battiste and Henderson, 2005, pp. 77-78).

Objective 2) Peacefulness yet Energy, Focus yet Openness

Being at a beach (or in a forest, a park, a stream bank, an abandoned field, etc.) focused on phenomenological questions can help students experience the wonderful restoration that more-natural places can bring. Opening up to the non-human life forms, and the patterns and rhythms around them, can engender for students peacefulness, and at the same time, engagement with life. The inclusion *in the curriculum* of a focus on students' experiences in nature can signal to students that *yes*, observing nature closely *is* something that matters, something we *should* take the time to do in our lives. It is not “eccentric,” not simply a relic from decades past, long ago eclipsed by television and the internet – but rather, important enough to be included in university courses, and to be engaging.

Objective 3) Shared Connection to Nature

After the students emerge from their carpools and gather on the beach to hear instructions, it takes only a few minutes for them to find a place they want to sit. By the time they begin writing, most of them are profoundly engaged in observing what is around them. Their focus has astonished me, every class (ever since the year I began requiring cellphones to be left in their cars). Rare is the student who even seems interested to breach their solo engagement to talk to a buddy nearby. Most students appear to have, in this context, a transmuted sense of being with others – as if being in a community of people engaged in the same solo reflection task is itself a form of being together. This togetherness seemed to give them even more focus in their individual observation and writing task. But is this really a result of the beach activity context? Or is it just an extension of cellphone habits – being together but each busy with their own phone? I believe it was the beach activity context ... because I noticed it even in the early 2000s, before cellphone internet use was prevalent.

The largely solo experience of being at the beach becomes a shared experience when we meet in the classroom the next day. Hearing each others' stories of how they felt at the beach brings new perspectives to some students and corroboration to many others. The discussion adds to the communal and institutional validity of feeling “connected to nature” ... and of the flow of energy that being at the beach generated for them. That this concept of “connection to nature” needs critical exploration comes as a surprise to some students. On the other hand, in every class of 40 or so, there are a few students who do not engage, or who are skeptical of the entire activity. I make sure to make room for skeptical perspectives, and to respect their responses, both in our discussion, and in the guide questions I frame (see end of Part 2 below).

Objective 4) Describe and Interpret Their own Experiences of Being and Perceiving ...

Just as social media and video games can block young people from having time, impulse, or preparation to encounter nature (Courtenay-Hall, 2008), so a

limited science education and an overweening concern to reproduce in natural settings what they have learned from science textbooks can block students from experiencing nature on their own terms (Evernden, 1985; Payne, 2005), or from having the confidence to think that their own unaided observations are significant. So an important part of the beach assignment is its phenomenological focus: asking questions that foreground the student's perception of what is around them, and how they feel themselves responding to it. This focus on *their experience of the beach* frees students from feeling like inadequate knowers for their lack of scientific understanding and terminology ... despite their impulse to associate a fieldtrip to the beach with academic biology learning. A phenomenological focus thus engages students in trying to describe – not the sand or the wind itself, as through a list of measurable characteristics, and not the sand or the wind as understood in geology or meteorology – but the sand or wind as they perceive and experience them – and as they feel about them – *there*, at this moment, at this beach.

The Ultimate Aim: Ontological Reflection

The ultimate aim, through objectives 1 to 4, is ontological. I am trying to help students explore the fundamental nature of our selves and our world. In this course, we do many visits and community-service engagements in natural settings. My hope is that students can store up enough experiences in nature and in community settings (if they haven't in previous years) to provide fuel and stimulus for questioning our modern notion of the self as acquisitive, rational, self-interested, and intrinsically separate from each other and from nature, and embedded primarily in commercial and social media networks. We confront this individualistic, *homo-economicus* (and today, *homo digitalis*) representation of human-being-in-the-world first, by exploring the writings of such early pivotal thinkers as Descartes (1998 (1637)), Adam Smith (1993 (1776)), and Garret Hardin (1968). Against this representation, my hope is that students can let nature inspire in them an alternative understanding of who and what we are, and reveal itself as something *fundamental* they are deeply related to.

We begin by exploring the communal and land-based sense of identity communicated in Indigenous writings (Deloria, 1999; Little Bear, 2007; Battiste & Henderson, 2005). Our study includes examining the differences between tourist, settler and Indigenous relations to the land, which some students find challenging to their sense of themselves as ecologically attuned. Deloria (1999) distinguishes these three forms of relationship with nature not just by the time scales of inhabitation, but also by the degree of embeddedness of inhabitation in a community, in respect for ancestors, and in spiritual traditions ... and by the degree of embeddedness of community, culture and language in *the land* (also discussed in Battiste & Henderson, 2005; Korteweg & Root, 2016, p. 189; Little Bear, 2007). Toward this end, students participate in a sacred sweat-lodge ceremony led by Mi'kmaq Elders which brings this exploration into dramatic

bodily engagement, and invites students to come to learn more deeply about their own land communities and ancestors.

We next explore other alternatives to the idea that each of us is an independent self-interested organism bounded by the surface of our skins – and instead might be better understood as ...

- An interpenetration of organism and environment (Shepard, 1969)
- The organizing centre of the accumulation of habits we have formed in our interactions with our environments (Dewey, 1938)
- A relational being, in part constituted by our relations with others (Held, 1987; Keller, 1986) ... with particular people, animals, plants, places or things (Courtenay-Hall, 2003, 2025; Naess 1987; Plumwood, 2000)
- A centre in a field of care (Evernden, 1985); a node in an ever-growing ever-mending web of relationships (Courtenay-Hall 2025)
- A moment in an evolving set of processes (Whitehead, 1929)
- A bearer of witness, a being-in-the-world (Evernden, 1985; Heidegger, 1962)

We also explore the ways in which many of these core ideas were articulated in Indigenous knowledge systems long before Western thought had to try to find a way back to them (Deloria, 1999; Little Bear, 2007; Battiste & Henderson, 2005).

The Phenomenological Writing Assignment

Below are the written instructions that I give to students the morning of the fieldtrip, explaining why I withheld exactly where we were going until now. I distribute this form to the students in the parking lot before we leave ...

Phenomenological Writing Assignment Your name: _____

Phenomenological writing is writing about your perceptions and experiences simply and directly, without interpreting them through the framework of the theories you have learned in the natural or social sciences, or in history or philosophy. It also involves not letting your perception and experience be limited by the framework of the images and associations you have acquired from movies, music videos, social media, or reality tv shows. It involves trying to set aside all your scientific and other forms of cultural learning in order to *just BE* ... be *present* to everything around you ...

responding simply to how things feel to you ...
what you see,
what you smell,
what you feel on your skin,
what you hear,
what you taste in the air or on your lips ...

The point of phenomenological writing is to describe your experience as it evolves. Don't try to describe what you perceive in objective terms, as if you are a neutral observer. Instead, simply write what you feel and describe what you perceive *here and now*, in this moment. Try to leave behind all the categories and theoretical ideas you have learned. You are not writing a report for a lab experiment. You *are* the experiment ... and the researcher. Write about what you observe (all 5 senses) and what you feel in being at this beach.

Of course it is impossible to free our minds from every scientific or cultural framework we have learned. Even the very language we use to describe our perceptions is infused with cultural assumptions and indicators. But try as well as you can to experience this beach with your senses engaged, without first filtering everything you perceive through what you have learned elsewhere and in the past.

Keep this in mind as you respond to the questions below (... which themselves are already interfacing between you and your experiences ... but hey, I've got to give you some kind of prompt -- just in case your thoughts are fixed on something unrelated to being here at this beach ...)

So here are the questions ...

1. What do you see and sense, and how do you feel, when the ocean first comes into view over the crest of Kinlock Road? (Drivers are to ignore this question.)
2. What do you feel when you first walk out onto the beach? What do you perceive (see, hear, smell, taste, feel on your skin)?
3. What are you *feeling* being alone at the beach for the first 5-10 minutes? What are you perceiving (seeing, hearing, smelling, tasting, feeling on your skin)?
4. The African-American poet and social theorist Audre Lorde writes that there is a source of energy lying deep within each of us:

"firmly rooted in the power of our unexpressed or unrecognized feeling ... a power which rises from our deepest and nonrational knowledge," ... a source of energy that lies between "the beginnings of our sense of self and the chaos of our strongest feelings" ... a source that, once we become acquainted (or reacquainted) with it, makes us *suddenly aware of our very deep "capacity for joy."* (1984, 87-89)

She writes that once we have experienced "the fullness of this depth of feeling" and once we have recognized its power, we will come to realize the importance of reorganizing our lives to be in touch with this source of energy, and to keep in touch with it (Lorde, 1984).

Does being at the beach evoke any feelings in you that resonate or link with the kind of energy that Lorde is describing?

(By the way, “No” is too short an answer. A negative reply is much better if you give it as thoughtful engagement rather than as a dismissal of thought. So if your experience here at the beach right now doesn’t include anything like the energy that Lorde is describing, then: 1) Describe what you are feeling that compares or contrasts with the energy Lorde discusses. OR ... 2) Explore whether there are other experiences you have had in your life that put you somewhere near the experience of primal energy that Lorde is describing. OR ... 3) Describe why her conceptualization seems out of alignment with your own experiences or at odds with your beliefs (if this is the case).

Part 3: “This Horizon Goes on Forever”: A Brief Look at Student Responses

There are typically 40 students in my 3rd-year Environmental Philosophy classes, from various disciplines, humanities as well as sciences. We travel to the beach by car pool. To bring the topic into their thoughts during the drive, I ask students (except the driver) to note what they see and sense when the ocean first comes into view.

The students report that from the moment they first see the beach, they are transported away from the hectic worries of their day-to-day life. By the time they walk out onto the sand, the change is visible. Their talking ceases. They seem immersed in peacefulness. Their faces are relaxed and turned outward to the ocean and the cliffs, *not* searching around for cues of what to do. Not even looking to see where their buddies are. They are absorbed in watching, listening and contemplating. Their movements, if they move at all, are slow and unself-conscious, as if the beach has freed them from the pressure of worrying about what to do or how they might look to others – which I would guess is not the usual “beach” experience for many students. Many express their response as “a feeling of freedom.”

When I ask them to find a place to sit and write, many students head off to a spot as if they already knew exactly where they wanted to go ... and within minutes, they become deeply engaged in being there – observing, contemplating and writing – as if there were no place they would rather be. (Of course, when the alternative is to be discussing and taking notes in a classroom on a sunny September afternoon, their ready engagement is not surprising.) The students do the writing assignment for 30-40 minutes.

Many students comment on the interesting contrast of being at the beach *with* 40 other students, yet having the feeling of being *alone* with nature. This is an important part of the way that nature can engage us. Describing the impact of cellphones on human social life, where people seated together at a dinner table can all be “alone” on their cellphones, Sherry Turkle (2011) has coined the term “alone together.” But being “alone together” is an intentional exercise of respect in educational nature settings like this beach activity. At the dinner table, it may instead be a sign, and vehicle, of the erosion of family and community life.

In response to question 3 asking students what they perceive and feel in their first 10 minutes at the beach, most give a detailed description of some subset of: the waves, the sand, the sky, the horizon, the sun, the wind, the ocean smells, fish, crabs, insects and birds, eel grass and seaweed, and how they feel in response to these things.

More than half speak of feeling “peacefulness.” Roughly 10 students in a class of 40 also report feeling a sense of “connection with the ocean,” or “oneness” with the ocean or with its creatures, or a sense of being “at one with the sky and the waves,” feeling “part of everything around me,” etc. I am careful not to use such terms in any of the previous class sessions. It is difficult to assess how much these assertions of “oneness” or “connection” or “harmony” are inspired by the beach experience (and other nature experiences students have had) vs. how much students are mimicking things seen or heard in popular culture. Very few students offer any explanation of what being “connected” or “at one with” means to them. This is a question we take on in later sections of the course, where we explore the various things that feeling “connected to nature” or “at one with nature” might mean, in three ways:

1. *Experientially*: What does it mean to the student using the term?
2. *Philosophically*: What basic beliefs about the structure of nature and the human self are involved in their (and other people’s) analysis? and,
3. *Scientifically*: What do psychology, biology and cognitive science tell us about the relationship between human beings and the (somewhere down there) natural world they live in?

In these later explorations, most students in previous decades were new to individualistic vs. relational vs. process conceptions of self. But in the past 10 years, a growing percentage of students, show familiarity with these concepts, particularly students majoring in psychology.

The activity is not all joyful attunement, of course. Several complain that the seaweed is “smelly” or “gross” and don’t want to step near it. These are of course understandable responses for students not accustomed to beach smells. I invite them to write about it and explore their feelings. In most of these cases, their writing reflects a not-surprising need for gentle introduction to ecological understanding and being outdoors. In any given class of 40 students, 3 to 5 students seem unengaged in writing or even in being there, and 2-3 students seem to be at a loss or passing time. I intervene to try to help them understand the very different nature of this beach assignment.

On the other side, it’s important to be watchful for the perennial problem of students trying to please the teacher – students guessing what the teacher wants the students to experience, and filling their inquiry sheets with it. As both Pivnick and Russell warn, it is important for EE not to degenerate into “enforced

compassion” – or here, “enforced connection”. It is also important for curriculum design not to be based on projecting a teacher’s own experience of nature *onto* her students. Some of the “one with nature” reports students give could well be of the “please the teacher” variety. But in most cases, the writing in their inquiry sheets, like their bodily comportment during the activity, indicates a genuineness and an engagement with the beach that seems inconsistent with pretense.

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Guide Question 4 departs from the open-question mode of phenomenological inquiry and asks students to engage with critical literature. It offers students some excerpts from the writing of black lesbian feminist theorist Audre Lorde, who writes that there is a source of energy lying deep within each of us, a source that “rises from our deepest and nonrational knowledge,” lying between “the beginnings of our sense of self and the chaos of our strongest feelings” ... a source that, “once we have experienced it,” makes us suddenly aware of our very deep “capacity for joy” ... and leads us to recognize the importance of reorienting our lives to remain in touch with it (1984, 87-89).

The question asks: “Does being at the beach evoke any feelings in you that resonate or link with the kind of energy that Lorde is describing?”

I don’t expect all students to grasp what Lorde is saying. My expectation is merely that her words will beckon some number of students beyond the usual pleasures of being at the beach. And my *hope* is that in the presence of the ocean, the sun, the beach and the sky, Lorde’s descriptions might open or reopen for some of these students the possibility of feeling within themselves something like the energy that Lorde describes, help them experience the possibility that it is linked to their interactions with nature, and help them imagine the possibility of living their lives animated by this energy. I recognize that at this point in the exercise, I am going beyond the facilitation of phenomenological writing, instead entering the philosophy professor role of challenging students with readings that likely lead them beyond their present understanding – and risking projection. But my hope is that the experience will nudge some students not already there into what Vygotsky (1934) has called “the zone of proximal development” (p. 208).

There are usually around 5 cases (in a class of 40) of expressed non-resonance or disagreement with Lorde’s conceptualization of erotic energy. Most of them reflect difficulty understanding the excerpts I gave them from Lorde’s work, AND/OR discomfort with doing or sharing that depth of introspection in a university assignment ... which is understandable. I always advise students to share only what they wish to share, and to note any reservations they feel. Here is one particularly illuminating response, from a student I will call “Larry” (name withheld for anonymity):

Larry: No. The beach holds no special feelings for me. It is somewhere I would only go on family trips but I see all beaches as being pretty much the same. I feel no surge of energy While it is a beautiful day the persistent thought that this is work, keeps me thinking of how to do this the best. If we just came here or if I came by myself it would likely be different as there would be no sense of expectation, only my feelings towards this natural place. The idea that this is work seems to sap at my energy and reduces my joy at being somewhere so beautiful.

Larry's response is important, and impressively well articulated. It points out the potential problems of such an exercise – the artificiality of directing students to respond sensually *and report* on what they perceive and feel. The exercise was, in Larry's case, even counter-productive. He probably would have been happier and learned more in a regular classroom despite the beautiful day.

It is important to design our activities and read through all student responses with this filter – “pressure to perform” – in mind. At the same time, Larry is an international student under extreme pressure for grades and dealing with, as he later described it, situational depression settling into a new community. This personal context might also have been a factor in his response. I don't know if Larry rejected Lorde's reconceptualization of erotic energy – but it's clear he has rejected this well-intended assignment, and he has given very good reasons for doing so.

Larry's comments speak to the challenge of directing student attention to engage with the natural settings we bring them to. The artificiality and constraint of guide questions and forced writing in a natural setting can disengage students who are more or differently experienced in nature, and/or more free-thinking in their approach to inquiry – all things we should value and make room for as teachers.

Closing Comments

Are such nature engagement activities successful in the long term? After my students have left Kinlock Beach, does having completed the assignment help them be more present to the world? Find peacefulness and meaning in life? Connect with nature and with each other? Understand the importance of their life experiences above the claims of reductionist science? Feel more committed to environmental care and action? Even: understand the difference between phenomenological and analytic inquiry?

The assignment appears to be at least minimally successful in motivating students in the short term. In later classes or later courses, several students refer back to the beach activity as having re-energized their commitment to spending time outdoors and “connecting with nature” or working with environmental

groups. And it gives most students who haven't already experienced it some grasp of what it means to feel connected to – or at least deeply affected by – nature. It thus provides a good baseline for the later explorations we do of concepts of self and human-nature relationships.

But ... Does this lead to any long-term substantial change for the students' lives, or for the environment? As Connie Russell (1999) cautions, it is important not to assume that nature experience can “*automatically* contribute to environmental awareness, commitment and action” (p. 124). Long-term outcomes can only be assessed with long-term research. As Luigina Mortari notes (2004), we would do well to follow the advice of John Dewey (1938) in *Experience and Education*: in each of the educational programs we design, whether or not they succeed in advancing the realization of our aims, we should at least make sure that they constitute for students “an experience that is worth living in the present” (p. 121). On this criterion, such beach activities help us bat as close to 100 as a teacher can reasonably hope to get.

And hope is important. I have lived through two revolutions in human relations with nature. The first was the dawning of environmentalism in the 1970s. The second was the invention of the internet in the 1990s. This second revolution has every power to advance the first revolution (that is, to advance environmental understanding and activism). But it has also shown itself to have great power to distance and distract young people away from awareness of nature, particularly in the age of cellphones, social media and video games.

Getting 21st century students *out* into the natural world with objectives that engage them is the essential starting point for students to develop both their understanding of nature, and a bodily, emotional and spiritual connection to it. These are a foundation for future learning, for respectful, joyful living, for understanding the need for reconciliation, and for hope. When it doesn't happen in their home-life, it falls to us as teachers – and it is our great privilege – to help it happen in their schooling.

Further research is needed on *what works* in this endeavour, and what doesn't work, and why, for everyone involved: teachers, students, parents, school boards, community partners, and government agencies. Further research and effort is also needed on public outreach: on communicating the importance of education that helps students better understand and bring integrity to their relationship to nature and technology.

Notes

- ¹ I am grateful to past CJEE Editor Connie Russell for her support and encouragement on an earlier version of this paper. I am also grateful to the first set of reviewers, whose astute criticisms helped me articulate the philosophical foundations of a teaching practice that had become instinctive for me. I am grateful to the many students who engaged in this assignment

and shared their responses so openly and expressively. . . I am grateful to Connie Russell, Lisa Korteweg and Emily Root, for their challenging early work on the coverage (and lack thereof) of settler-Indigenous relations in EE. Their insights encouraged me to explain this beach activity in the full context of the teaching I do in these courses, rather than to address the settler-Indigenous dimensions of the beach assignment in a later essay. I am equally grateful to the reviewers of the current version of this paper for their insightful and encouraging comments.

- ² In the legal consent form, I tell students that we will be going to a site 15 minutes from the University in the town of Stratford. The fields may be wet with dew, and bodies of water are nearby, so students are told to wear boots or waterproof sandals, and bring a jacket in case it is windy. And bring water to drink. Cellphones are left in the transportation vehicles.
- ³ See, for example, Payne (2003), who argues that “to variable extents technology is a major “player” in the structuring of how humans experience the “lifeworld” and is a reason why the idea of “re-embodied” is preferable to the use of “embodied” in connoting the (constant) processes of “embodiment” practices. Ihde (1990, p. 3) suggests the term ecosystem should be replaced with “technosystem” because it more accurately describes the texturing “cocoon” in which most of us now live” (p. 179).
- ⁴ Discussed in, for example: Courtenay-Hall & Sutherland, 1998; Curthroys, 2007; Martin, 2020; MHCCA, 2025; Pivnick, 2007; Russell, 1999
- ⁵ Even the assumption that anyone can articulate an internally coherent conception of “the environment” or of “nature” has been challenged (Evernden, 1985; Morton, 2013).
- ⁶ See, for example, Battiste, 2013; Battiste & Henderson, 2005; Courtenay-Hall, 2018 & 2019; Giroux, 2017; Korteweg & Russell, 2012; Korteweg & Root, 2016; Nakagawa & Payne, 2011.
- ⁷ These aims apply to both Indigenous and non-Indigenous students, since not all Indigenous children are raised in ways connected to the land, nor in ways that engage with the history of colonization.
- ⁸ Here is the synergy: Understanding the importance of connection to the land in one’s own life helps non-Indigenous students begin to understand the importance of connection to the land for Indigenous peoples. Conversely, learning about the importance of land in Indigenous knowledge, spirituality and identity can inspire all students to cultivate a deeper connection to land themselves, even if, as Vine Deloria Jr. (1999) argues, non-Indigenous appreciation of the land rarely reaches the generational, sacred and community connection to the land that Indigenous peoples have.
- ⁹ See, for example: Courtenay-Hall, 2019; Davis et al., 2016; Giroux, 2017; Hiller, 2017; Korteweg & Root, 2016; Kulniecks, 2013; McDonald, 2016; Melro et al., 2024; Tuck et al., 2014.
- ¹⁰ Though of course there are video games and cellphone apps that can invite

and extend a student's engagement with nature, rather than prevent it (see: Korteweg, 2007; McLynn-Stewart, et al., 2020).

- ¹¹ See Cobb (1959) and Dewey (1899) for early explorations of the significance of childhood engagement with nature.
- ¹² Courtenay-Hall, 2003 & 2025; Orr, 1994; Shepard, 1982; Thomashow, 1996.
- ¹³ Though, of course, science education can also open students' eyes to wonders of structure and relationship they never imagined in untutored observation.
- ¹⁴ Courtenay-Hall (2008). "Video-gaming, Homo Digitalis, and the Internet as God in the 21st century" (presented at conferences 2001-2010; book ms in progress).
- ¹⁵ Pivnick, as quoted in Russell 1999, p. 126.

Author Note

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Business as usual but greener? Confronting colonialism in university responses to the climate and nature emergency

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Abstract

This article critically examines how Canadian universities address the climate and nature emergency (CNE) through their sustainability and climate action strategies. Using thematic analysis, the study analyzes U15 university strategies to assess how these institutions conceptualize the CNE and the extent to which they reproduce or challenge the modern/colonial system in which universities are embedded. While the colonial foundations of the modern university are well-documented, this article identifies the institutional mechanisms through which coloniality is reproduced, solidified, and in rare cases, contested, in response to the CNE. Findings reveal that universities predominantly frame the CNE as a technical problem solvable through Western scientific innovation and greening operations, often overlooking the deeper systemic and colonial dimensions that drive ecological destruction and destabilization. By reinforcing the modern/colonial system, these approaches risk perpetuating the very dynamics that create unsustainability. The article calls for a shift towards more reflexive, responsible, and reparative responses to the CNE that confront colonial complicity, honour Indigenous sovereignties, and move towards justice-oriented approaches to sustainability.

Résumé

Cet article examine de manière critique la réaction des universités canadiennes à la crise climatique et naturelle (CCN). Il présente une analyse thématique des stratégies de durabilité et d'action climatique des établissements membres de U15 Canada. L'étude examine leurs conceptualisations de la CCN, et dans quelle mesure celles-ci reproduisent ou remettent en question le système moderne colonial dans lequel les universités s'inscrivent. Les fondations coloniales de l'université moderne sont bien documentées. Cet article s'intéresse toutefois aux mécanismes institutionnels qui permettent la reproduction et la solidification, ou, dans de rares cas, la contestation. Les résultats montrent que les universités conçoivent la CCN surtout comme un problème technique qui peut se résoudre par l'innovation scientifique occidentale et un certain virage vert, tout en ignorant les racines systémiques et coloniales de la destruction et de la déstabilisation écologiques. Ces conceptions, qui renforcent le système colonial moderne, risquent de perpétuer les dynamiques aux origines de la non-viabilité du monde actuel. L'article appelle à se tourner plutôt vers des réponses à la CCN réfléchies, responsables et réparatrices, qui expriment le refus d'être complices du colonialisme, honorent les souverainetés autochtones et privilégient des approches de la durabilité ancrées dans la justice.

Keywords: climate and nature emergency, higher education, climate coloniality, decolonial, thematic analysis, climate justice

Canadian universities have increasingly positioned themselves as catalysts of climate solutions and sustainability transitions in response to what some describe as the climate and nature emergency (CNE) (IPPR Environmental Justice Commission, 2020). According to Universities Canada (2024), a membership organization made up of university presidents, “Canada’s universities have long been leaders in sustainability and are committed to helping the country achieve its climate targets” (p. 2). Yet, the language of “crisis” and “emergency” that often anchors these institutional commitments is a site of significant theoretical and historical contention. As Kyle Whyte (2018b, p. 226) contends, many Indigenous communities have navigated ecosystem collapse and species loss since the onset of colonialism and do not view the current socio-ecological reality as a contemporary novelty. The popular language of climate crisis and emergency overlooks these colonial histories and how they shape the present, suggesting we are facing a temporary disruption that can and should be resolved rather than reaching the limits of an inherently harmful and unsustainable system. We nonetheless use the term CNE in this article as it reflects the dominant institutional language through which many universities frame their current sustainability efforts. By adopting the sector’s own terminology, we can more clearly map the dissonance between institutional claims to sustainability leadership and the endurance of underlying modern/colonial dynamics.

To help solidify their claims to sustainability leadership over the past decade, many institutions have developed their own sustainability and/or climate action policies, strategies, or plans. Through these documents, universities curate their public-facing values and contribute to mainstream cultural understandings of the CNE, including assumptions about its root causes and solutions. These policies often function to preserve institutional authority while avoiding difficult confrontations with the colonial foundations of the university itself (Stein, 2019).

This pattern of universities responding to the CNE in ways that seek the continuity of the status quo relates to a broader critique articulated by a growing number of scholars and activists: mainstream responses to the CNE often fail to identify the systemic causes of the CNE, and therefore generate solutions that are grounded in, and inevitably reproduce, the same unequal and unsustainable system that has created the CNE in the first place. In the context of what is currently known as Canada in particular, there is concern that responses to the CNE will reproduce the underlying settler colonial dynamics that naturalize Indigenous dispossession and extractivist logics grounded in a presumed separation between humanity and other-than-human beings and the presumed supremacy of Western knowledge and governance systems (Hunt, 2022; Machado de Oliveira, 2021; Reed et al., 2021; Stein & Hare, 2023; Wale & Huson, 2024).

While it is increasingly established that the modern university is a colonial entity (Patton, 2016; Stein, 2022; Yang, 2017), there remains a significant gap

in understanding the institutional mechanisms through which coloniality is reproduced and solidified in responses to the CNE. In this article, we address this gap by analyzing the primary sustainability or climate action document from each of the U15 Group of Canadian Research Universities. Our thematic analysis examines the extent to which these documents may reproduce or interrupt colonial dynamics. Our inquiry is guided by the following research questions:

1. How is the climate and nature emergency (CNE) conceptualized as a problem(s) in terms of its primary features, root causes, and current and future implications?
2. What is the university's proposed response or solution to the CNE?
3. To what extent do the conceptualization and proposed responses to the CNE challenge and/or reproduce the modern/colonial global system in which universities are embedded?

We find that the sustainability/climate action documents of the U15 universities are largely focused on “greening” campus operations and promoting research and teaching focused on guaranteed solutions to narrowly framed climate-related problems, such as minimizing carbon emissions. These mainstream approaches reduce the CNE to a technical and informational problem that can be solved primarily with more (Western) scientific innovation and greater literacy about climate science. By promising we can reform our existing system to make it more sustainable, these approaches preclude deeper examinations of the systemic, relational, and cultural root causes of climate change and biodiversity loss, in particular colonialism, capitalism, and consumption. These approaches also tend to flatten the highly uneven impacts of the CNE on different communities and obscure the disparate historical responsibilities for its creation. Thus, these approaches invisibilize more critical and complex approaches to sustainability, including approaches that question the sustainability framework itself or gesture beyond it.

We begin by briefly reviewing the literature on the colonial foundations of Canadian universities and on university responses to the CNE. As part of this review, we offer a social cartography that maps three different approaches to sustainability: mainstream sustainability, critical sustainability, and beyond sustainability (Stein, 2024). Next, we conduct a thematic analysis of the U15 sustainability/climate action documents. After reviewing the central themes that emerged within the documents, we ask how these documents map onto our social cartography of sustainability, and what this tells us about the complexities and contradictions that emerge when universities promise to “accelerate the societal transition toward sustainability,” (Jones, 2012, p. 631) yet fail to address how they contribute to *unsustainability*.

Literature Review

Modern/Colonial Roots of the CNE

To examine Canadian university responses to the CNE, it is vital to recognize that higher education in so-called Canada is constituted through ongoing settler colonialism. Settler colonialism is a “persistent social and political formation” (Arvin et al., 2013, p. 12) that structures the dispossession of Indigenous peoples and the exploitation of land across generations. Within this formation, Canadian universities are built upon and often reproduce these colonial logics, including through the selective inclusion and instrumentalization of Indigenous knowledges that leave Eurocentric and capitalist epistemic frames intact (Ahenakew, 2016). Indigenous peoples have long contested the colonial foundations of higher education, having always maintained their own sophisticated systems of higher learning, while also demanding both access to and transformation of higher education. Indigenous advocacy has at times led to the creation of spaces within settler-dominated institutions where Indigenous ontologies and epistemologies can be engaged on their own terms rather than subsumed within dominant institutional paradigms, although such spaces often remain precariously funded (Battiste & Henderson, 2009; Stein, 2020).

This coloniality is constitutive of the conditions that produce and sustain the CNE. More specifically, settler colonialism can be understood as part of a wider modern/colonial system in which colonialism is not an aberration but the condition of possibility for modern institutions and ways of life (Stein et al., 2020), including presumed entitlements to moral and epistemic authority, unrestricted autonomy, arbitration of justice and commonsense, and accumulation of wealth and power. From this perspective, colonialism is inherently extractive and unsustainable, and thus the ecological crises of the present are not external failures, but expressions of the system’s underlying logics. Despite vocal commitments to sustainability and climate action, Canadian university responses to the CNE remain limited, often reflecting rather than challenging these underlying logics, and prioritizing the management of the physical campus environment over institutional responsibilities such as research and pedagogy (Henderson et al., 2017; Lidstone et al., 2014; Vaughter et al., 2016). More broadly, these responses often presume the continuity of existing social, political, and economic structures that many Indigenous and global South scholars understand as inherently unsustainable since they are premised on modern promises that are subsidized through ongoing colonial costs to both systemically marginalized communities and the Earth itself (Davis & Todd, 2017; Hunt, 2022; Sultana, 2022; Whyte, 2020). In many of these Indigenous and decolonial analyses, an imposed separation between humans and nature is a foundational division of the modern/colonial system. This denial of interdependence (Machado de Oliveira, 2021) allows the system to offer modern promises – infinite economic growth, state security, and

Western knowledge – that are subsidized by colonial costs such as extraction, land dispossession, and epistemicide. While this system is treated as natural and normal, its expansion is taken for granted, as its colonial costs remain largely invisibilized.

While it is increasingly accepted in mainstream research and discourse that colonialism is a driver of the CNE, including an acknowledgement in the latest Intergovernmental Panel on Climate Change (IPCC) report (2022), few universities address colonialism in their sustainability/climate initiatives (Stein & Hare, 2023). Even fewer consider how their own complicity in colonialism is linked to the CNE. Yet as Hunt (2022) notes, “Without confronting colonial norms within our institutions and disciplines . . . climate action risks replicating the oppressive structures of power that got us into this mess in the first place” (p. 136).

Sustainability in Canadian Higher Education

University responses to the CNE have increasingly aligned with international discourses of sustainability, particularly following the 2015 launch of the United Nations Sustainable Development Goals (SDGs) and the subsequent “Decade of Action” (United Nations, 2020). Heavy reliance on these discourses reinforces a view of universities as leaders and accelerators of societal transitions (Jones, 2012). Meanwhile, it instates a top-down, managerial approach to change that tethers climate action to global institutional alignment rather than local ecological responsibility.

Even as “sustainability” has increasingly become a buzzword on university campuses, there is rarely critical engagement with the different meanings of this term and its origins. Few of the plans reviewed in this article explicitly define sustainability. The ones that do tend to defer to the most mainstream versions and often reduce sustainability to sustainable development by highlighting commitments to the UN SDGs. Two of the strategies reference the Brundtland Report (World Commission on Environment and Development, 1987), which defines sustainable development as that which “meets the needs of the present without compromising the ability of future generations to meet their own needs” (p. 15). However, this is not the only possible approach to sustainability.

Below, we briefly review three different possible approaches to sustainability that reproduce and/or seek to interrupt the modern/colonial system to varying degrees: mainstream sustainability, critical sustainability, and beyond sustainability (adapted from Stein, 2024) (See Table 1). In addition to our thematic analysis of the sustainability/climate action strategies, we assess the extent to which each of these approaches to sustainability is present in the strategies. We note, however, that this is only one way of mapping sustainability, and is not intended to be a totalizing description of reality nor exhaustive of all possible approaches.

Mainstream sustainability seeks to balance “people, planet, and profit.” In higher education, this approach may improve basic awareness of climate change on campus and support research in pursuit of science and technology-based solutions to the CNE. However, it generally fails to address its deeper social and ecological root causes (Hopwood et al., 2005) and remains within a Western paradigm that naturalizes anthropocentrism and the continuity of “‘business-as-usual’ but greener” (Baskin, 2019, p. 165).

Critical sustainability challenges the mainstream approach, framing it as inadequate for addressing the complexities and uneven systemic power relations that characterize the CNE and responses to it. It emphasizes the need for major reforms of the current social and economic system and a (re)distribution of risks and benefits in sustainable transitions. In higher education, critical sustainability seeks equitable representation and the power of diverse perspectives and knowledges – especially of systemically marginalized communities – in teaching, research, and public engagement (Stein et al., 2023). This approach prioritizes people and the planet over profit (Rose & Chachelin, 2018), but it often still operates within a Western paradigm that centres the agency and protagonism of individuals, naturalizes linear and teleological approaches to change, and treats nature as something separate from humans rather than as a living system that humans are also part of.

Beyond sustainability understands the current social and economic system as inherently harmful and unsustainable – thus, it seeks to move *beyond* simply continuing that system. As Whyte (2018a) notes, “It is not a given that today’s social-ecological systems are ones that are important to conserve” (p. 299). Therefore, rather than reforming the existing system, this approach focuses on confronting individual and systemic complicity in systemic violence, learning from inherited mistakes, repairing the harm caused by this system (including material, epistemic, and relational repair), and clearing space for new possibilities to emerge without overdetermining them (Machado de Oliveira, 2021). Instead of narrowly focusing on transmitting knowledge about climate science or climate justice, beyond sustainability teaching prioritizes developing students’ capacity to responsibly face and metabolize the limits and harms of the existing system and its institutions (including the university itself) with maturity, discernment, and responsibility, without becoming overwhelmed or seeking quick fixes (Stein et al., 2023; Stein et al., 2024). Beyond sustainability research is not primarily interested in academic impact (e.g. citations), but rather social impact, and is often community-engaged/-led, transdisciplinary, and seeks to coordinate the gifts of multiple knowledge systems while recognizing the complexity and power dynamics involved. Rather than seeking simple or predefined solutions, beyond sustainability approaches encourage an open-ended process of collective, critical self-reflexive inquiry, and experimentation with different possibilities oriented by intergenerational responsibility and relational rigour.

	Mainstream Sustainability	Critical Sustainability	Beyond sustainability
Diagnosis of the root cause of the CNE	The current system is threatened by technical inefficiencies and ignorance about ecological impacts (it requires minor reform)	The current system is dominated by political and economic elites oriented by profit (it requires major reform)	The current system is inherently harmful and unsustainable (it is therefore beyond reform)
Orientation of sustainability	Make the current system greener through innovations of Western science and technology; balance people, planet, and profit	Transform the current system to make it more inclusive and fairer; prioritize people and the planet over profit	Accept that we cannot make the current system sustainable; minimize harm, gesture beyond it toward other possible futures
Guiding questions	How can we more sustainably and efficiently balance the needs of people, planet, and profit?	How can we ensure equity and (re) distribute the risks and benefits of sustainability transitions?	How can we learn to relate with more responsibility and reciprocity toward each other and to the living planet we are part of?
Perceived role and responsibility of the university	Create universally relevant knowledge about the CNE; plan for continuity; advance reputation, rankings, and resources; seek solutions for achieving “happier, healthier, and wealthier” campuses and societies	Highlight the voices of students, systemically marginalized communities, and those on the frontlines of the CNE; mobilize power-conscious climate action; imagine alternatives	Denaturalize the dominant system; recognize the gifts and limits of all knowledges; enact repair for historical and ongoing harm; operate from intergenerational responsibility
Examples	Align strategic plans with UN SDGs; greening the campus environment; green rankings and ratings; carbon offsets; net zero campus; campus as a living lab	Divest endowments; refuse fossil fuel funding; climate emergency declarations; no-fly pledges/policies; flexible learning structure	?

Table 1. Different Approaches to Sustainability in Canadian Higher Education
Note: Adapted from Stein (2024)

Thematic Analysis

While examining the themes of university policies alone does not enable us to assess how the document translates into practice, these texts nonetheless serve as powerful indications of institutional commitments and priorities.

The most recent study of Canadian university sustainability-related policies and strategies took place in 2017, and concluded, “While some institutions have engaged the issue at a holistic level, the overwhelming response is one of modifying infrastructure and curbing energy consumption and pollution” (Bieler & McKenzie, 2017, p. 21). Since then, several universities have revised or introduced new sustainability/climate action documents, but these have received limited scholarly analyses.

We analyzed the most recent sustainability and/or climate action strategies of the U15 Canadian Research Universities as of March 2024. These are the most research-intensive universities in Canada and are widely understood as the country’s “top-tier” universities. While we recognize the risk that focusing on the U15 universities will reify the competitive, elitist, and hierarchical dynamics of the higher education system, we chose to analyze them because, as a collective, the U15 seeks to “drive the national policy agenda and provide critical advice and analysis” (U15 Canada, n.d.). However, there is also a need for a wider examination of the policies of other universities, colleges, and institutes within the Canadian higher education sector. Furthermore, although we identified one document as the most salient for each institution, at most institutions, there is a wider ecology of policy documents related to the CNE, analysis of which could be undertaken to achieve a more layered, complex, and textured understanding of a specific university context.

We undertook a thematic analysis of the strategies, grounding our coding in a critique of the modern/colonial system as the primary driver of the CNE. Specifically, we examined the extent to which these documents naturalize or challenge the reproduction of this system in how they represent and pledge to respond to the CNE. As Clarke and Braun (2017) pose, thematic analysis is compatible with theoretical frameworks that critically examine the implications of emerging themes, rather than simply report them. Qualitative thematic analyses also recognize the researcher(s)’ role in the process of coding and thematic development. We acknowledge that our perspectives and previous knowledge as researchers shape the knowledge we produce, as well as our positionalities as a racialized settler and a white settler in what is currently known as Canada. In particular, our decision to read the strategies through a critique of the modern/colonial system means that our thematic analysis focused on certain themes and neglected others. As Braun and Clarke (2006) explain, it is important to “acknowledge these decisions and recognize them *as* decisions” (p. 80).

To conduct a thematic analysis of the sustainability or climate action strategies of U15 Canadian Research Universities, we first visited the public-facing sustainability web pages of each university. From this landing page, we identified the most recent and salient sustainability and/or climate action strategies. We specifically sought documents that comprehensively addressed multiple facets of sustainability or climate action initiatives on campus, rather than strategies that focused on individual aspects like “waste management” or “student response.”

In instances where the most recent and pertinent strategy was either expired or not visible through the public website, our research team reached out to the university's sustainability office, or other relevant departments, via phone or email to ascertain the existence and implementation of such documents. We excluded institutions with expired strategies (Université Laval, University of Alberta, University of Western Ontario) or those where sustainability is integrated into a general strategic plan (University of Ottawa).

Overall, our analysis included the 11 sustainability or climate action strategies of the following U15 institutions: Dalhousie University, McGill University, McMaster University, Queen's University, Université de Montréal, University of British Columbia, University of Calgary, University of Manitoba, University of Saskatchewan, University of Waterloo, University of Toronto. We first sought to identify the common themes that emerged within the documents in response to our research questions. In conducting our thematic analysis, both authors separately generated initial codes for the documents guided by our core research questions. Specifically, we analyzed how the climate and nature emergency (CNE) is conceptualized, what the university's proposed response entails, and the extent to which these frameworks challenge or reproduce the modern/colonial system. After this initial stage, we came together to discuss these codes and collectively develop overarching themes. We then checked these themes against the texts to ensure they accurately reflected the data before engaging in the final revisions and refinements of our findings.

Results

Across the U15, the prevailing narrative remains "business as usual but greener." Overwhelmingly, the strategies favour simplistic, technical solutions to the CNE that narrowly focus on campus operations and presume the perpetuation of the modern/colonial system while failing to acknowledge the university's role in the CNE. Central themes we identified are: university as a benevolent/exceptional actor; lack of substantive engagement with colonialism; techno-solutionism; sustainability as a marketing tool; and tokenistic commitments to EDI.

University as a benevolent/exceptional actor

Many of the strategy documents position the university as an exceptional and benevolent social actor that is uniquely suited to create and disseminate knowledge and lead climate mitigation and adaptation. Dalhousie University (2022) positions itself as "an institutional model for reducing greenhouse gases and exploring carbon sinks, implementing adaptation strategies, and increasing knowledge of climate change issues of students and employees" (p. 11). Meanwhile, the University of Waterloo (2017) boasts that its "graduates will become entrepreneurs and thought leaders, taking their knowledge and

experience from the campus across the globe. Its faculty members will advance the technologies, systems, policies, and social shifts that will transition the world onto a sustainable pathway” (p. 10).

These examples illustrate a general pattern of “higher education exceptionalism” (Stein, 2022) that frames universities as moral and intellectual leaders of society. Such celebratory approaches to the university and assertions of its central role in responding to the CNE leave little room for self-critical reflexive analyses of the university’s contributions to creating the CNE, and thus also create a risk that its proposed “solutions” will leave the CNE’s underlying root causes untouched. Illustratively, the University of Calgary implicitly acknowledges its location within a fossil-fuel-producing province, yet it pivots away from direct confrontation with this complicity. Instead, it uses its proximity to the energy industry as a marker of unique relevance, claiming that “innovative industry partnership, as well as academic endeavours” will address climate change (University of Calgary, 2018, p. 5).

Effectively, universities position themselves as benevolent problem-solvers, rather than complex, complicit, and contradictory actors. As a result, universities rarely account for their role in not only producing knowledge that has been used directly to develop practices of “natural resource” extraction and industrial production and pollution but also the full spectrum of knowledge that has naturalized humanity’s separation from and domination over nature, as well as separations and racial hierarchies within humanity. There is also little space for questioning the role of university education in normalizing modes of knowing, being, and relating that are premised on infinite economic growth and consumption on a finite planet. Researchers and instructors are also not invited to understand their systemic role in contributing to the CNE and instead are encouraged to see themselves as individual champions, leaders, innovators, etc. contributing to solutions.

Through the use of celebratory language and a failure to ask critical questions about institutional and individual complicity in the CNE, the U15 sustainability/climate action strategy documents operate to deflect or delegitimize critiques of the institution while also creating the conditions through which the institution can easily and unknowingly repeat colonial patterns in its efforts to “solve” the very problems it has helped create in the first place (Hunt, 2022).

Lack of Substantive Engagement with Colonialism

A significant theme we identified was the absence of acknowledgement of the university’s historical and ongoing complicity in colonialism. Several of the strategies begin with a formal land acknowledgement of Indigenous territories where the university is located, yet beyond this tokenistic gesture, they do not engage deeply with the implications of this acknowledgement: that through their occupation of Indigenous lands, universities are complicit in violent social and epistemic relations, land dispossession, and environmental degradation,

and that they, therefore, have a responsibility to interrupt colonialism and repair harm. In many climate/sustainability strategies, the land acknowledgement is the only mention of the university's responsibility to Indigenous Peoples, and the word "colonialism" or "colonization" is absent from almost all strategies.

It does not appear that any strategies were created in consultation or collaboration with local Indigenous Nations. There are, however, a few examples of explicit commitments to Indigenous Peoples. For instance, McMaster University (2022) plans to "recognize Indigenous knowledge and the importance of Indigenous perspectives on campus" (p. 11). It also mentions the necessity to "respond to the ways climate change and colonization impact well-being" (p. 19), though tangible commitments and outcomes are omitted. McGill University (2020) mentions several somewhat disparate commitments, such as increasing purchasing from Indigenous businesses, supporting Indigenous-led research, and creating carbon offsetting agreements with Indigenous communities in Panama. The University of Manitoba (2019) contains the most detailed discussion of engagement with Indigenous Peoples, outlining the intention to "integrate Indigenous knowledges and perspectives into campus planning and development," (p. 20), develop Indigenous partnerships on campus, and collaborate with Indigenous communities to develop culturally relevant courses.

Overall, we found a lack of deep engagement with colonialism in the sustainability policies, and a failure to recognize the importance of respecting Indigenous sovereignty and knowledges in responses to the CNE. Without acknowledging that unsustainability is a direct consequence of ongoing colonialism, there is a risk that university responses to the CNE will serve as a means of perpetuating the modern/colonial system and leave untouched the environmental degradation that sustainability strategies purportedly aim to address.

Techno-solutionism

The U15 climate/sustainability strategies primarily treat the CNE as a technical problem that can therefore be addressed through technical solutions. Most strategies focus their commitments narrowly on the campus itself, emphasizing the greening of buildings, fleet (i.e. university vehicles), travel, commuting, food, waste management, etc.

The strategies frequently employ "carbon tunnel vision" (Deivanayagam & Osborne, 2023, p. 4), overwhelmingly focusing on the reduction of carbon emissions in campus operations. Several strategies emphasize their commitment to reducing their operating "carbon footprint" and achieving campus carbon zero/neutrality, often through carbon offsets. Reducing the CNE to a question of emissions invisibilizes the wider social, political, and economic systems that drive it that are premised on unlimited consumption, extraction, and accumulation. As a result, this framing greatly oversimplifies the depth, complexity, and magnitude of the problems we face.

The University of Calgary (2018) notes that its climate action plan "is an

important tool to drive the institutional contributions to the Canadian emissions reductions targets, to help the university stay ahead of future regulation, and maintain a leadership role in energy innovation” (p. 2). Here, the institution frames itself as contributing to (narrowly defined) climate solutions and uses this as a means to assert its leadership and amplify its reputation. The cultural and relational dimensions of climate change are invisible here, as are the university’s myriad contributions to the root causes of the CNE that implicate it in systemic harm through the production of knowledge and the training of graduates that reproduce an unsustainable system.

Apart from carbon tunnel vision, many of the strategies focus on other “technological fixes” or otherwise reduce the CNE to a question of efficiency and scientific innovation. UBC’s strategy narrowly interprets the concept of “campus as a living lab” (CLL) as a scientific laboratory with anticipated advancements in “campus de-carbonization and energy efficient technologies” (UBC, 2021, p. 5). Framing CLL primarily as labs for scientific experimentation and carbon reduction strategies misses the opportunity to implement a more holistic and systemic approach to transformation. However, the CLL framework has the potential to enable experiential learning that would support deeper questioning about the CNE’s root causes and drivers. Campuses could be sites for experimentation with “beyond sustainability,” including non-extractive community-engaged/-led collaboration guided by a commitment to redistribution and reparations, genuinely equitable transdisciplinary research, complexity-informed approaches to problem-solving, non-transactional relationship-building, and conflict resolution strategies grounded in restorative justice and recognition of interdependence (Andreotti et al., 2023).

Some of McMaster’s five principles for transforming the campus into a living laboratory for sustainability could gesture in this direction, depending on how they are interpreted and implemented. This includes the principles of “We look through a lens of Indigeneity in our sustainability efforts” and “We see sustainability work as a collaborative, evolving effort” (McMaster University, 2022, p. 7). However, a “beyond sustainability” approach to the CLL model would likely go further in questioning the futurity of the university as it currently stands. This could be understood as moving from treating the campus as a *living* lab to treating the campus as a *metabolizing* lab – a place where we learn how to “compost” the modern/colonial system and nurture the soil for other possible futures.

By separating the “technical” drivers of climate change from the social, cultural, and relational ones, universities recreate the divisions and hierarchies – particularly between humans and nature, and between differently racialized human communities – that have helped cause the CNE. The effect of this approach is a continued deflection of institutions’ intergenerational and interspecies responsibilities. As Nightingale and colleagues (2020) contend:

Parsing out supposedly climatic drivers of change might help make climate change a more governable phenomena in the short-term, but it leads to an impoverished

understanding of the ways that environmental change is embedded within social change . . . In particular, it marginalizes core questions of how the opportunities of the few often stem directly from the new vulnerabilities of others – including future generations and non-human species. (p. 344)

Sustainability as a marketing tool

Many of the universities use their strategies as an opportunity to amplify their “brands” and public images. This includes highlighting their alignment with widely recognized mainstream international sustainability standards, such as the Sustainability Tracking Assessment & Rating System (STARS) and the UN Sustainable Development Goals (SDGs). McGill University (2020) targets “a [STARS] Platinum sustainable rating by 2030” as its priority goal (p. 11). The University of Saskatchewan (2021) also showcases its contributions to the SDGs, celebrating its inclusion among the top 100 Times Higher Education Impact Rankings (p. 4). The University of Manitoba’s (2019) strategy celebrates its designation as a United Nations Academic Impact Hub (p. 16).

Approaching sustainability as a branding tool for attracting students and funders often overshadows a deeper institutional commitment to addressing the systemic, cultural, and relational root causes of the CNE. This can therefore be considered a form of institutional greenwashing in which the university seeks to create a public image of itself as “green” and a “sustainability leader,” without fundamentally altering the underlying systemic dynamics through which it contributes to *unsustainability* (Facer, 2020). The emphasis on enhancing institutional prestige through sustainability metrics contrasts with a more justice-oriented understanding of (un)sustainability within socio-political-economic contexts that would be found in critical sustainability approaches (Kopnina, 2020), as well as an approach grounded in responsibility, sufficiency, and systemic limits that would be found in beyond sustainability approaches. Finally, this approach reifies the imperative of competition between universities, overlooking opportunities for meaningful collaboration and co-creation not premised on notions of scarcity, exceptionalism, or superiority that have contributed to the creation of the CNE.

Tokenistic EDI Commitments

The U15 strategies exhibit limited engagement with equity, diversity, and inclusion (EDI), often prioritizing rhetoric and compartmentalization over substantive action. This approach fundamentally misrepresents the intersectional nature of sustainability, where social, economic, and political inequities are inextricably linked to environmental degradation (Agyeman et al., 2016). While some universities have published separate EDI policies, the integration of these commitments with sustainability strategies is notable, as the CNE disproportionately affects systemically marginalized communities.

By framing EDI as an afterthought to urgent sustainability efforts, rather than a central component, these strategies exhibit a limited understanding of the interconnectedness of social and climate injustice (Agyeman, 2013).

For instance, the University of British Columbia (2021) calls for consideration of “the inequitable impacts of climate change . . . on marginalized communities” (p. 3) but offers no explicit commitments to action. Similarly, Université de Montréal (2021) promotes “diversifying excellence and promoting equity and inclusion in research” (p. 18) yet fails to provide actionable steps for substantively including systemically marginalized voices. McGill University (2020) offers the most wide-reaching recognition of EDI as a transversal link, acknowledging that “environmental problems are rooted in—and accelerate—social inequities” (p. 15). However, “climate change mitigation & adaptation” are still represented as a disparate and independent category from “equity, diversity, & inclusion,” with occasional overlap in the university’s actionable steps (p. 48–51).

This tokenistic and siloed approach to EDI risks perpetuating existing inequities and developing sustainability solutions that are neither inclusive nor effective (Maina-Okori et al., 2018). By largely failing to recognize how unsustainability on campus and beyond disproportionately affects systemically marginalized populations, these strategies risk causing further harm. The policies largely do not engage in deeper efforts toward systemic change, despite the fact that the inclusion of diverse perspectives through a robust participatory approach is essential for developing effective, equitable solutions to sustainability challenges (Barth, 2015). Tokenistic EDI commitments in sustainability/climate action strategies elide universities’ responsibility to integrate and maintain diverse perspectives throughout the strategy development and implementation process. Consequently, this approach may allow institutions to continue perpetuating institutional biases and systemic root causes of unsustainability that harm humans and other-than-humans in the name of EDI. By neglecting this crucial aspect, universities are missing an opportunity to address the complex, interconnected nature of sustainability.

Discussion

Overall, the sustainability and climate action strategies of the U15 focus narrowly on technical shifts to “green” campus operations, overlooking systemic root causes of the CNE, institutional complicity, and the responsibility for repair. Specifically, the strategies largely fail to acknowledge the role of universities in perpetuating colonialism, instead relying on symbolic gestures like land acknowledgments without demonstrating substantive engagement with or commitments to repair with Indigenous communities. The overwhelming focus on carbon emission reduction in campus operations precludes more comprehensive approaches towards systemic shifts in research, teaching, and community engagements.

Indeed, discussions of the role of research and instruction in sustainability efforts are thin, despite these being the primary activities of most universities. The reliance on rankings and branding naturalizes an imperative of competition and detracts from commitments to transformative climate justice and collaborations. Lastly, few integrate EDI principles in a meaningful manner, thereby ignoring the university's responsibility toward addressing the disproportionate impacts of climate change on systemically marginalized communities.

When we reviewed the strategies against the three different approaches to sustainability we mapped – mainstream, critical, and beyond – we found that mainstream approaches were overwhelmingly dominant across each of the strategies. This means that the strategies are largely oriented toward the continuity of our existing modern/colonial system – the very system that some have identified as the source of today's ecological crises. A few of the strategies gestured toward critical perspectives, however, even these strategies were still dominated by a mainstream approach overall. For instance, UBC's strategy devotes a page to the importance of climate justice (p. 14), yet this affirmation is not accompanied by specific institutional commitments, and it does not seem to significantly shape the remainder of the strategy.

We were unable to identify any efforts within the strategies oriented toward beyond sustainability approaches. This approach is largely unintelligible within prevailing discourses and can also be perceived as threatening, in that it questions the foundational assumptions, values, and even the presumed futurity of the "university as we know it". This does not mean beyond sustainability approaches are not present, but rather that they are generally happening within the "cracks" of these institutions, led by individual students and faculty, often in collaboration with communities, with little institutional support.

Conclusion

Our findings suggest that current institutional responses function primarily to stabilize a leaning ivory tower: an institution attempting to preserve its social and epistemic authority as the colonial and ecological ground beneath it shift (Stein & Andreotti, 2025). By maintaining "business as usual," while adding a green twist, institutions disavow their structural entanglement with systemic social and ecological harm by externalizing colonial costs and naturalizing their own continuity.

Moving forward, we suggest the importance of engaging more diverse perspectives on imagining and enacting sustainability in higher education, particularly those informed by the insights and experiences of the communities most affected by the CNE. One possible means of doing so is to move beyond a narrow focus on institutional preservation by shifting how we relate to the university: moving from the image of the exceptionalist, ivory tower toward that of a nurse log. By relating to the university as a nurse log, we may recognize

how it is also embedded in cycles of life and death, and consider composting old institutional habits into nutrients for the undergrowth of more relationally accountable futures (Stein, 2025; Stein & Andreotti, 2025). This relational shift can be supported through more critically engaged and complexly informed questions about the role of universities in the CNE (Stein, 2024). These questions might include:

1. How might sustainability and climate action strategies shift if they fully acknowledged unsustainability as a direct consequence of colonialism and affirmed Indigenous sovereignty and the importance of Indigenous knowledges in responses to the CNE?
2. How can universities confront their complicity in climate injustice, rather than positioning themselves solely as benevolent social actors?
3. What would a more reflexive, responsible, and reparative approach to research and teaching about climate change adaptation and mitigation look like?
4. How might we rethink the campus as a “metabolizing lab,” deeply engaging with the roots of the CNE and confronting the limitations of technical solutions and systemic reforms?
5. What might a genuinely collaborative, transdisciplinary, and justice-oriented approach to sustainability that commits to addressing the systemic, cultural, and relational causes of the CNE look like, and how would this approach redefine universities’ competition-driven priorities?
6. How might universities more fully embrace climate justice, and how might this transform their role in addressing the CNE? What are the primary barriers to this shift?

These questions challenge us to question whether our universities are truly prepared to address the CNE and drive systemic shifts toward climate justice. And if not, how might we repurpose existing institutions toward greater intergenerational and interspecies responsibility?

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Appendix

U15 Sustainability and Climate Action Strategies

Dalhousie University – *Climate Change Operations Plans 2020–2030 (3rd ed.) – 2022*

McGill University – *McGill University Climate & Sustainability Strategy 2020–2025 – 2020*

McMaster University – *McMaster's Sustainability Strategy: A Living Laboratory for Sustainability 2022–2026 – 2022*

Queen's University – *Climate Action Plan: Building a Sustainable Future* – 2016
Université de Montréal – *Sustainable Development at L'Université de Montréal: Strategic Plan 2021–2023* – 2021
University of British Columbia – *Climate Action Plan 2030* – 2021
University of Calgary – *2019 Climate Action Plan* – 2018
University of Manitoba – *Sustainability Strategy 2019–2023* – 2019
University of Saskatchewan – *Critical Path to Sustainability: University of Saskatchewan Sustainability Strategy (2021–2030)* – 2021
University of Toronto – *A Climate Positive Campus* – 2019
University of Waterloo – *Environmental Sustainability Strategy 2017–2025* – 2017

'The world is under threat and we had best get a move on': Canadian climate activist teachers

Paul Berger, Lakehead University; Ellen Field, Lakehead University; Sidney Howlett, Lakehead University; Anh Thu Nguyen, Mount Royal University; and Andrea Drewes, Rider University, Canada

Abstract

As part of mixed-methods research, we interviewed 30 K-12 teachers in Canada who teach about climate change, in part to see if they identified as climate activists. There is almost no literature available that explores whether people teaching about climate change identify as activists, which seems odd, given that we are deep into a climate emergency. Sixteen of our participants felt comfortable identifying as climate activists. With activism defined as taking action in an attempt to change things for the better, we believe any early-adopter teaching climate change seriously is a climate activist. While some participants were happy to call themselves climate activists, others felt they perhaps “didn’t do enough” to be an activist or preferred to see themselves as “advocates” or “educators.” We examine teachers’ thoughts around the identity of climate activist, document some of the amazing climate teaching described by participants—both those who considered themselves climate activists and those who did not—and discuss why we hope more teachers will adopt this identity in these dying days of the fossil fuel age.

Résumé

Dans le cadre d’une recherche à méthodes mixtes, nous avons mené des entrevues auprès de 30 enseignant·es canadien·nes du primaire et du secondaire qui abordent les changements climatiques en classe, pour déterminer, entre autres, s’ils et elles s’identifient comme activistes pour le climat. Il n’existe pratiquement aucune littérature à ce sujet, un constat surprenant étant donnée l’ampleur de la crise climatique. Dans le cadre de cette étude, l’activisme se définit comme la prise d’action pour améliorer les choses. Conséquemment, nous considérons toute personne qui enseigne sérieusement les changements climatiques comme activiste. Toutefois, seulement seize participant·es se considéraient comme activistes pour le climat; les autres avaient l’impression de « ne pas en faire assez », ou préféraient se définir comme « porte-parole » ou « éducateur ou éducatrice ». L’étude s’attarde aux réflexions des enseignant·es sur l’identité d’activiste pour le climat. Elle documente également certains enseignements sur le climat très inspirants décrits par les participant·es (autant ceux et celles s’identifiant comme activistes que les autres) et explique pourquoi, à cette époque de déclin des énergies fossiles, nous espérons qu’un nombre croissant d’enseignant·es revendiquent cette identité.

Keywords: Climate Change Education; Activism and Education; Environmental Education; Petro-Pedagogy

Introduction

We write primarily from the traditional territory of the Anishinaabe under the Robinson Superior Treaty of 1850 and would like to acknowledge that if Anishinaabe laws were being followed here and across the planet, we would not be in a state of climate breakdown. We want to acknowledge that our thoughts on teachers' climate activist identity might not resonate strongly across cultures.

We are in a climate emergency. We write not long after the worst wildfire season on record in Canada (Byrne et al., 2024), in a time of coral reef die-off (Hughes et al., 2018) and on a trajectory for the collapse of the Greenland Ice Sheet (Krinner & Durand, 2012), Amazon Rainforest (Deutloff et al., 2025) and Atlantic Meridional Overturning Current (Ditlevsen & Ditlevsen, 2023). We write in the years where strong and definitive climate action is needed, not to stop global warming, but to save some of what we love, slow the catastrophes and avoid thoroughly apocalyptic outcomes. We write at a critical time when turning the blue sky white to block the sun is being seriously considered, because ending nature seems easier to imagine than ending capitalism (Carton & Malm, 2025).

Canada has made and missed nine climate targets (Thurton, 2022) and is a world climate laggard, recently building a new oil pipeline and scrapping its price on carbon emissions (Major, 2025). The Climate Action Tracker (2025) listed Canada's progress on climate as "highly insufficient" even before more climate policy was scrapped (Tumilty, 2025).

While action is lacking and the consequences are already devastating in Canada, they are disproportionately felt around the world by those who have contributed the least to the problem (Nature Climate Change, 2024) and we are heading toward tipping points that would shift the planet from the current state—where it dampens our climate impacts—to one where it amplifies them (Rockström et al., 2023). As part of a broader study exploring climate change teaching across Canada, we set out to find whether K-12 teachers who are leaders in teaching about climate change in their classrooms identify as climate change activists, a term we will abbreviate from now on as *climate activists*.

When we included teachers' climate activist identity as part of the broader research, we had a feeling that it was important. We did not start with the conviction that K-12 teachers should identify as climate activists and we had encountered very little literature that explored the subject. We were convinced that the ominous climate science and inadequate government responses call for activism but wondered if climate change teachers considered themselves

activists. Teachers are at the heart of K-12 schooling. They are role models and they support students. Students often trust teachers. With students striking from schools to themselves push for change as climate activists, perhaps, we thought, it would be good if some of their teachers identify as climate activists. Maybe climate activist teachers would be well-positioned to help students “see themselves as critical ecological citizens and active participants in the necessary socio-ecological transformation” (Guimerà-Ballesta et al., 2026, p. 13). Here, we explore participants’ thoughts on this identity and return to exploring possible benefits of teachers identifying as climate activists in the discussion. We turn now to the literature on teachers identifying as climate activists.

Literature Review

Environmental activism is a contested term (Dono et al., 2010). We see climate activism broadly as actions meant to lead toward Canada tackling climate change more seriously. In the context of teaching, we agree with Everth et al. (2023) that “climate-activist teachers” are “educators who are actively engaged in conversations and initiatives concerning climate change, its implications for future generations, and their role as educators within this context” (p. 152).

We found very little literature on whether K-12 climate change teachers consider themselves to be activists. We did find work calling for teachers to include students in activism (e.g., Hodson, 2017, 2021). For example, Agne and Nash (1976) wrote:

Environmental educators will have to engage in educational activities that are more imaginative than simply taking field trips and nature walks. . . . Far bolder and more inventive educational techniques and materials will have to be available if educators are to help students demythologize the propaganda of strong multinational corporations and other vested interests. . . . Such activities might include letter writing, organizing meetings, picketing, planning and carrying out boycotts. (p. 143)

Fifty years later, there are some activist teachers (e.g., Harrison, 1998), teachers who believe climate change requires “an activist stance” (Bigelow & Dankbar, 2016, p. 2) and teachers who believe they have an ethical duty to support their young students’ climate activism (Whitehouse, 2016). Still, we believe the overwhelming narrative around schooling remains that it should be “neutral” and teachers apolitical (e.g., Berger et al., 2015; Borgerding & Dagistan, 2018). This belief was clear in Favier et al.’s (2024) research on climate teacher identity with Dutch geography teachers, some of whom did not even tell students that they themselves believe in anthropogenic climate change. Trott et al.’s (2023) systematic review of climate justice education research suggests that most climate teaching does not involve any climate action, while Kranz et al.’s (2022) review suggests it typically does not even focus on needed public-sphere changes.

This may be due in part to the institutional logics of schooling. As Stevenson (2007) noted, while the philosophy of environmental education is rooted in socially critical and political action, schools discourage engagement with disruptive ideas. Climate breakdown is deeply political, a failure of institutions to act—yet educational responses rarely acknowledge this dimension and instead engage in democracy denial and neoliberal approaches (Orr, 2020). Leaders track math and reading scores when we should be fostering planetary thinking (Kwauk & Iyengar, 2021; McGregor & Christie, 2021). Ostensibly apolitical, schools focus mostly on the “what” and “how” of climate change (Karsgaard & Davidson, 2023); under accountability regimes, many teachers avoid controversial topics altogether (Hess, 2009), standardized testing creates a barrier to even teaching climate change (Dunlop et al., 2021) and activist teachers may leave teaching or disavow “the label ‘activist’ to describe their work in schools” (Zaino et al., 2022, p. 578).

Some studies report on climate change teaching and activism without saying whether the teachers identified as activists. UK teachers favoured putting participation in climate activism in the curriculum (Howard-Jones et al., 2021). New Zealand secondary teachers supported students participating in climate strikes with almost one-third of primary and intermediate teachers agreeing that students in their classes should “undertake social actions for the environment (such as letter-writing, climate action marches, social campaigns)” (Bolstad, 2020a, p. 35). Verlie and Blom’s (2022) Australian primary teachers wanted to teach about the Australian bushfires in their classrooms, but they did not say whether the teachers considered themselves activists.

Several studies named teachers climate activists. Everth and Bright (2023) found that climate activist teachers felt their school leadership stance on the climate emergency greatly impacted their experiences. The teachers’ thoughts on their climate activist identities were not reported, though a direct quote gives an idea of one teacher’s approach: We “need to stop nibbling at the edges because that’s just not going to cut it anymore. We need significant major, systemic, international, radical change to actually address these problems” (p. 26).

Hunter and Jordan (2020) reported that many US middle and high school teachers felt very limited environmental efficacy, believing their climate-friendly actions were small and outweighed by their own harmful behaviours. Some felt that mistrust in the political system stopped them from pursuing political or legal options for advocating on climate, but the main reason given was not identifying as “political” or as an activist. One said: “I’m more of an educator and not so much of an activist. . . . I’ll sign the petitions, I’ll talk to people when I have the chance in person, but I’m not out on the picket line” (p. 677).

“Persuasion” was seen by some as an extension of their roles as educators, but there was fear of being “preachy” and concern about bringing personal views into the classroom. Some of Hunter and Jordan’s (2020) participants believed that environmental issues are controversial and must be taught neutrally. They

felt that activism entails extreme acts and conflict, rather than being about engaging in various collective behaviours; they may take part in activism but eschew the label. Hunter and Jordan were concerned that teachers without a feeling of environmental efficacy would not be able to support students in engaging in significant system-level environmental actions.

Campigotto and Barrett (2017) interviewed 13 teacher candidates in Ontario, Canada, finding that although eight identified as activists, only one identified as a teacher activist. Some felt they did not do enough to be considered activists, most identified activism with extreme acts, and most were uncomfortable with being “political” as a teacher. The authors recommended communities of practice to support teacher activist identities and changes in teacher education to support teacher activism. Our work adds to the literature on the activist identity of teachers who are teaching climate change in Canadian classrooms by presenting K-12 teachers’ thoughts on adopting or rejecting the identity of climate activist and by arguing for the possible benefits of teachers adopting a climate activist identity.

Methodology

This qualitative interview-based exploratory research was part of a broader mixed methods study (Creswell, 2014). The first phase was an online survey completed by a convenience sample of 106 self-identifying Canadian K-12 educators who teach climate change. The survey contained a mix of questions with Likert-Scale and open-ended responses, plus demographic data. The invitation to participate was publicized in teacher publications. Ninety-five indicated that they were willing to participate in a follow-up interview; 30 were interviewed between June and September, 2022. The study received ethical approval from the Lakehead University Research Ethics Board.

Teacher respondents chose how to be named in this paper or whether to remain anonymous. Anonymous participant contributions are identified with their transcript number (e.g., T3). Twenty participants identified as female and 10 as male. Fifteen were teaching in British Columbia, 12 in Ontario, two in Nova Scotia and one in Saskatchewan. Twenty-seven taught in the public system, three in private schools. Participants taught elementary sciences, arts, languages, social sciences, math, and physical education, and secondary sciences, social studies, physical education, math, technological design and arts.

Interviews followed a conversational semi-structured interview guide, looking at many aspects of participants’ experiences teaching climate change. This article is based primarily on a question about whether participants considered themselves climate activists, including their definition of an activist.

Data from the interviews were first analyzed by Sydney using thematic coding (Braun & Clarke, 2006) in the qualitative Dedoose software, then Paul read all transcripts and double-checked codes related to activism. This

process was messy; participant answers often did not lend themselves to easy categorization. This can be seen in our findings reporting below.

The sample was biased by the self-selection process for the survey and by selecting interviewees. It does not represent all Canadian K-12 teachers who teach climate change. It did include early, middle, and late-career teachers from different grade levels, teaching a wide range of subjects. While the findings are not generalizable, they provide a snapshot of climate change teachers' beliefs that help us identify some of the barriers to teachers adopting a climate activist identity and help us to think through the benefits of teachers considering themselves climate activists.

Findings & Discussion

We begin by reporting selected responses to the survey that were made by people we later interviewed. These give a sense of the participants and the contexts in which they teach. We then explore teachers' climate activist identities from the interviews. Finally, we describe some of their climate teaching, which helps to situate their thoughts on their climate activist identities.

Surveys: Teaching Time, Concern and Goals

Asked how many hours they spend teaching climate change in their courses, some noted that it is not easy to determine. For example, Helen responded:

I teach multi-grade, multi-disciplinary classes. I am teaching students in grades 8 through 11. . . . Conversations about climate change are a part of our work all year, and we make connections to what we have learned about scientific processes and human activities throughout all of our courses.

Kevin Lyseng wrote, "As an elementary teacher with an environmental steward background there is no way I can quantify this—I teach with a curricular integrated approach." Or, as Kiersten Chase Brookes put it, "I try to integrate it in everything I do. It is hard to estimate because of my commitment and obsession." Another teacher wrote, "Grade 10 Science—it is the focus for the entire semester. We are learning all the concepts of the course through climate change" (T3).

Asked to indicate on a Likert Scale how worried they are about climate change, 21 selected "very worried" and nine "somewhat worried." In answer to a "chose one" question, 22 chose, "Humans could slow the rate of climate change, but it's unclear at this point whether we will do what's needed"; six chose, "Humans could slow the rate of climate change, but people aren't willing to change their behaviour so we're not going to"; one chose, "Humans can slow the rate of climate change, and we are going to do so successfully;" and one chose, "Humans can slow the rate of climate change if teachers make kids think about it."

Asked “to what extent is the goal of your climate change teaching to help foster transformative change in society,” 21 chose “to a great extent,” seven “somewhat” and two “little.” Asked “to what extent is the goal of your climate change teaching to encourage students to be agents of transformative social change,” 23 chose “to a great extent,” three “somewhat,” and four “little.” While not unanimous, most participants see their teaching as potentially contributing to societal change—one of the reasons we consider them climate change activists.

Surveys: Climate Teaching Motivation

Asked on the survey to “please explain briefly why you teach about climate change,” answers from interviewees included the need for change makers. Some examples include:

I think students want things to change and they’re in the position to make significant changes; they just need the support to get started. I don’t want them focusing on the crisis, I want them to learn about why it’s a crisis and focus on being a change maker. (T5)

I don’t want the human race to continue causing extinction of the biodiverse life here on Earth or our own species survival. Big change is needed and fast. . . . Kids are adaptable and good agents of family change. (Catherine Everett)

It’s the biggest issue of our times, and the future of my children and students is at risk unless we deal with it. I am hoping that students’ learning will impact their parents. (T23)

The urgency of tackling climate change was also salient:

Really the only issue that matters at the moment—it affects nearly all other issues: employment opportunities, community issues, food sustainability, transportation, recreation, etc. (T9)

I think climate change is the most important issue of our lives. It will have a huge impact on the lives of the students I teach, and I feel it is important that they understand the issue deeply. (T3)

Climate change is the MOST important issue of our age. It connects all people and will require individual and systemic societal change if humankind will be able to prevail. (T18)

The world is under threat, and we had best get a move on! (Kevin Lyseng)

Some framed it as a responsibility:

It is extremely important to me because I am a human living in a warming world. It feels like a civic duty often. It encompasses every aspect of my science curriculum. (Geoffrey)

It is essential to recenter our relationship with the planet for our own survival and if we don't teach about climate change and the impact that it can have on our lives, we leave the place worse off for future generations. It is a moral imperative to teach climate change. (Holly Groome)

Some noted that it provided motivation for students:

Because it's the biggest threat to human well-being in the long term, and as such it motivates students to do excellent work while becoming knowledgeable about this urgent problem. (T8)

My students are interested and want to learn more. They love learning about Greta Thunberg and Autumn Peltier. It is important to me and to them. (Kindersley Brucker)

Some just wrote that it would help students:

I believe that learning about climate change will help students feel less fearful and more hopeful. (Helen)

I truly believe it is the most important thing to teach our youth about. I want to give our youth hope that their future is not predetermined and that they can play a vital role in making this world a better place. I think today's youth are faced with a lot of big challenges and I aim to give them a safe space to explore these challenges—but more importantly give them hope for a better future. (Joanna Linger)

Most participants are concerned about climate change, find tackling it to be urgent, want their teaching to contribute to transformative change in society, and feel responsible for teaching climate change or feel motivated to do so by their students. Do they identify as climate change activists?

Interviews: Climate Change Activist Identity

Of the 30 people interviewed, 16 identified as climate activists, four were conflicted, seven did not identify as climate activists, and three we could not code.

16 Participants Identified as Climate Activists

Of the 16 who identified as activists, 11 did so definitively. For example, asked how she would define climate activism, Joanna Linger responded, "I think a climate activist would be someone actively pushing for positive change and really kind of getting out in the community and speaking up for what they believe in." Asked if she would describe herself as a climate activist, she said:

Yes, and I think even just with my teaching. It's something that I believe we need to talk more about, and so I bring that to my classroom. I'm not down at our legislature with signs and camping out on my weekends. (Joanna Linger)

Another teacher said:

I feel like activism could be in different ways; it doesn't always have to be loud and, you know, in your face. . . . I'm a very shy person and I'm not very loud—so my climate activism is through my classroom. . . . I tell them the same thing, that their activism can be shown in different ways as well; it doesn't always have to be out at rallies and you know, loud and yelling and things like that. (T5)

These sentiments were similar to the one teacher candidate in Campigotto and Barrett's (2017) study who considered herself a teacher activist.

Another participant in the current study, Michael DiPietro, explained:
I think there's a range. I think there's people who embed it in their own job. . . . kind of in the way that I'm doing it in terms of it's part of my everyday lexicon, it's part of my everyday teaching, it's part of my work.

Catherine Everett responded:

Yeah. I struggle with that one a little bit because I wear a lot of hats right now. I wouldn't even say it's a hat. I think it is the heartbeat inside of me. Climate activism is who I am. Am I always out there writing letters or raging on the sidewalks in terms of making my activism—I do wave that flag sometimes—but I think for me the climate activism is in my everyday work with young people.

While these teachers may resonate with Hunter and Jordan's (2020) teachers in thinking that climate activism can be loud or engage with conflict, they clearly understand activism more broadly, including in what they do in bringing climate change teaching to their students.

Five of those we coded as identifying as climate activists were less definitive, typically due to the definition they gave and to feeling like they might not be doing enough to be considered activists. For example, Mariam Hazhir said, "I'm the crazy activist teacher 100 %," but also added, "I don't want to be an imposter. . . . I don't think I'm the leading activist person for climate change." This suggests that the definition a person holds of activism—especially if it involves going to extreme lengths (Hunter and Jordan, 2020)—may dissuade people from considering themselves activists.

Four Participants were Conflicted

The four people we coded as conflicted all described things that we consider climate activism. Their conflict, like Mariam's, was typically definitional, which led to them not knowing if they were doing enough. For example, one participant stated: "I don't know, like, I'm sort of 50/50. Am I a climate activist or not? I think that I don't know. The better answer is, is that I'm a very big supporter of keeping our environment clean" (T27). Another, who we also see as a climate activist, said she feels it in her heart, but finds on-the-street climate activism stressful. In her estimation, the RCMP is out of control—"a colonial

nightmare”—and she is very uncomfortable with violence. She explained that she is perhaps an “armchair activist”—writing letters and signing petitions—but does not know if that qualifies her as an activist. She wondered if there is a category called a “chicken activist” (T23).

This, again, resonates with Hunter and Jordan’s (2020) finding that teachers’ definitions of activism may include more extreme acts and conflict, leading them to be less likely to identify as activists. Asked if she identifies as an activist, Aleeya A. replied:

I don’t think so. I don’t think I consider myself an activist. But that depends on your definition of activists. You know, when I first think of what’s an activist, I think of the sign and the protest, and I don’t go to protests, and I don’t have signs, but I have a lot of voice.

I’m in a position where I can influence a lot, and I just think that’s so cool. . . . I’m now at a point in my career where I’ve taught, I think by rough calculation, just over two thousand students. That’s massive to me. That is really, really massive to me, and I think there’s a bit of an activist twinge to all of that. But to answer your question, do I consider myself an activist? You know, I really waffle between the two. I see an activist as being a strong voice, and I don’t know that I have a strong voice.

Seven Did Not Identify as Climate Activists

We found that their definition of activism led some people *not* to identify with the term climate activist. We coded seven people that way. Jeff Cole said: “I don’t consider myself as a climate activist in the way that, with the meaning that people would ascribe to the word that I’m in a march carrying a sign; not at all.” Still, Jeff did things such as having his students create videos, with one getting posted on Facebook. While not comfortable with the term climate activist, he suggested the term “climate ninja”—and said he preferred to work “behind the scenes.”

Another teacher told us he identifies more as an educator than as an activist. He said that activism has a negative connotation for pushing an agenda but then added: “I am pushing survival so, yeah, I guess in a way, I am an activist. Or, I am taking a stand, but, for me, this is just good pedagogy” (T8). Teachers may avoid an activist identity out of “strategic centrism” to better fit into the cultural environment of schools (Cherry, 2019). Howard (2023) reported that ridicule and stereotyping was commonly experienced by climate activists in the UK, suggesting the negative connotation carried by activism is real. Grewal and Berger (2025) found that some BIPOC youth climate justice activists also felt uncomfortable with the term activist, preferring “intersectional environmentalist.”

One teacher defined activism as, “someone who actively shows up and tries their best to affect change”—and said he gave that up after frustration working for a political party. He said:

So I use education as my outlet. . . . I don’t have time to give up a weekend and go down and protest the local pipeline. I would rather teach kids and encourage them

how to change legislation and teach kids how to navigate the system, rather than protesting. (T21)

He said that if educators are working within the system, he does not see it as activism.

There was one outlier in the group. She believed activists are “full of enthusiasm, instead of knowledge” and said, “I will not associate myself with the way people behave in public that call themselves activists” (T7).

Interviews: Climate Change Teaching

In their early adoption of teaching climate change across subjects, in some cases far beyond specific curriculum expectations, we believe all participants could be considered climate activists, even if they did not resonate with that identity. To understand why we think this, we now provide some examples of what participants described doing with their students.

Joanna Linger took her class on a field trip to a school climate strike. Another teacher (T8), who said he was not a climate activist, did so as well, after making protest signs with the class. Hargis and McKenzie (2020) suggest that schools should “support participation in climate protest marches” (p. 11). A teacher in the current study, who also did not consider himself a climate activist, said: “I tend to engage my students in discussions about taking action and social justice pedagogy near the beginning of the year and I try to weave it into all aspects of my instruction” (T27).

Katie Gad gave her students the freedom to work in groups on climate projects they found meaningful. In one, the students hosted a town hall on climate change and invited the Mayor, MPP and MP. The following year, the MP’s office organized the town hall and invited the students to moderate; the students had to pause proceedings when a community group showed up to protest!

Holly Groome mentored students as they researched and created a climate action plan for their whole school district. Jillian Fraser took her elementary school students to a nearby community to speak with classes about their experience being on evacuation alert due to flooding. A teacher (T21), who said he was not an activist, had grade seven students learn media skills by creating short climate activist videos and posting them online. His grade 10 students simulate presentations to the UN General Assembly.

Aleeya A. requires her students to contact someone from an outside agency. She explained: “And so I’ve had kids come to me and say, like, miss, we got a response from NASA. . . . Miss, we have to go to the office now. We have our phone call with that cryogenics lab in Germany.” Kiersten Chase Brookes has taken her students to the BC Legislature to speak with politicians.

Most of the participants felt some support for what they are doing teaching climate change although many felt like they were the only ones doing much on climate in their schools. Some spoke of resistance, such as one of the

teachers (T8) who took his students to a climate strike. While the principal had approved, the board ended up creating a policy to prevent such participation in the future.

One teacher told us: “You know I’m always very careful. All teachers run around scared of parents’ reactions, right” (T23). Speaking of what holds some teachers back, another stated: “yeah, this is their fear of the political gods and doing anything politically in the school system and it kind of depends on admin and school culture and all that stuff too, and also community makeup” (T9). This resonates with some of Lowan-Trudeau and Fowler’s (2025) participants and reminds us of Hunter and Jordan’s (2020) teachers who wanted to avoid being “political.” The importance of a supportive administration resonates with Everth and Bright’s (2023) finding that what is possible may depend a lot on school leadership. Unfortunately, the attempt to stay “neutral” despite strong beliefs about climate change can negatively affect pedagogy, as seen with US science teachers (Nation & Feldman, 2021).

Further Thoughts on a Climate Activist Identity

We have presented a picture of K-12 teachers who teach about climate change, about half of whom consider themselves climate activists. We heard resonances with the literature with some participants defining activism as extreme. Some said a lack of time prevents them from being an activist and others that they do not think they do enough to have earned the term, both of which appear in the literature (Bolstad, 2020b, Hunter & Jordan, 2020). To feel yourself a climate activist, you probably need to believe that you are taking part in climate activism (cf. van der Werff et al., 2013). Like birders who often do not identify as “activists” or “environmentalists” despite their advocacy work (Cherry, 2019), the school environment, identification as educators, and negative stereotypes—amplified strategically by fossil fuel interests (Lewin, 2019) and contributed to by government and by media (Cherry, 2019)—may prevent people who behave as activists from considering themselves activists.

We think that whether teachers identify as climate activists matters. Teachers need to know how to advocate for system-level change to help their students do so, but “negative beliefs about politics and activists act as barriers to systemic behaviours” (Hunter & Jordan, 2020, p. 673). Perhaps teachers should be trained in climate activism (Kowasch et al., 2021)?

We did hear of system-level activism from participants who did not themselves identify as activists, but we wonder if identifying as an activist would increase the depth of system-level engagement with students or would make it more likely. Might it help teachers push the boundaries of what they are willing to do? In the literature, “explicit (but not implicit) identity [as an environmentalist] is a strong predictor of pro-environmental behavior and policy preferences” (Brick & Lai, 2018, p. 14; see also Whitmarsh & O’Neill, 2010).

Does this suggest that having an explicit climate activist identity would predict stronger personal and political actions (Kashima et al., 2014)?

Climate knowledge is not often enough on its own to create change (Bofferding & Kloser, 2015), while social identities and belonging do impact pro-environmental behaviours (Fielding & Hornsey, 2016; Fritzsche et al., 2018). An openly climate activist teacher might lead students to feel more comfortable with an activist identity—an identity that climate activists sometimes feel they must hide (Howard, 2023). This could help to break the negative connotations the word has acquired (Bashir et al., 2013; Stuart et al., 2013). In neoliberal schooling, compliant citizens are “good” while activists who challenge social and political norms are seen as irresponsible (Kennelly, 2009), even deviant (Alexander et al., 2022). This needs disrupting. Activist identity-modelling might be the most powerful influence climate activist teachers could have on students.

Students trust teachers to provide accurate information (Borde et al., 2022). If schools are to become sites of social transformation—rather than sites of social reproduction—they will need to welcome political discussions, even critiquing vested interests and political candidates (Agne & Nash, 1976). Teachers who are open about being climate activists may be particularly effective, helping students consider difficult truths and modelling considered conclusions (Warnock, 1988). If climate change education should help students gain skills for creative climate activism (Selby & Kagawa, 2018), climate activist teachers will help.

At a time when young people “are forced into civil disobedience” to push for climate justice (White et al., 2022 p. 36), schools should teach “skills for political engagement” (p. 37) and engage “with climate (in)justice” (Sharma, 2021, p. 144), perhaps by facilitating mock trials mirroring recent youth climate litigation (Fuchs et al., 2026). Teachers may try to be “neutral” and to avoid sociopolitical issues, but that just leaves important things “for others to decide” (Hodson, 2017, p. 10). Certainly, teachers want to avoid indoctrination—trying to get students to believe something without evidence or against the evidence—but if they try to be “impartial,” they risk reinforcing the dangerous status quo (Jickling et al., 2018). Students need to know the obstacles to tackling climate change are political, not technical (Fuchs, 2026).

Political leanings can predict whether science teachers teach climate change, how they teach it, and how effectively they teach it (Henderson et al., 2024); self-identification as a climate change activist may do so as well. If identity motivates action (Fielding et al., 2008), climate activist teachers may more forcefully push back against petro-pedagogy—teaching and resources that are aligned with fossil fuel interests (Eaton & Day, 2020; Tannock, 2020). All of Eaton and Day’s Saskatchewan teachers adopted the problematic framing of the fossil fuel industry in their climate change teaching. They assumed continued fossil fuel use to be inevitable and emphasized individual change rather than policy change. Only one of their participants taught in a way that “confronts the corporate power of the fossil fuel industries” (p. 470). This is unsurprising when fossil fuel interests have flooded Canadian schooling with misleading resources

(Keary & Chesnut, 2025; see also Worth, 2021). Canadian curriculum and policy do not push back against petro-pedagogy (Karsgaard & Shultz, 2025); a climate activist identity may help teachers resist it.

To avoid pushing past planetary boundaries we must start telling the truth. At a time of climate anxiety when youth feel betrayed by governments (Galway & Field, 2023; Hickman et al., 2021), climate activist teachers might make students feel less alone. If engagement in activism can help with climate anxiety (Clayton & Parnes, 2025; Schwartz et al., 2023; Vamvalis, 2023) and “collective climate change action can lead to constructive hope” (Ojala, 2023, p. 1), teachers who identify as activists and engage their students in activism may make a real difference. Trott (2024) found that young climate activists want adult support but also *want adults to join them*. Grewal and Berger (2025) found that BIPOC youth climate activists wanted mentors and teachers to validate their work and provide guidance, while Neas (2023) found that schooling’s “apolitical framing of climate change” (p. 1842) leaves students disempowered and anxious. Youth climate activists want climate justice education supportive of climate activism (Vamvalis, 2023). What kind of a world leaves students feeling that they need to confront climate change on their own (Brennan et al., 2022) or is openly hostile toward youth climate activists (Dupuis-Déri, 2021)?

Looking back on learning about climate change in school, Jones and Davison’s (2021) participants felt disempowered, angry, and betrayed. They wanted to “act in response to their learning” (p. 195) and wanted their teachers to be active. Young people’s own climate activism provides transformative learning—better than their schooling; why not, then, have climate activists as teachers who could help prevent the “systematic silencing of young people on climate change” (Verlie & Flynn, 2022, p. 5)? The political aspects of climate change and preparation for public-sphere actions must be, but rarely are, included in climate change teaching (Kranz et al., 2022).

Despite the warning to avoid new fossil fuel extraction projects (International Energy Agency, 2023), we will not stop warming at 1.5°C. Climate activist teachers can bring this knowledge to their students to discuss the ramifications and to explore why current federal, provincial and municipal governments of all stripes seem intent on breaking the planet. Identifying as a climate activist teacher may not be necessary to do this work but may make it more likely. This requires further study.

Drewes (2025) wrote that teacher education programs have a role to play in helping teacher candidates develop a climate change teaching identity. This could be a climate activist identity as teacher candidates discuss the urgency of climate action and their agency as citizens and teachers (Field et al., 2024a; Zaino et al., 2022). Teacher education can challenge the idea of teacher neutrality and can disrupt schooling’s typical role in creating conformity (McGimpsey et al., 2023).

We cannot be neutral about the climate deaths and suffering that would have been avoided if fossil fuel companies had not waged massive disinformation

campaigns to slow climate action—campaigns that continue to this day (Brown, 2017; Dembicki, 2022; Lewandowsky, 2021). We know that every million tonnes of carbon dioxide emitted will cause 226 deaths from heat alone this century (Bressler, 2021). We should be clear that capitalism, with its imperative for growth and production for capital accumulation, rather than production for human thriving within planetary boundaries, is clearly failing us socially and environmentally (Hickel, 2020; Selby & Kagawa, 2018).

Conclusion

If “the more important and salient an identity is, the greater the probability of role-consistent action” (Fielding et al., 2008, p. 320), it seems important to encourage teachers to consider themselves climate activists. We need to very quickly stop burning coal and oil and gas. The survival of low-lying island nations and coral reefs depends on it (Ripple et al., 2025). “Should we not all be activists” (Field et al., 2024b, p. 583)? Education is a key lever for change (Apple, 2012; Otto et al., 2020). Our participants are doing a lot of amazing work whatever they call themselves; we hope this paper will encourage all climate change teachers to consider calling themselves climate activists.

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Messily mediating milieu: Enclothed cognition in environmental education

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Abstract

This article contributes to environmental education by demonstrating how clothing, understood as mediations, can be used to design embodied, aesthetic and more-than-human learning experiences. As a case of practice-based fieldwork, we stage a forest walk and analyze how clothing reconfigures attention, orientation, and relation, shaping what we call enclothed cognition within an eco-mental milieu. We ask: what do garments do to environmental experience and how can clothing as a mediator support care-full, life-friendly forms of knowing in nature-based education? Methodologically, we present the study as an annotated portfolio combining fieldnotes, reflective writing, and multimodal traces from an event during the International Ecoliteracy Research Festival. Across four cases (personae, a type-writer-as-sound machine, a blue velvet dress, and monstrous writing), we show how clothing operates as a low-tech pedagogical mediator that enables perceptual shifts, ethical attunements, and new relations with environment. We argue that clothing can function as scalable, teacher-adaptable tools for designing sustainability learning as worlding practice, where learning environments emerge through co-performance among bodies, materials, media and more-than-human atmospheres.

Résumé

Cet article s'intéresse à l'éducation environnementale sous l'angle de l'habillement, considéré comme une forme de médiation utile dans la conception d'expériences d'apprentissage incarnées, esthétiques et plus-qu'humaines. Dans le cadre d'une étude de terrain axée sur la pratique, nous avons organisé une marche en forêt pour analyser la manière dont l'habillement réorganise l'attention, l'orientation et les relations. C'est ce que nous appelons la « cognition habillée » au sein d'un espace écomental. Nous nous interrogeons sur l'incidence des vêtements sur notre expérience de l'environnement et sur la manière dont l'habillement en tant que médiateur peut soutenir des enseignements en nature qui prônent l'attention et qui sont soucieux de la vie. Cet article présente l'étude sous forme de portfolio annoté, accompagné de réflexions écrites et d'une variété d'autres éléments provenant du festival écolittéraire International Ecoliteracy Research Festival. À partir de quatre cas d'étude (le rôle social, la machine à écrire comme machine à son, une robe de velours bleu, et une écriture monstrueuse), nous démontrons la fonction des vêtements comme médiateur pédagogique low-tech permettant un changement de perception, une syntonie éthique et de nouvelles relations avec l'environnement.

Nous soutenons que l'habillement est un outil mesurable et adaptable selon la personne qui enseigne, qui permet de concevoir l'apprentissage de la durabilité comme une pratique de mise au monde. La co-performance des corps, des tissus et de leur composition, et d'environnements plus-qu'humains crée le milieu éducatif.

Keywords: posthumanism, embodiment, atmospheres, more-than-human, multimodal, podic, portfolio as form, creative methodology, performativity, environmental aesthetics

Introduction

Environmental education as a spatial and sensory-aesthetic practice of *worlding*. We live in challenging times. The climatic state of the Earth threatens a multitude of species, including us, *Homo sapiens* (Paulsen et al., 2022). Education for Sustainable Development (ESD) is essential for our future life on Earth. The urgency of environmental response measures necessitates that environmental sustainability must be integrated into foundational education curricula to prepare our children and grandchildren to the challenges of climate change (Blenkinsop et al., 2022; Højholdt & Ravn-Pedersen, 2021). This global reality asks us how we can inspire environmental education to pioneer new approaches that foster critical thinking, produce creative solutions, and inspire action. The present article demonstrates how clothing, as an everyday medium, can be used to design low-tech, playful, and disruptive environmental education experiences. Such approaches involve moving learners from cognitive knowing towards embodied sensing in more-than-human worlds, followed by reflection, to achieve creative solutions – a posthuman and performative perspective on learning and knowledge (Barad, 2007; Pickering, 1995, 2005, 2025)

We understand learning environments as eco-mental systems: relational circuits in which perception, cognition, and responsibility emerge through relations among humans, materials, media, and other more-than-humans inspired by Bateson (1972/2000) and Haraway (1991, 2016)). Environmental education becomes a spatial and sensory-aesthetic practice of *worlding*, where learners are invited to enter relations differently and develop life-friendly modes of attention and response (Haraway, 2016). Clothing is our everyday entry point into this potential because clothing is the first external medium through which bodies meet weather, terrain, movement and socio-ecological co-presence. As the deceased philosopher Michel Serres (1991) wrote, “We never truly live either completely naked or completely clothed, never entirely veiled and never entirely unveiled—just like the world itself” (p. 81, authors translation). Clothing is an everyday mediator. We understand

mediation as a relational, generative process – namely, the making of connections (Latour, 2005; Pickering, 1995; Serres, 1982).

In a time of ecological uncertainty, there is an increasingly need for methods in environmental education that address complexity, embodiment, materiality, and more-than-human attunement (Ejsing, 2024; Fettes & Blenkinsop, 2023; Malone & Crinall, 2023; Paulsen et al., 2025; Paulsen et al., 2022). Building on work in environmental aesthetics (Carlson & Berleant, 2004) (Svabo & Ekelund, 2015), pedagogy in the Anthropocene (Paulsen et al., 2025; Paulsen et al., 2022) and STE(A)M education (Colucci-Gray, 2025; Colucci-Gray et al., 2024), we explore how clothing functions as an embodied medium that shapes learners' orientations toward place, atmosphere, and ecological relations. We research clothing as a mediating technology and play with personae, eco-literate experiences, monstrous mediations, and a hybrid dress in re-thinking pedagogy in the Anthropocene. We propose performance-based sustainability methodologies to move against persistent, rigid reproduction of the existing pedagogical systems. These monstrous methodologies can articulate the value of the unpredictable, the uncontrollable, and the emergent (Svabo, 2021; Svabo & Borch, 2026).

Performance Design and Creativity

To contribute to rethinking ESD pedagogy, we, four researchers within educational research, performance, communication, and design have assembled several examples of fieldwork to synthesize posthuman approaches with performative design strategies. We draw on recent work where we have explored monstrous methodologies as posthuman and performative approaches within science education and educational research (Borch, 2026; Svabo & Borch, 2026).

The present article models a framework for new methodologies to explore the potential for tangible, inventive, transdisciplinary, and hybrid analyses of performance-based environmental education with an eye toward practice-based education design. We draw on a workshop for researchers and secondary and tertiary teachers held at an International Ecoliteracy Festival in 2025. We approach our empirical material through four perspectives: 1) *Performative Schizoid Method* and Co(a)gency, 2) Typewriter as a Sound Machine, 3) The Blue Velvet Dress, and 4) Monstrous Writing.

Through these case studies, the article rethinks issues of environmental education through the concept of clothing as an active mediating entity. The case studies demonstrate how enclothed thinking extends pedagogy by shifting the learner from cognitive knowing to embodied sensing within context.

Theoretical Framework: Mediation as Orientation and Relation in Eco-mental Milieu

The question that guides us asks *how clothing participates in the ongoing reconfiguration of knowing, acting, and relating within more-than-human learning ecologies*. Clothing is understood as a material-semiotic practice through which bodies, environments, and forms of attention are differentially attuned and brought into relation across scales. From this perspective, cognition, performance, and participation are not separated domains but emerge as interwoven modalities within the experience ecologies. We think with clothing as medium and this foregrounds how sensing, moving and knowing are co-constituted through situated encounters. Here, we draw on Barad (2007) and their understanding of intra-action and we understand clothing as an actor with agency in this configuration being the intra-action.

This contextual framing raises the question of *how clothing might be engaged as a design-relevant mediator in ESD*: not as an add-on or a representational device, but as a way of re-configuring how participants can engage, respond and attune ethically within more-than-human worlds.

We use mediation as an analytic and design concept. Mediation is about active orientation and relation-making – and does not merely refer to transmission. In eco-mental environments, mediation shapes what becomes perceptible, what becomes possible and what becomes care-worthy. Clothing is a great mediator because it is both material and semiotic. It is both sensory and socio-material: it calibrates temperature, texture and movement, while also cueing identification, role, and position. When clothing changes, the environment changes with it; new relations are staged and enacted.

Clothing functions as a design opportunity to develop pedagogical strategies. Not only does clothing shape how we sense, feel, think, and perform within environments, clothing can be used as a learning apparatus for eco-literacy. As we come to know and feel our environment *through* and *by means of* our clothing, we can also analyze the nuances of enclothed experiences as pedagogic practices, which inform and so re-shape approaches to environmental education.

As with the case studies presented in this article, clothing as a *device* dictates and bestows a series of user tactics by which the wearer re-configures with his/her environment. Clothing is an onto-epistemological medium (see: Barad, 2003, 2007). It enables orienting and relating of the body, and the human to the environment; it formulates along with sensation as the basis of the experience ecology. To consider the orientational and relational powers of clothing is to ponder the ways that clothing forms connections, both social and material, among the natural and cultural worlds we inhabit. The ubiquity of clothing marks perhaps the first external medium one experiences, the first component of an extra-corporeal habitat we contact, the first socio-material architecture we perceive. Clothing becomes an environment we adopt. It alters our sensory fields, guides how we create knowledge, and bridges experience.

Mediation does not arise as a free-flowing, unbiased process of information exchange, but is rather a creative, dynamic and ongoing system(s). Mediation can frame, reinforce, and distort data. Following the concepts of Michael Serres' (1982) mediation ontology and Actor-Network Theory, we consider mediation as a creative process that proceeds through an orientational and a relational information exchange (Latour, 2005; Svabo, 2010; Svabo & Borch, 2026) and, further, mediation is always contextual, co-constitutive, and co-creational throughout the process (Shanks et al., 2025). Knowledge is a performative process, with active and agential dimensions that influence the relationality of assemblage; knowledge formation thus also involves a configurative practice, following Pickering's (1995) conceptualization of performativity. As Pickering indicates, within mediation subject and object (human or more-than-human) are both *transformed* through a mutual process, ever shifting and susceptible to deviations (Pickering, 1995, 2005, 2025). Mediation therefore involves a dynamic morphing of materiality that is always situated within ongoing streams of observation and analysis. Mediation co-agentially transforms all positions in a knowledge assemblage, including matters and objects of study (Colleague et al., 2025).

For environmental education, this means that clothing is not just a covering but a medium that shapes how learners' sense, interpret, and engage with place. Clothing orientates bodies toward atmospheres, materials, and more-than-human presences; it configures relations and co-creates experience. Understanding clothing as an environmental mediator opens new pedagogical possibilities for designing experiential, embodied, and relational learning situations. For environmental education, understanding clothing as medium foregrounds the ways learners co-create environmental experience through embodied, affective, and material engagement. Mediation, in this sense, is not abstract but ecological: it shapes how bodies relate with more-than-human atmospheres, landscapes, and sensory conditions. This perspective resonates with international traditions of land-based learning, environmental aesthetics, and relational pedagogy, providing an onto-epistemological foundation for practice-based eco-literacy.

Significance

Clothing mediates our every experience with the environment. As we participate and perform environment through clothing, so too does *enclothed cognition* mediate our experience of that environment. We draw on Adam and Galinsky (2012) who argue that:

. . . wearing clothes causes people to “embody” the clothing and its symbolic meaning. Consequently, when a piece of clothing is worn, it exerts an influence on the wearer's psychological processes by activating associated abstract concepts through its symbolic meaning—similar to the way in which a physical experience, which is, by definition, already embodied, exerts its influence. (p. 919)

In this manner, the mediating of clothing constitutes forms of *enclothed* cognition to experience the situatedness of the human, always embedded within the environment. We explore these methods for ESD and STEM-education to innovate novel approaches to study embodiment and to engage with affect, the senses, and bodies as situated within and emerging through their relations with more-than-human environments. This mediation-oriented perspective allows us to see learning environments not as backdrops but as co-constituted assemblages in which clothing, materials, bodies, and atmosphere jointly shape environmental knowing (Borch & Svabo, 2025).

Emergent Methodologies in Environmental Education

Concept: Fieldwork

The fieldwork for this study is a walk in the (He)art Forest of Denmark, staged as a 90-minute open-invitation event during the International Ecoliteracy Research Festival on August 15, 2025 in Ry, Denmark. Conference participants took part in the practice-based event to explore the ways in which clothing redefines the onto-epistemological relationship between the human walker, other human participants and more-than-humans, including landscape, plants, fungi, animals etc. and to the knowledge ecologies that emerge.



Figure 1. The participants at the end of the walk.

Here participants were invited to join a “meeting of people, nature, and life-friendly vision... and [through] play, and communal activities, we aim[ed] to create a space for dialogue, learning, [and] centering the more-than-human world without extensive use of electronics” (conference participation call) and to use clothing: including props, tails, antennae, lab coats, etc. as onto-epistemic media.

Methodology: Annotated Portfolio as Generative Form

Utilizing transdisciplinary backgrounds, we use an annotated design portfolio (Gaver & Bowers, 2012; Hall, 2020) as a scaffolding for the empirical examples in the article to demonstrate how emergent methodologies can transform and design environmental education. Following methods outlined in “*Monstrous Mediations: A Posthumanist Portfolio of Strange Methods*,” where Svabo and Borch (2026) establish emergent, monstrous research methods to approach the study of more-than-human agency via the analysis of sensory-corporeal materializations, and drawing upon a long history of *generative disruptive* work among the contributors, the present article synthesizes several approaches to human-situatedness of environmental aesthetics (see also: Kosovac, 2023, p. 87).

These methods repeatedly emphasize the relational displacement, performativity, and speculative experimentation inherent in analysis of *dynamic assemblages* of knowledge formation. The foundation of *assemblage* in actor-network theory (ANT) grounds a relational understanding of the always-fluctuating coordinates of knowledge; assemblages encourage relational theory to evaluate the chimeric, shifting processes of knowledge made visible through instances of socio-material manifestation (Latour, 2005; Latour & Woolgar, 1979; Law & Mol, 2002).

Practice-based Research Methodologies: Creative Making and Wearing as Inquiry

The walk involves outlined structures for participants and includes multimedia documentation:

Context and Participants

- Open-invitation forest walk, 90 minutes
- Location: (He)art Forest / Himmelbjerggården in Ry, Denmark
- Date: August 15, 2025
- Participants: 13, including conference attendees and workshop facilitators. Participants included researchers in environmental education as well as teachers in secondary and tertiary level.
- Documentation: photos, fieldnotes, reflective annotations, participant utterances, artefacts/clothing traces
- Parallel: Catherine Bagnall performed a walk in parallel in her environment at Butterfly Creek in New Zealand. Her experience delivers additional

perspectives on the reflections of the practice-based research in another geographical context.

Event Documentation, Materials and Traces

- Fieldnotes written immediately after
- Photographs by authors
- Post-event reflective writings
- Artefacts: garments, props (tails, antennae, lab coats, typewriter)

Analytic Approach: (Re-)Connecting with Theory

- Theoretically and conceptually driven practice
- Portfolio curation (selection and ordering of cases)
- Compilation according to analytical themes
- Generative and iterative design: events as prototypes for education practices

By design, the walkers, amblers, crawlers, and callers of the day afforded the contributing authors with reflections after the walk at several stages.



Figures 2-5. Images of the participants during the walk.

The annotated portfolio format aligns well with contemporary environmental education, which increasingly values situated, multimodal, and practice-based inquiry. By combining fieldwork documentation, embodied experimentation, and reflective annotation, the portfolio demonstrates how learners and researchers can attend to atmospheres, relations, and more-than-human presences. The annotated portfolio captures multiple perspectives and levels of participation (Bowers, 2012; Gaver & Bowers, 2012). Drawing on Malone's (2026) work on autoethnography and posthumanism, we combine personal experience and observations to foreground morethanhuman elements and to rethink conventional fieldwork. The portfolio's multimodal documentation and participant annotations allow for multiplicity and reflexivity: contributors

move between roles as ethnographers and metapragmatic autoethnographers, producing commentary that responds to the collective processes of the project.

In doing so, the portfolio makes visible the iterative, relational, and emergent character of a reflexive knowledge apparatus (Hall, 2020). Its ongoing annotations preserve both proximal and distal viewpoints, simulating the situatedness of scholarly work within transdisciplinary discourse and the intertextual relations among contributors.

Case Studies:

The following four cases demonstrate four distinct analyses of *enclothed cognition*. They are all thematically connected to the walk Messily Mediating Milieu at Himmelbjerggården area in Denmark and present four different perspectives of *enclothed cognition*.

Case 1: Performative Schizoid Method and Co(a)gency

Situating the Encounter: Connie Svabo has extensive experience in developing design-based personae using clothing to scaffold development (Svabo, 2021; Svabo, 2023; Svabo et al., 2008). Here, using the material and social cues of a lab coat, allows the ethnographer to generate personae, hybrid identities, and extensions of self (Haraway, 1991; Michael, 2000; Svabo, 2021). The personae reengage with the environment in new ways during the forest walk.



Figures 6-8. The customization of the lab coat, the locus of the personal development.

Reflections from the Walk (Connie Svabo, 2025, translated from the original Danish):

"What did I experience in the situation?..."

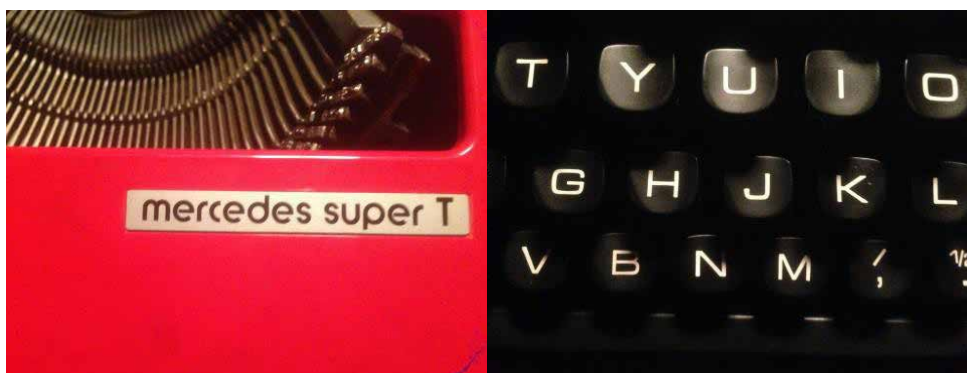
I think it was FUN. Liberating. Lovely. I felt safe with them and had a great time with what we achieved and what we wanted. It was a bit crazy (quite crazy), but also quite wonderful. And there were some wonderful Dutch participants, who made it memorable and really brought out the contours...The naked scientist. Catherine Bagnalls poetic New Zealand tailed beast - who swung in trees, knocked on traffic signs, went barefoot, and reeeaaaally enjoyed that... How nice it was to DO something."

How Clothing Participates in the Situation: Through the *performative schizoid method* (Svabo, 2021), participation is reconfigured. Agency becomes distributed across social roles, materials, and semiotic expressions. As cognitive knowing is remediated into embodied, collective sensing, previously hidden aspects of identity surface. The redesigned lab coat with leaves painted all over, the Haraway inspired compost tiara, and woman transformed into a more-than-human assemblage: *the naked scientist*. A bear-like dress with tail, a hood with ears, and a man with beard transformed into *bouncy bear-man*. New personae evolved, co(a)gents (Michael, 2000), situated at the walk. This materialization of the social allows researchers to see, feel, and reflect on the in-between and more-than-human dimensions of their work. In these inter-objective reconfigurations, both researchers and environments are transformed. The case demonstrates that scientific identity formation is embodied, mediated, and situated. Working experimentally with personae unsettles normative assumptions about expertise, neutrality, and objectivity. The lab coat becomes a mediator for exploring how environmental knowledge is performed and experienced.

Pedagogical Openings: Such practices can be adapted in environmental education settings to open discussions about authority, positionality, and the more-than-human aspects of environmental practice, creating new possibilities for experimental and sustainable curricula. Clothing can be a pedagogical participant and as with '*bouncy bear-man*' and '*naked scientist*' clothing can be redesigned to act as an intentional mediator for relations between humans and more-than-humans.

Case 2: Typewriter as a Sound Machine

Situating the Encounter: Performance-based and scenographic approaches to educational design research involves a balance between notions of mediacy and immediacy, experiential shifts that simulate oneness, liveness, in-betweenness, and performance elements as results of modes of communication. The typewriter, a Mercedes Super T, when used as a sound machine upsets the relationality of human-milieux.



Figures 9 & 10. The clacking typewriter-turned soundwriter.

Reflections from the Walk (Anja Mølle Lindelof, 2025, translated from the original Danish):

“Disturbances & playfulness

Silence, slowness, minus movement, supported by the fog in the trees and the dew on the grass, very few people to see. Very beautiful in itself, a feeling that the symposium had succeeded in creating a radical alternative to a classic conference for the exchange and production of academic knowledge...

I remember the experience of arriving and thinking that the disruption might be too great and thus intrusive and provocative rather than playful and productive.

... the clothing itself created both disruption and playfulness in different ways and in waves, carried by the different strategies and ideas that the participants brought with them... My own sticky skin under the dense orange oilskin, which made it possible to walk with a ferocity that was almost aggressive, but which was also on the verge of being uncomfortable for myself. The lab coat as flasher-clothing. Connie's dress, Katrine in wedding white, Catherine's beautiful fabrics in motion and the bag that was filled with the forest's archives as we walked ... to concretize our encounter with nature in a different way than through talktalktalk.”

How Clothing Participates in the Situation: *Liveness* in performance prompts an active negotiation of who, to whom, and what presents itself during an act of performance (Reason & Lindelof, 2016, p. 157). Clothing provides a shift, both as tool and agential medium that remaps social strategies to adapt to changing social courses. The *radical alternative* of an ambulatory symposium guides remediation of the group interaction among conference participants: the results are an increase in the scale of strategic intervention, both in number of affected social agents and in material interrelations among the involved groups.

The forest walk demonstrates how clothing can recalibrate sensory attention, social behavior, and ecological perception. The playful disruptions challenge dominant *quiet nature* scripts in environmental education and open space for more experimental eco-literacy practices.

Pedagogical Openings: These methods can be adapted for education by juxtaposing calm/attentive phases with playful/expressive phases, encouraging learners to explore how atmospheres, sounds, textures, and movements mediate their environmental relations. Hybrid forms of knowledge emerge as potential new configurations of learning (Svabo & Bønnelycke, 2020) and these explorations allow for non-verbal knowledge, something else other than “talktalktalk.”

Case 3: The Blue Velvet Dress

Situating the Encounter: Enclothed fieldwork and locating the more-than-human: An animal form in the guise of clothing, a garb that suggests the more-than-human: performance enabling an experience of the in-between.



Figures 11 & 12. Catherine Bagnalls blue velvet dress: embroidered, dyed, and modified to enable posthuman morphing into the more-than-human.

Catherine Bagnalls broader research as a performance artist assumes the essence of the animal by means of her clothing, in a process of *becoming* (Bagnall, 2016a, 2016b). The medium of clothing transforms the potential of ethnography into performative action. Such practice allows for novel identity formation when the mediation and agency of place factor into the seamless engagement of body, mind, and clothing as something “in-between,” hybrid and undetermined.

Notes from a Night Walk in a Blue Dress (Catherine Bagnall, August 2025):

"My velvet dress is the deepest midnight blue. Two years ago, I sewed the dress from a length of pink silk velvet that was given to me. I then dyed it a deep dark blue so it would become my dress for wearing to walk in the dark. It has small green moths that I embroidered at the collar and large pockets for collecting stars. Wearing it on a moonlit August night, I become a small part of the night sky or at least my dress collected some of the silver moon glitter that flickered over the leaves of the black night trees. The dress made me swirl and twirl and dance in the small clearing that I had walked through the trees to. The dress swished and was almost darker than the dark night, absorbing the dark night sky. Next to the clearing the stream gurgled with the voices of the night spirits and the ruru called. I wasn't scared because my midnight blue dress made me a part of that place, I danced in the night sky and I danced for the blue-black night sky. And then the creek was so cold as it flowed over my bare feet, and I knew there were eels under the overhanging mossy bank all along the edge of the creek.

If I am honest my boots made of pony fur kept me very much a creature of and on the ground and I danced and swirled as if hoofed but with my bare feet in cold water and I felt the fullness of it all.

Talking with night spirits – talking with angels was what people did in medieval times because it was possible – because what we regard now as 'normal' subject / object positions had not taken hold then ...

As part of citational practice I reference the Creek: Butterfly Creek, August, 2025"

How Clothing Participates in the Situation: Clothing as mediation calls upon the user to imagine a sustainability that is simply putting into practice what it means to *fashion*. This is an act. The *fashioning* of oneself to become a part of the night sky rather than *fashion* as a noun, the name of the fashion system. Such liberation from the systemization of *fashion* reestablishes connection with the environment via performative mediation (Svabo, 2021). It models a pedagogy of transformative potential and the creative reforging of seemingly entrenched systems by altering one's relation with the knowledge ecology. Here pocketsful of stars align the celestial-human amalgam. In *becoming* part of the night sky, she shifts her orientations of practice surrounding a centralized knowledge and practice architectures to a relational disparate mode of embodied, encloded experience (Kemmis & Mutton, 2012). This knowledge ecology extends from the celestial to the chthonic, as sleeping coils of eels at the edges of her embodied perception merge with creek-soaked feet, mediated in a linked singularity, as eel-water-clothes-human. Both stars and eels disappear and become, *becoming* a oneness-assemblage. The potential to fashion further, multivariate and distinct assemblages remain at the heart of clothing's disruptive, resilient, and messy

means of decentering. Like the embodied mediations of the forest walk, the Butterfly Creek and the blue velvet dress offer new orientations in experience and expressivity. Such formations of assemblage can also be found in the monstrous mediating hybridity described by Svabo & Borch (2026).

Pedagogical Openings: This case highlights the role of environmental aesthetics, darkness, fear, and more-than-human presence in place-based learning. The blue dress mediates an intimate relation with night atmospheres, non-human life, and sensory uncertainty. Educators can use similar *enclothed night walk* activities to invite learners into deeper attunement with place, atmosphere, and ecological presence, especially in land-based and arts-integrated environmental programs. This case can also be adapted in environmental education by developing *fashioning* in conjunction with environmental practice to support learning practices as performative action, with the potential to reorient student-practitioner experience.

Case 4. Monstrous Writing

Situating the Encounter: Katrine Bergkvist Borch has worked with clothing as a part of personae formation in her PhD project about science education in nature-based learning environments wearing both an ice age landscape cloak in brow colors and a white and blue silk cloak which has both been used as a wave and the sky (Borch, 2026). Walks in cloaks are inspired by Catherine Bagnalls work. In her PhD project, Borch developed *monstrous writing methodologies* (Borch, 2026), a kind of situated embodied performance and method inspired by monster theory (Cohen, 1996; Weinstock, 2020), where the monster is representing the fragmented, hybrid, and impure. The writing is not a communication of research, but the writing itself is research, as for example inquiries of research questions through monstrous writing. The writing is contextually bound, a kind of situated knowledge, that unfolds woven together with the research process as act (St. Pierre, 2017).



Figures 13-17. Clothing as co-constitutive in the experience of landscape.

Reflections from the Walk (Katrine Bergkvist Borch, 2025, translated from the original Danish):

"We survey the area, dressed in clothing that stands out. Anja, in my Ice Age landscape cloak and ears, Connie in her lab coat filled with morethanhuman artefacts and symbolics. And me with my compost tiara.

We decide that Connie should arrive in her Mercedes and set the scene, to underline our intervention in the environment.

*We make noise.
As we walk.*

We struck the stones. Amplified the sound with the megaphone.

[Mega-important-megaphone]

A participant from another workshop passed by and asked us to be quiet. Exactly as intended, we kept making noise. The bears roared. I think. Maybe it was only in my head?

[What might the others come up with? They're all completely mad]"

How Clothing Participates in the Situation: Clothing as mediators illuminate the manifestations of material and social contexts, made visible as (monstrous) deviations from initial orientations. These shifts directly result from uses of clothing, deployed to create experiential breaks and contribute to *worlding* among groups (Serres, 1982, 1991). Reconfigurations of self, involve monstrous production, a method that drives the monstrous shift towards a variety of educational design pragmatics. Monstrous writing demonstrates how learners can explore more-than-human entanglements through hybrid forms of expression. Writing as a situated, embodied practice reveals ecological relations that exceed linear or representational modes.

Pedagogical Openings: Monstrous writing in relation to clothing experiments offers powerful possibilities for environmental education where learners can be invited to write from hybrid, relational, and more-than-human perspectives. This writing is a practice combined with *becomings* as assemblages between humans, clothes and surroundings amplify the assemblages.

Discussion

The four case studies related to the loud and messy walk at the Ecoliteracy Festival contribute to enact an *enclothed cognition* pedagogy as an attempt to demonstrate how clothing, as an everyday medium, can be used to design

low-tech, playful, and disruptive experiences across age groups and educational levels. The forest walk contributed to a situated experiment in foregrounding how garments act with agency in enacting co(a)gents in specific landscapes as assemblages of humans and more-than-humans (Svabo & Borch, 2026). The walk was an intervention in the peaceful, silent, and slow environment of the Ecoliteracy Festival. The first case demonstrated how designed clothes, for example lab coats, prompt the creation of *monstrous personae*. In the forest walk, several personae's or co(a)gents were enacted. We have already introduced *bouncy bear-man* and *naked scientist*, but also *the collector* and *fox-lady* appeared that day. They were present in that specific place, during that specific performance and in that specific liveness.

We found through the revisitation and reflection processes involved in this fieldwork experience that fieldnotes capture shifts in attention, orientation, and relationality. Participant's reflections during and after the forest walk bring back sensory, affective, and observational details that act in reshaping the experience. These posthuman processes open possibilities for educational re-thinking of teaching and learning. The hybrid, choreographed practices enacted in this article suggest new ways of structuring learning and designing teaching with *enclothed cognition*. Experimenting with multiple modes of sensing, mediating, and knowing supports more sustainable knowledge ecologies where both humans and more-than-humans act in learning processes. Drawing on several perspectives from four different researchers contributes to a widely branched annotation of the walk at the Ecoliteracy Festival bringing forward how disturbance and disruption can act as methodological tools combining design and performance practices with posthuman theories. Through these annotated portfolios we explore how garments mediate knowledge and enact intra-actions between humans and more-than-humans. These approaches challenge conventional methods in environmental education and invite to expanding methodologies including a kind of more-than-human ethnography. We propose a posthuman challenge to normative eco-literacy that decenters human-centric assumptions about expertise and learning. Through the annotated portfolio we have brought forward pedagogical implications grounded in relationality, materiality and more-than-human entanglements.

Pedagogical principles for *enclothed cognition* in environmental education:

1. **Garments as Mediation:** Begin with simple garments and artefacts to shift perception and open environmental attention. Experiment with different garments in specific settings, for example wedding dress in forest or rain jacket in classroom. These everyday mediations sensitize the experience, allowing for multiple perspectives.
2. **Attunement:** Design learning sequences that play with both quiet sensing and playful disruption. Our contribution is a *shout-out* to the loud, messy, playful experiences in outdoor settings allowing for a multiplicity of attunements in

environmental education. Be curious towards what kind of garments enact liveliness and messiness.

3. **Personae:** Use personae and clothing to invite more-than-human positionality. Use clothing to help new identity forming and enactment of personae. Be curious towards what different kind of garments enact in different settings. Clothing can support participants playing with new personae and becoming human and more-than-human assemblages. Be aware of designing and creating a safe place for experimentation and curiosity.
4. **Atmospheric Shaping:** Use atmosphere (fog, cold, sound, texture, darkness, etc.) to co-create the learning situation. Experiment with walks in different settings, seasons, and different times of the day, trying to relate in different atmospheres. Be curious towards how different atmospheres shape relations.
5. **Temporal Reflection and Care:** Use reflection in the process to engage temporal experience. This could for example be *monstrous writing* where situated, temporal, poetic aspects are enacted in the writings. These temporal reflections engage in a prolongation of the experience, amplify the assemblages, and can help foster careful and responsible relations.

These five pedagogical principles can act as inspiration in how *enclothed cognition* can contribute to environmental education. Foregrounding garments as an active mediator in learning experiences shows how clothing can function as a design opportunity to develop pedagogical strategies.

Conclusion

This paper explored how clothing participates in the ongoing reconfiguration of knowing, acting and relating within more-than-human learning ecologies. Through a messy and loud walk with garments as mediators we explored how clothing, as an everyday medium, can be used to design low-tech, playful, and disruptive environmental education experiences. Across four case studies in the form of an annotated portfolio, we show that garments act as mediators of attention and can be used to design learning experiences in environmental education that enact liveliness. From the annotated portfolios, we found that the use of personae can invite more-than-human relations and that atmosphere can be used with garments as mediators to shape relations. We also found that posthuman methodologies as *monstrous writing* and *more-than-human ethnography* can amplify and prolong the experiences. This work extends posthuman pedagogy by framing clothing as an active, hybrid mediator that co-constitutes knowledge ecologies rather than merely illustrating them. For educators in environmental education, we recommend starting with everyday garment and designing for atmospheric shaping and temporal reflection.

This study is limited by its context specificity, and future work should experiment with these methodologies across different settings. Especially it could be interesting to work with students across different age groups in future research. This study shows that when we treat clothing as pedagogy, we open pathways for more responsive, care-full, and experimental environmental learning.

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Transformational climate change education: A case study on using personalized assessment methods to support enduring engagement

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Abstract

Environmental sustainability has emerged as a global priority, requiring both individual and collective action to foster meaningful change. This case study describes a partnership between an academic and sustainability practitioners to advance climate education through an online course that integrates principles of change leadership, personalized learning, and versatile assessment. The course design and implementation aimed to support learners in critically examining their positionality within the climate space while navigating intersections of policy, community, and daily life. Lessons learned underscore how educational programming can link community engagement, assessment practices, and public outreach to encourage socially conscious, active citizens. The findings offer practical insights for practitioners seeking to design and implement learning and assessment approaches that cultivate collective action.

Résumé

La durabilité environnementale est devenue une priorité mondiale. Pour l'atteindre, des changements importants sont nécessaires et requièrent des actions autant individuelles que collectives. Cette étude de cas expose un partenariat entre une université et des spécialistes de la durabilité qui vise à faire progresser l'éducation sur le climat par la création d'un cours en ligne alliant leadership, apprentissage personnalisé et évaluation polyvalente. Le cours outille les apprenant·es pour examiner de manière critique leur positionnalité par rapport au climat et analyser les liens entre quotidien, communauté et politiques. Les résultats de l'étude montrent comment un programme pédagogique peut combiner engagement communautaire, pratiques d'évaluation et sensibilisation du public pour favoriser l'épanouissement de citoyennes et citoyens mobilisés et socialement responsables. L'article offre aussi des conseils pratiques aux spécialistes qui souhaitent concevoir et mettre en œuvre des approches d'apprentissage et d'évaluation qui encouragent l'action collective.

Keywords: Change leadership; educational programming; sustainable education; environmental stewardship; personalized learning; assessment for learning; collective action; community engagement; knowledge mobilization; climate change education

Introduction & Context

1.1 Mobilizing Alberta

Mobilizing Alberta (MA) is a five-year project focused on cultivating climate awareness and action in Southern Alberta. MA was developed by the former Office of Sustainability at the University of Calgary and undertaken with the financial support of the Government of Canada. MA had two main objectives: 1) supporting local climate action and experiential learning through a granting program that provided C\$720,000 in Climate Action Grants to projects that advanced community climate action and awareness; and 2) knowledge dissemination through a Climate Conversations speaker series, a suite of videos, a website, blogs, and an online course entitled “Preparing Albertans for Climate Change.”

This free, online course was developed through a partnership between the University of Calgary’s Office of Sustainability, Re.Climate (a climate communications research institute at Carleton University), and the Prairie Climate Centre at the University of Winnipeg. The initial framework for the course design (Figure 1) was created by a working group of staff from Re.Climate, Prairie Climate Centre, and University of Calgary’s Office of Sustainability based on existing research, best practices, and their experience and expertise. It was then shared with the Mobilizing Alberta Circle of Advisors for feedback. The Circle of Advisors was an expert forum established to advise on the development and execution of Mobilizing Alberta and included representatives from the academy, Treaty 7 region, external organizations with climate change expertise, and undergraduate and graduate students. The working group then used feedback from the Circle of Advisors to refine and finalize the framework.

The course was designed for secondary, post-secondary, and adult learners (outside of formal educational settings) who are interested in, and want to learn more about, climate change in southern Alberta. A primary aim of the course was to make it easy and efficient for these learners to discover more about climate change in Southern Alberta. The design work for the course began with a review of public opinion on climate change in both Canada and Alberta. For developing the course content, the working group used the Climate Messaging Triangle (Bennett et al., 2021), which links challenges to benefits and opportunities. The working group designed the content to start at a socio-political level and move down to a personal level—from policy, to community contexts, to individual actions. The working group pulled content from existing resources, environmental scans, subject matter expert interviews, and working group expertise. The draft content was then vetted by subject matter experts.

The course features local voices including academics, entrepreneurs, and community leaders discussing climate impacts and exploring solutions that align with Canada’s climate goals. The evidence-based content dives deep into the impacts and choices that we will have to make as we work towards a net-zero carbon future.

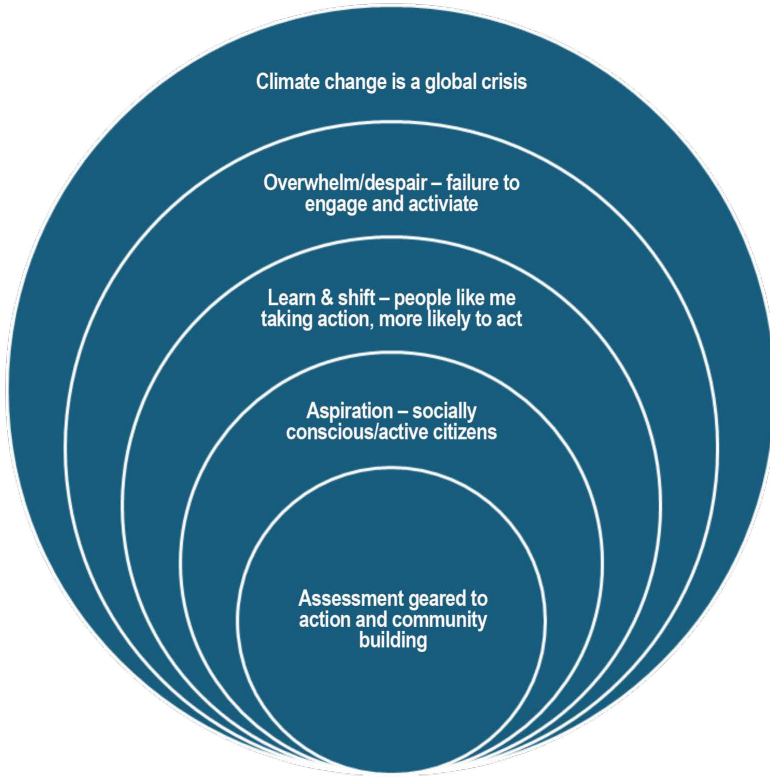


Figure 1. Framework for course design

The course modules include Climate Change in Alberta, Diversifying Energy, Resilient Communities, Transportation Choices, Efficient Homes, and Sustainable Food Systems. The working group crafted learning objectives for each of the modules. Each module provides insights on the policies that are driving climate action, examples of local projects and initiatives helping to create a more climate-resilient Alberta, and tangible actions individuals can take in day-to-day life.

The course is asynchronous and takes participants four to six hours to complete. The content is available in both French and English. Participants can access as little or as much of the content as they wish. For example, teachers may wish to only use one module of the course to supplement a unit that they are teaching. The course was made accessible through removing financial barriers by making the course free. Additionally, through its asynchronous nature, participants could engage with the course on their own time, in the comfort of their own home or office.

The first iteration of the course was launched in March 2024 as a series of PDF documents with accompanying videos. The working group created an amplification package to promote the course using a snowball approach by sharing the package with the working group's networks and asking individuals and organizations to share the course to their networks. The working group also hosted five information sessions that highlighted the course and how it could be used. During one of these sessions, the working group received feedback that it would be helpful if course participants could receive a certificate of completion and if the course included a robust assessment to engage learners. This feedback prompted the creation of the second iteration of the course that could issue a certificate of completion (which could be added to a resume and/or LinkedIn profile) and moved the existing course materials into an online learning management system (Articulate 360) capable of engaging participants in self-reflection and learning assessment.

Given that the course content had been created, the working group was reduced in size to a practitioner from the Office of Sustainability and a consultant skilled in using learning management systems (LMS). The smaller working group recognized that they lacked the subject matter expertise to create a robust assessment for the course, so they contacted the Werklund School of Education in hopes of partnering with an academic to develop the assessment. The course assessment was created through a partnership between a Faculty of Education professor and the smaller working group.

Once the second iteration of the course was ready to launch in November 2024, the course team worked with a communications consultant and the media relations team at the University to do a media release. Since that time, the course has been promoted through a series of climate awareness and action blogs that use search engine optimization to draw new audiences to the course. The course was also the focus of two conference presentations in Alberta (an environmental gathering and an environmental educator's workshop) which also enabled course promotion, and it was promoted at numerous Mobilizing Alberta public events.

As of the beginning of March 2026, over 600 participants had accessed the course, and 58 participants had completed the course with analytics indicating many are in progress to complete the course. Demographic information about the participants was not collected as per the ethics approval for this work. As of March 2026, the course is still available. It is uncertain what will happen to the course when project funding ends in May 2026. There is no budget available to update the content regularly to remain up-to-date and relevant.

The partnership between the professor and smaller working group on the course assessment is the focus of this case study. The "we" in this article includes Rachelle Haddock, one of the practitioner partners from the former Office of Sustainability, and Nadia Delanoy (PhD), a faculty member from the Werklund School of Education. The aim of our partnership was to answer the question: How can we support transformational education for climate change at different entry points for Albertans? For the purposes of this paper, we use

UNESCO's definition of transformative education as "teaching and learning that motivates and empowers learners to make informed decisions and actions at the individual, community, and global levels" (UNESCO, n.d.).

Additionally, this case study shares methods for creating an online learning assessment approach for a climate change course. We aim to demonstrate that through intentional assessment geared to action and community building, individuals can move from a place of despair and overwhelm about the climate crisis to becoming socially conscious, active citizens. We wish to share what we learned so that practitioners and academics can apply these learnings in their own course design and environmental education contexts. We will begin by sharing literature relevant to the case study to set the context, followed by an overview of the assessment approach and a selection of the participant results, and then we will close with implications for policy and practice.

1.2 Climate Change

Climate change is a critical issue on the scientific, social, and political agenda (Alves & Azeiteiro, 2018). Human activities, primarily through emissions of greenhouse gases, have undeniably caused global warming; these emissions have arisen from unsustainable fossil fuel use, land use and land-use change, and lifestyles and patterns of consumption and production (Core Writing Team, 2023; Stephens et al., 2008). Climate change has caused extensive adverse impacts, and related losses and damage, to nature and society that are unequally distributed across systems, regions, and sectors (Core Writing Team, 2023). From an economic perspective, damage has occurred in climate-exposed sectors (e.g., agriculture, forestry, fishery, energy, and tourism), while individual livelihoods have been affected through the destruction of homes and infrastructure, and loss of property and income as well as human health and food security with harmful effects on gender and social equity (Core Writing Team, 2023).

Governments across the globe have prioritized climate awareness and actively contribute to mitigating climate change as they aspire to meet international recommendations, such as the United Nations Sustainable Development Goals (United Nations, 2015). Lorenzoni et al. (2007) found that one of the most readily identifiable barriers to engagement on climate change is a lack of basic knowledge about causes, impacts, and solutions. For example, virtually no Americans understand the basic mechanism of global warming (Ranney & Clark, 2016). In a recent blog post, Zadorsky (2025) highlights data from the Consortium on Electoral Democracy indicating that the number of Canadians who believe climate change is caused by human activity has dropped from 57 % of Canadians in 2020 to 49 % in 2025. Another survey from Leger Learning for a Sustainable Future found that only 17 % of Canadians feel confident differentiating between real and fake climate information (Stevens et al., 2025).

One way to share information about climate change is through education, which can empower students and teachers to address climate issues (Ignacio et

al., 2023). Building on the Millennium Development Goals, established in 2000, 17 Sustainable Development Goals (SDGs) were formally adopted by all 193 United Nation member states in 2015 with a focus on ending extreme poverty, protecting the planet, and ensuring prosperity for all by 2030 (United Nations, 2015). SDG 4 calls for ensuring “inclusive and equitable quality education” and promoting “lifelong learning opportunities for all,” while SDG 13 calls for taking “urgent action to combat climate change and its impacts” (United Nations Department of Economic and Social Affairs, 2022). This case study focuses on the intersection of SDGs 4 and 13.

Advancing quality education is key to enhancing people’s lives and advancing sustainable development (UNESCO, 2014). Sachs et al. (2019) list education as the first key “transformation” for the achievement of the SDGs. Much work has focused on the transformative role of education in realizing a more sustainable future (e.g., Perkins et al., 2018; Žalėnienė & Pereira, 2021). Stephens et al. (2008) identified higher education as an essential change agent for sustainability. Kioupi and Voulvoulis (2019) created a framework that redefines education for sustainable development; this participatory framework allows education practitioners, interest holders, and communities of learners to decide on common visions for sustainability and to localise the SDGs in terms of educational outcomes that advance both a community vision and global priorities. As practitioners and academics working within higher education, we sought to realize climate action through climate education.

1.3 Climate Education

The education sector has unrealized potential to combat climate change (Anderson, 2012; Rushton et al., 2025). Education is critical, as awareness is a precondition to both creating policy preferences and advocating to policymakers to implement change (Otto et al., 2019). Shepherd (2008) suggests that a key element of sustainability education is the pursuit of affective learning outcomes—values, attitudes, and behaviours. Climate change education must be both a social and holistic learning process; the climate crisis calls for flexible learning and emergent curriculum approaches that weave learning and action within community contexts (Kagawa & Selby, 2010). According to Pandey and Kumar (2018), we need to do more than share knowledge:

The capacity building for climate change is not just the dissemination of structural knowledge. It is more about enhanced capacity to generate knowledge to address issues of climate change. The capacity-building exercise has to be done in a community setting, should build upon the existing knowledge base of the people and should be aimed at finding categorical solutions. (p. 203)

According to Perkins et al. (2018), for education to cultivate environmentally sustainable citizens, we need a pedagogy that requires students to think

“critically, interdisciplinarily, and globally about climate change” (p. 1051). In their systematic review of effective climate change education strategies, Monroe et al. (2019) found two common themes: 1) focusing on personally relevant and significant information, and 2) employing active and engaging teaching methods.

There has been a focus on the role of online learning to advance climate change education. E-learning makes it feasible to adapt education to individual needs and enables course users to learn at their own speed thanks to remote access to information and teaching resources (Němcová et al., 2011). E-learning leads, among other things, to socialization and, to a certain degree, democratization of the whole society, while enabling lifelong learning (Vávra et al., 2010). Dias et al. (2018) considered the conceptions and diverse forms of participation in e-learning contexts in higher education and its influences on climate change literacy. They state that learning communities need to foster innovative teaching approaches that develop interdisciplinary practices and new digital competencies to participate in, and transform, both informal and formal networks.

Seventy-eight percent of Canadian youth reported that climate change negatively impacts their mental health (Galway & Field, 2023). Within Alberta, 69% of high school students are worried about their future as a result of climate change (Leger Marketing Alberta, Inc., 2020). Given the impact of climate-related emotions on young people, Reilly et al. (2024) convened over 21 focus groups with young people to explore key themes of youth experiences of climate change education and their recommendations; one recommendation focused on education becoming solution-orientated, as the current approach to climate change education typically fails to offer a way forward or opportunities for action.

Although the course was not solely for secondary students, the status of climate education in Canada, and Alberta specifically, was an important consideration. Across Canada, there is an uneven inclusion of climate change topics, themes, and units within curricula between grades seven through twelve; within Alberta, most climate change expectations across the curriculum occur within science courses (Field et al., 2023). Bissell (2015) reported that science 10 teachers in Alberta tend to de-emphasize or omit the climate unit and that resources were outdated. In a recent survey, 29% of Alberta teachers indicated that they do not feel supported by their principal and board to teach climate change, with 62% of Alberta teachers reporting having limited or no professional development on teaching climate change (Stevens et al., 2025).

1.4 Talking About Climate is Climate Action

An issue related to climate education is that the public rarely discusses climate change. Speaking about climate communication and storytelling, De Meyer et al. (2020) state that a focus on the transfer of information, awareness, or concern is not having the desired outcomes of mobilizing climate action across society. Geiger et al. (2017) stress that interpersonal discussions about climate

change are critical for creating positive social change to address climate change. In a recent blog post, Re.Climate (2024) states it is important to “nurture more messengers”; given increasing trust in friends and family, and declining trust in government and institutions, it is critical to engage in conversations with friends and family that can aid with strengthening social norms.

While a majority of Albertans support the goal of reaching net-zero by 2050, support for action and policies to achieving them is low (Bennett & Granados, 2022). Despite the statistic that 64% of Albertans are concerned or very concerned about climate change (Abacus Data, 2023), people in Alberta are hesitant to engage in conversations given the perceived polarized nature of climate change in a province where the economy is heavily dependent on oil and gas. For example, Wesley et al. (2023) found that two out of three Albertans say they are proud of the province’s oil and gas industry, while just one in ten (10%) express any level of disagreement. The resulting hesitation to speak publicly is a barrier to taking climate action.

The United Nations (n.d.) has identified “speaking up” and getting others to join in taking action as one of the quickest and most effective ways to make a difference. Speaking in one of the videos created by Mobilizing Alberta (2025), Amber Bennett, the executive director of Re.Climate, shares that talking about climate change is one of the most important actions to take because it helps to address polarization. One of the central aims of the online course and its assessment was to enable learners to feel comfortable to engage in conversations about climate change with their friends, family members, and the broader community.

2.0 Assessment Approach & Results

The smaller working group developing the assessment approach was comprised of a faculty member, a sustainability practitioner, and an LMS consultant. The group set a goal to have participants make a connection between the following guiding questions (factored into each of the six module assessments): 1) What solutions are being proposed at a federal/provincial level that are driving climate action/what policies are at play? and 2) What does this mean for me in my life/ what choices can I make?

We wanted learners to 1) start the course acknowledging their own positionality; 2) move through the content and internalize how the information relates to their identity and lived experience; and 3) reflect on their ability to impact change in their own context. Regarding the first goal, in a charged political environment like Alberta’s with multiple interest holders and motivations, acknowledging positionality is important given the focus of the course on transformative education which is grounded in human rights, social justice, human dignity, and cultural diversity (UNESCO, n.d.). Learners need the space and time to consider their identity and positionality in relation to climate change.

The learning assessment was designed through a series of working meetings between the faculty member and the LMS consultant that focused on content review and iterating the assessment approach. The assessment was designed to serve as a change mechanism throughout the learning process (Table 1). It was incorporated into Articulate 360, and the assessment questions were dispersed throughout each of the modules. The types of assessment questions within Articulate 360 are provided in Table 1.

Module	Learning ¹ Objective	Assessment	Rationale
[Course Warm-Up – Pre-Assessment]		Pre-assessment question (select appropriate answer): Where do I stand? Based on what I know, this is how I perceive my current understanding and position on climate change. Pre-assessment (rating scale): How often do you currently talk about climate change with friends, family, or peers?	Surfaces learners' existing beliefs, knowledge, and engagement with climate change. Establishes a reflective baseline, supporting self-awareness as a foundation for perspective transformation.
Climate Change in Alberta – This module introduces climate change in Alberta	Learners will identify the major causes of climate change, the major impacts of climate change in Alberta, and the major solution pathways to address climate change in Alberta.	“Thought Stop” question (rating scale): On a scale from one to ten, how concerned are you about climate change? “Knowledge Check” questions (multiple choice, select correct answers, drag and drop) to test understanding of causes, impacts, and solutions pathways.	Grounds climate learning in local context to increase relevance and emotional engagement. Combines knowledge acquisition with affective reflection to support critical awareness and informed concern.
Diversifying Energy – This module introduces current trends and energy solutions in southern Alberta to reach net-zero	Learners will be able to reflect on how personal actions can contribute to diversifying energy.	“Knowledge Check” question (select correct answers) to assess understanding of approaches being used to diversify energy sources and move towards a net-zero future. “Thought Stop” question: Rank the following actions based on how likely you are to take each one to support net-zero emissions in your home or community.	Connects systemic energy transitions to personal agency. Encourages learners to reflect on their role within broader energy systems and consider realistic action pathways.

Resilient Communities – This module explores how communities can become more resilient in the face of climate change by exploring the trends and actions underway in southern Alberta that will help communities reach net-zero and adapt to a changing climate	Learners will be able to describe at least one way that communities can be more resilient in the face of climate change.	“Thought Stop” question (open-ended): Based on these examples, can you think of any similar projects happening in your community? How might they contribute to building resilience, and where might there still be gaps and opportunities? “Thought Stop” (open-ended) question: Based on what you have learned so far and using your own experiences, what are some ways you’ve seen communities try to balance human needs with protecting the environment? “Knowledge Check” questions (match concepts together and select correct answers) about ways municipalities can build resilience.	Promotes systems thinking and community awareness by linking climate adaptation to local experiences. Open-ended reflection fosters critical evaluation and future-oriented thinking.
Transportation Choices – This module explores changes that are being made to the transportation system and trends as they relate to climate mitigation and adaptation frameworks	Learners will be able to list examples of transportation solutions that are available to them in their daily lives and describe how personal actions contribute to systemic changes.	“Knowledge Check” question (select correct answers) on actions to reduce transportation-related emissions.	Highlights the relationship between everyday behaviors and structural systems. Supports understanding of how individual choices contribute to collective climate mitigation efforts.
Efficient Homes – This module provides an overview of the trends and solutions that are being implemented to help homes reach net-zero	Learners will be able to describe at least one climate change impact and solution for their home.	“Thought Stop” question (open-ended): Based on what you know now, why do you think it is important to prioritize moving our homes towards net-zero as a way to take action on climate change? “Knowledge Check” question (select correct answers) on measures to make homes more energy efficient. “Thought Stop” question (open-ended): What jobs and economic opportunities do you think could be available to your community as they relate to climate and resilient homes?	Anchors climate action in learners’ lived environments. Encourages reflection on ecological responsibility while considering economic and workforce implications.

Sustainable Food – This module provides an overview of the relationship between our food systems and climate change and shares insights on the trends and solutions being implemented at different scales that create sustainable food systems [Course Reflection – Post-Assessment]	Learners will be able to describe at least one connection between our food system and climate change and at least one solution to create more sustainable food systems.	“Thought Stop” question (rating question): Reflecting on your own life, please rate how likely you are to take each of the following actions to support sustainable food systems on a scale from one to five. “Knowledge Check” question (select correct answers) on the impacts of climate change on agriculture. “Thought Stop” question (open-ended): Given the challenges with Alberta’s food systems, name three actions that you can take to support a sustainable food system. Post-assessment question (select appropriate answer): Where do I stand? Based on what I know, this is how I perceive my current understanding and position on climate change. Post-assessment question (rating scale): How likely are you to talk about climate change with friends, family, or peers? Post-assessment question (yes/no): Having experts share their research and perspectives about climate change provides more credibility to the content of this course.	Reveals the interconnectedness of food systems and climate impacts. Encourages reflective evaluation of personal habits and practical actions toward sustainability. Makes learning shifts visible by comparing initial and final perspectives. Reinforces metacognition, agency, and ongoing engagement with climate dialogue.
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Table 1 *Summary of the Assessment Approach Created for the Course*

We now provide participant results (Tables 2 – 7) from a selection of assessment questions. These tables are shared to give the reader a snapshot of the type of assessment questions that were asked and a sample of how participants responded. The number of participants is not consistent throughout the assessment questions, which reflects participant attrition throughout the course and limits the validity of our research findings. Given that the intent of the case study is to share what we learned from the assessment approach so that practitioners and academics can apply learnings in their own course design and environmental education contexts, the information in the tables is primarily

shared to give the reader a more detailed look at the types of assessment questions that were used and a sense of how some participants responded.

Tables 2 and 3 shows the results for the pre- and post-assessment question: “Where do I stand? Based on what I know, this is how I perceive my current understanding and position on climate change.” Table 4 shows the results for the post-assessment question: “On a scale from zero (not concerned) to ten (very concerned), how concerned are you about climate change?” Tables 5 and 6 show the results for the pre- and post-assessment question: “On a scale from zero (never) to five (very frequently), how often do you currently talk about climate change with friends, family, or peers?” Finally, Table 7 shows the results for the post-assessment question: “Having experts share their research and perspectives about climate change provides more credibility to the content of this course.”

Response	n	%
I have started exploring how climate change impacts me and my community and I want to be more active by learning about solutions.	78	34
I am trying to do something to address climate change by engaging in action.	70	31
I am very informed and actively work in the climate space and/or advocate for change.	48	21
I have heard about climate change and am curious to learn more about the issue to inform my stance.	27	12
I have never heard about climate change.	5	2
I know about climate change but am curious to see what this course is all about.	1	< 1

Table 2. Results for pre-assessment question: “Where do I stand? Based on what I know, this is how I perceive my current understanding and position on climate change.” (n = 229)

Response	n	%
I am trying to do something to address climate change by engaging in action.	21	38
I am very informed and actively work in the climate space and/or advocate for change.	20	36
I have started exploring how climate change impacts me and my community and I want to be more active by learning about solutions.	13	24
I have heard about climate change and am curious to learn more about the issue to inform my stance.	1	2
I have never heard about climate change.	0	0
I know about climate change but am curious to see what this course is all about.	0	0

Table 3 Results for post-assessment question: “Where do I stand? Based on what I know, this is how I perceive my current understanding and position on climate change.” (n = 55)

Response	n	%
0 (not concerned)	1	< 1
1	0	0
2	1	1
3	3	2
4	1	< 1
5	8	5
6	4	3
7	21	14
8	22	15
9	26	17
10 (very concerned)	60	40
No response	2	> 1

Table 4. Results for post-assessment question: “On a scale from zero (not concerned) to ten (very concerned), how concerned are you about climate change?” (n = 149)

Response	n	%
0 (never)	3	> 1
1	17	7
2	46	20
3	69	30
4	59	26
5 (very frequently)	28	12
No response	7	3

Table 5. Results for pre-assessment question: “On a scale from zero (never) to five (very frequently), how often do you currently talk about climate change with friends, family, or peers?” (n = 229)

Response	n	%
0 (never)	0	0
1	0	0
2 (sometimes)	2	4
3	7	13
4	16	29
5 (very frequently)	29	53
No response	1	< 2

Table 6. Results for post-assessment question: “On a scale from zero (never) to five (very frequently), how frequently do you talk about climate change with friends, family, or peers?” (n = 55)

Response	n	%
Yes	51	98
No	1	2

Table 7 Results for post-assessment question: “Having experts share their research and perspectives about climate change provides more credibility to the content of this course.” (n = 52)

3.0 Reflections & Conclusion

The findings from this interdisciplinary climate education initiative demonstrate the value of integrating personalized learning, reflective assessment, and

community-oriented climate knowledge into public-facing online programming. The assessment model, designed to allow learners to situate themselves within broader climate narratives, can play an important role in fostering increased engagement, self-efficacy, and readiness for climate conversations. Consistent with research on climate communication (Geiger et al., 2017; Swim et al., 2014), participants' increased willingness to discuss climate change with peers and family members represents a meaningful behavioural shift. In a province where climate issues are often politicized and intertwined with economic identity (Marshall et al., 2018), creating structured, non-judgmental spaces for learning and reflection is critical. The course's assessment prompts encouraged learners to name their positionality, reflect on local impacts, and identify personally meaningful actions, thereby reducing psychological distance and strengthening motivation to engage.

Our results suggest that participants not only developed greater confidence but also moved towards more active stances regarding climate action. While the descriptive data do not allow causal inference, the patterns indicate that the course's reflective and action-oriented structure supported transformation in how learners perceived their role within climate change mitigation and adaptation. For example, the data show that many participants were highly concerned about climate change and the majority of respondents are wanting to learn how to act on, or learn how to impact in a positive way, the issues that underpin climate change. This aligns with transformational change theories within the context of learning, building educational programming, and change leadership including mindset-oriented climate education, all of which emphasize the importance of helping learners connect systemic information (e.g., policy or technological pathways) with personal and community-level action.

The collaboration between sustainability practitioners and education researchers also contributed to a design that balanced scientific expertise, local relevance, and pedagogical rigour—an approach supported by scholarship highlighting the value of interdisciplinary models for climate learning (Abbott, 2012). For example, the course could have been more audit-based where participants read and respond to factual recall-oriented questions. In this course, the designers weaved in case studies and reflective and responsive assessment mechanisms and linked content to experts in the field.

The high level of credibility learners attributed to expert contributions (Table 7) further underscores the importance of trusted voices in climate education. Expertise, when embedded into an accessible and personalized learning design, can help reduce misinformation, increase confidence, and foster constructive dialogue (UNESCO, 2014). Ultimately, our findings suggest that assessments that blend knowledge checks with reflective prompts can catalyze transformational education, especially when rooted in local context and community priorities. As in the transformational learning framework, opportunities to slowly process content that is sensitive and potentially divisive in nature, while being provided

opportunities to apply reflection in an identity- and action-orientation, can support individual development beyond factual recall and advance information transfer.

3.1 Implications for Practice

This initiative highlights the potential of assessment-driven climate education to support community engagement and transformative education—teaching and learning that motivates and empowers learners to make informed decisions and actions from individual to global levels. By intentionally designing assessments that foreground learner identity, positionality, and agency, educators can enable participants to move beyond simple knowledge acquisition and towards meaningful action. The course “Preparing Albertans for Climate Change” demonstrates that when learners are encouraged to reflect on how policy intersects with personal experience, they are more likely to perceive themselves as part of the climate solution and engage in conversations that contribute to collective action.

Several recommendations for practice emerge from this work:

1. Integrate positionality as a core component of climate education. Asking learners to situate themselves relative to climate change fosters ownership, promotes internal motivation, and encourages deeper engagement with content. Positionality reflections can be used as both formative assessments and tools for transformation (UNESCO, 2014).
2. Use assessment as a mechanism for behavioural and mindset change. Assessment should not be limited to knowledge verification. Thoughtful prompts that connect systemic concepts to personal decisions can support shifts in attitudes, confidence, and willingness to act (Black & Wiliam, 1998).
3. Pair expert knowledge with accessible, community-relevant examples. Participants valued hearing from researchers and practitioners whose work aligned with their lived context. This suggests a need for models that embed credible expertise into localized, action-oriented programming (Bandura, 2001).
4. Support climate conversations as a key educational outcome. Given the strong relationship between interpersonal dialogue and climate action (Geiger et al., 2017), educators should intentionally scaffold learners’ abilities to discuss climate issues with others. Reflection prompts, role-playing, and scenario-based tasks can help normalize these conversations (UNESCO, 2014).
5. Foster interdisciplinary and cross-sector collaboration. The success of this initiative stemmed from the partnership between education scholars and sustainability practitioners. Similar collaborations can enrich curriculum design, enhance credibility, and ensure that climate education responds to both local realities and global priorities (Jensen & Schnack, 1997).

Collectively, these recommendations reinforce the critical role of education in advancing climate action. By embedding reflective, personalized climate

learning into policy frameworks, and by supporting partnerships that make climate education accessible, credible, and locally relevant, policymakers can help foster an informed, engaged public capable of contributing to long-term sustainability goals.

3.2 Implications for Policy

Our findings from this interdisciplinary climate education initiative offer several important implications for policy development in Alberta and beyond. First, the results underscore the need for policies that explicitly support climate literacy as a foundational competency across the lifespan (i.e., the process of learning and understanding climate change to the point of action). While Alberta's current climate and energy landscape is often characterized by political polarization, the demonstrated gains in participants' self-reported confidence and willingness to engage in climate conversations suggest that accessible, community-relevant educational programming can help reduce misinformation and support informed public dialogue. Policies that embed climate literacy within provincial education frameworks, from K–12 curricula to postsecondary programming, could therefore strengthen public readiness for adaptation and mitigation efforts.

Second, the assessment-driven approach used in our course highlights the value of policies that promote reflective, action-oriented learning. Traditional assessment models often emphasize content recall rather than application, agency, or community relevance (Black & Wiliam, 1998). Climate policy frameworks should encourage educational institutions to adopt assessment practices that foster personal relevance, critical reflection, and local action planning—elements shown in this study to empower learners to see themselves as contributors to climate solutions. This personal leveled framing is particularly relevant for provincial strategies aimed at promoting grassroots resilience and community-based energy transition initiatives.

Third, our findings demonstrate the importance of cross-sector collaboration in climate education. The partnership between the Faculty of Education and sustainability practitioners illustrates how university–community collaborations can produce pedagogical models that are scientifically grounded, contextually relevant, and socially responsive. Policymakers should consider mechanisms, such as funding streams, partnership grants, or formalized networks, which incentivize collaboration between academic institutions, municipalities, and community organizations. Such partnerships can strengthen public trust, enhance content credibility, and improve the uptake of climate initiatives.

Fourth, participants overwhelmingly agreed that hearing from experts increased the credibility of the course content. This highlights an opportunity for policymakers to integrate credible scientific expertise into public communication and education strategies. Policies that prioritize transparent, evidence-based climate communication, delivered by trusted academic and community experts, can reinforce public confidence and counteract misinformation.

Finally, our study suggests that climate education policy must account for both collective and personal dimensions of climate action (Lehtonen et al., 2019). Learners benefited from understanding how provincial and federal policies intersect with their daily lives and local communities. Therefore, effective climate policy should align high-level climate commitments (e.g., emissions targets, net-zero pathways, adaptation strategies, etc.) with community-level engagement and educational support. This alignment can help Albertans understand not only *what* policies exist but *how* they can participate in achieving them.

Collectively, these implications reinforce the critical role of education in advancing climate action (e.g., Ignacio et al., 2023; Pandey & Kumar, 2018). By embedding reflective, personalized climate learning into policy frameworks, and by supporting partnerships that make climate education accessible, credible, and locally relevant, policymakers can help foster an informed, engaged public, capable of contributing to long-term sustainability goals.

3.3 Limitations and Future Research

Although this initiative offers important insights into climate education and assessment-driven approaches to fostering transformational education, several limitations must be acknowledged. First, the course relied primarily on self-reported measures, which may be subject to social desirability bias, particularly in a context where climate issues are politically charged. Participants may have overestimated their willingness to engage in climate conversations or their perceived level of climate knowledge. Future studies would benefit from integrating behavioural measures or follow-up assessments that track whether shifts in attitudes translate into sustained action over time.

Second, participation in the post-assessment was substantially lower than in the pre-assessment ($n = 55$ compared to $n = 229$). This attrition is common in open, asynchronous online learning environments (Carr, 2000), but limits the ability to generalize conclusions about learner transformation. Further research should examine engagement patterns across the full duration of climate education courses, including reasons for attrition and strategies to retain diverse learners.

Finally, we examined a single publicly available course developed within a specific regional and political context. While this specificity is a strength for grounded practice, it limits broader applicability. Future research could compare similar climate education models across provinces or countries to determine how assessment design, positionality, and action-oriented learning translate across social, economic, and cultural contexts. Longitudinal research could also explore how sustained educational interventions contribute to community resilience, policy engagement, and collective climate action over time.

Together, these limitations highlight opportunities for further inquiry into how climate education can be designed, assessed, and scaled to support diverse learners. By integrating richer data sources, examining equity considerations,

and exploring long-term behavioural outcomes, future research can strengthen the evidence base needed to advance effective and socially responsive climate education initiatives.

Ethics

This project was reviewed by the University of Calgary Conjoint Faculties Research Ethics Board, which confirmed that the work met the criteria for a *program practice* study and was therefore exempt from full ethics review. Approval was granted to collect and analyze de-identified assessment data generated as part of routine course participation. No personal identifiers were collected or reported, and all data were aggregated to protect participant confidentiality. Participation in the course was voluntary, and learners were informed that their de-identified responses may be used for program evaluation and scholarly dissemination. All procedures adhered to institutional guidelines for ethical conduct in educational program research.

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Community partner perspectives on course-based experiential learning in Environmental Studies: A case study

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Abstract

The benefits of community-based experiential learning for university students have been well documented. Community partners hosting students benefit from such collaborations but also experience challenges. This case study explores the experience of community partners who have hosted students as part of two required courses for the Bachelor of Environmental Studies at the University of Prince Edward Island. An online questionnaire, including both open- and closed-ended questions, was distributed to representatives of community organizations in government, non-governmental organizations and the private sector, who had hosted students with the aim of understanding their motivation, the benefits and challenges of hosting students, and how such collaborations could be improved. Results indicated that overall, most community partners viewed the experience positively and benefited from the collaboration. Some challenges were highlighted particularly related to professionalism and preparation of students.

Résumé

L'apprentissage expérientiel dans un contexte communautaire offre des avantages bien documentés aux étudiant·es universitaires. Les partenaires communautaires qui accueillent des stagiaires bénéficient également de ce type de collaboration, mais vivent aussi des défis. Cette étude de cas s'intéresse à des organisations qui ont travaillé avec des étudiant·es de deux cours obligatoires du baccalauréat en études environnementales à l'Université de l'Île-du-Prince-Édouard. Les différentes organisations (gouvernementales, à but lucratif et à but non lucratif) ont rempli un sondage en ligne comportant des questions fermées et ouvertes. L'objectif était de comprendre leur motivation à offrir des stages, les avantages et les inconvénients de la formule, ainsi que des pistes d'améliorations. Les résultats indiquent que la plupart des partenaires ont eu une expérience positive et ont tiré parti de la collaboration. Toutefois, on note un manque de professionnalisme ou de préparation chez certain·es stagiaires.

Keywords: experiential learning, hands-on learning, internship, environment, community

Introduction

Experiential learning approaches have become common in higher education globally. Such experiential learning can take different forms but is often referred to as *hands-on learning* or *learning by doing* which can be traced back to the educational reformer, John Dewey (1938). Similar to the educational theorists, Kolb and Fry (1975) who developed an integrated model of cyclical learning, Dewey was of the mind that people learn better when they are actually able to experience the subject matter and reflect on their learning. Engaging in a guided cycle of learning and reflection, grounded in practical experiences, enables students to apply the theory that they are learning in the classroom to situations in the community. This process can have myriad benefits including helping them to develop their skills as independent scholars and researchers, increasing their confidence, career development, and development of a sense of civic and social responsibility (Braskamp et al., 2006; Brown, 2023; Burch et al., 2019; Chapman et al., 1992; Chidwick et al., 2024; Gross Davis, 2009; A. Y. Kolb & Kolb, 2005). Depending on the degree program, these experiential learning approaches are implemented through service-learning, paid or volunteer internships, co-curricular experiential learning, work-integrated learning, co-op placements, problem and project-based learning, community-based research, or clinical placements (Hollenbeck, 2024; Karasik, 2020; Kricsfalusy et al., 2018; Shah et al., 2023; Yates et al., 2015).

Higher educational institutions' increased focus on providing experiential learning opportunities for their students, has typically involved the engagement of local communities as the partners and places where such learning takes place. Beyond educating young people, the university's relationship with the community has traditionally been related to research and discovery which has had economic and other societal benefits (Booth et al., 2020; Buzzelli & Asafo-Adjei, 2023; Shah et al., 2023). The advent of experiential education approaches has reconfigured that relationship to one which emphasizes partnership, reciprocity, and co-creation or mutual exchange of knowledge (Bono, 2025; Booth et al., 2020; Hollenbeck, 2024; Owusu-Daaku, 2021; Shah et al., 2023). This emphasis on expansion of experiential learning coincides with a demand placed on universities to demonstrate their value to society and the communities where they are located (Booth et al., 2020; Jackson et al., 2017; Karasik & Hafner, 2021; Quillinan et al., 2018; Shah et al., 2023).

This new relationship between universities and communities in the context of the expansion of experiential learning opportunities has both benefits and challenges. Some feel that the mission of the university may be compromised by an emphasis on helping students to develop 'marketable skills' (Buzzelli & Asafo-Adjei, 2023). These types of community-engaged learning situations may also place burdens on communities or sometimes exploit communities rather than engaging them as equal partners in mutual exchange of knowledge (Booth et al., 2020; Buzzelli & Asafo-Adjei, 2023; Chidwick et al., 2024; Karasik, 2020;

Owusu-Daaku, 2021; Poteet, 2023; Visser et al., 2025). In some situations, marginalized communities may miss out on opportunities to benefit from such university-community engagement (Quillinan et al., 2018; Shah et al., 2023). Lack of capacity to mentor students and having suitable placements can also be barriers to participation by potential partners in work-integrated learning situations (Jackson et al., 2017). Research with community partners has found that engaging with students has strengthened the work of their organizations by giving them access to human and other resources, and the fresh energy, creativity, and perspectives that students bring (Bono, 2025; Hollenbeck, 2024; Karasik, 2020). It can also have long-term positive impacts on the broader community (Bono, 2025; Booth et al., 2020; Karasik, 2020). Karasik and Hafner (2021) emphasize that successful and healthy community-university partnerships require good communication, an equal commitment from all parties, and compatible mutual interests.

Educators observe that given the complexity of the environmental issues of today, approaches that incorporate opportunities for self-reflection, critical thinking, self-directed inquiry, learning by doing, engagement with real life problems and issues, and learning within communities better equip students in the environmental field for problem-solving and addressing the challenges following graduation (Marcinkowski, 2009; Orr, 2004; Stibbe, 2009). As a result, more efforts have been made to involve environmental students in learning that takes place in and often with organizations in the community. As part of an introductory Geographic Information Systems (GIS) course, students have learned technical and critical thinking skills, while gaining new understanding of social realities, through engaging with communities to address their priorities and concerns (Bono, 2025). In Florida, over several years students enrolled in planning-related courses were organized into teams and engaged with government staff at various levels and a private business in planning for remediation and redevelopment of superfund sites (Owusu-Daaku, 2021). Another example comes from an undergraduate geography field school course which collaborated with one rural community conducting research that was of importance to the various community partners involved, while providing a rich learning opportunity for the students (McPhee & Przedpelska, 2018). Students gained skills transferable to future careers or education such as independence, technological literacy, communication, and an understanding of other cultures. Similarly, the integration of service-learning into a short intensive field course in environment and sustainability, provided opportunities for students to learn practical and professional skills (Kricsfalussy et al., 2018). In British Columbia, an action learning course on carbon and energy management was co-developed through an innovative partnership between the University of Northern British Columbia and the local Chamber of Commerce to address the growing interest of local businesses and non-profits in taking action on climate change (Booth et al., 2020). This course successfully modeled the possibility of mobilizing knowledge not just for the students but also for the business community (Booth et al., 2020).

While these examples demonstrate the importance of experiential learning opportunities for students in the environmental field, it is also important to understand the reality of the implementation of such ventures from the perspective of host communities. The University of Prince Edward Island (UPEI) has offered an interdisciplinary Bachelor of Environmental Studies (BES) degree since 2015 in which students integrate knowledge from courses across the sciences, social sciences, humanities, and business (University of Prince Edward Island, 2025). Experiential learning is incorporated into the Environmental Studies program in several ways, reflecting UPEI’s commitment to experiential learning (University of Prince Edward Island, 2018). Formally, opportunities for experiential learning are part of two required courses in the BES program which I have taught for over a decade (Table 1).

Environmental Studies Internship	Capstone Course
Third year	Fourth year
Fall semester	Winter semester
Volunteer	Volunteer
Individual	Groups of 3 – 4 students
Approximately 20 – 25 students	Approximately 20 – 25 students
Community partners • federal, provincial and municipal government. • non-governmental organizations • private businesses	Community partners • federal, provincial and municipal government. • non-governmental organizations • private businesses
Time commitment • 30 hours over the semester (approximately 2 hours/week)	Time commitment • 6 hours/week over the semester
• Activities identified by community partner	• Research projects identified by community partner

Table 1. Description of experiential learning courses

My previous study researched the perspectives of students who had taken the *Environmental Studies Internship* course and found that the volunteer internships enabled them to develop both personally and professionally (Brown, 2023). Having taught these courses for many years, I had anecdotal evidence that the community partners valued hosting the students. As a next step, this case study research aimed to formally evaluate the experience of the community partners who have hosted students for the volunteer internships and/or the capstone research projects. Using a quantitative questionnaire that also included some open-ended questions, community partners were asked about their overall perspective on these course-based experiential learning situations - their motivation for hosting students, the benefits and challenges for

their organizations, and how they could be better supported if hosting students in the future. Quantitative results are summarized below supplemented by direct quotes from the open-ended questions. Findings are discussed in the context of the literature related to experiential learning and reflects on how to improve the experiences of future community partners who host students.

Overview of Course-based learning in Environmental Studies at UPEI

As an integral part of *Environmental Studies Internship* individual students are engaged for 30 hours with a focus on hands-on learning in the environmental field. Over the years, students have engaged with their community partners in research and data analysis, field work in various ecosystems, event planning, or the creation and implementation of environmental educational programs for young children. The *Public Scholars on Environmental Issues* capstone course provides an opportunity for students to work in groups of three to four on research projects identified by the local community partner. Examples of projects, include evaluating the effectiveness of video surveys for determining nesting activity in Bank swallow colonies, surveying the local community for their perspectives about the value of trees in urban areas, developing a green roof design for the building of a local arts organization, and researching the sources and environmental fate of per- and polyfluoroalkyl substances (PFAS), forever chemicals, on Prince Edward Island.

I contact potential community partners, prior to the start of the semester to explain the Environmental Studies program and the nature of the course, and organizations that agree to host students suggest activities for the voluntary internships or the research projects. When I first started teaching these courses 16 years ago, I emailed and made telephone calls to local government departments with a focus on the environmental area and environmental organizations that I was aware of on the island. I am also an active member of the local environmental community and so, over time, I became aware of other organizations to reach out to. Over the years, a network has been developed which facilitates the search for community partners each semester. In recent years, to broaden the network, I engaged with the new Experiential Education office at UPEI which has enabled me to find some new community partners, particularly those in the private sector.

At the beginning of the semester, students are provided with information about each of the potential opportunities and they are asked to indicate their preferred placements. However, I ultimately make the final decision, balancing the needs of the community partner and that of the students. Prior to beginning their 30-hour volunteer internship, I focus one class on professional ethics and engage students in discussion of various scenarios. Ultimately, students develop a code of ethics for the course. Both courses require that a placement agreement, developed in collaboration with the UPEI Experiential Education office, be signed

by all parties involved, which ensures that the students, community partners, and I understand and agree to our respective roles and responsibilities and the plans for the collaboration. The placement templates are provided in an Appendix. Some organizations have specific requirements or additional forms to be completed by volunteers, and students are required to fulfill those requirements prior to beginning the internship. For example, if a student is placed with an organization that does educational programming with children, they are required to have a current police record check. While it varies depending on the placement, on average, community partners are expected to commit to providing guidance to students for two hours each week over the 13-week semester.

Over the course of the semester, I regularly check in with community partners by email so that if concerns arise with the students, corrective action can be taken. For the *Environmental Studies Internship* course, community partners are asked to complete an evaluation form after the 30 hours have been completed to assess the students on their personal and professional qualities. This information is shared verbally with each student and ultimately forms part of a student's grade in the course. Over the last few years, in the *Public Scholars on Environmental Issues* course, I have asked each community partner to complete a feedback form at the end of the semester. The form asks them to comment on their interactions with students and provide insight about how I could better prepare students for future collaborations. This information is used to improve the collaborations going forward.

Methods

Following obtaining UPEI research ethics approval, an online questionnaire was sent via email, to contacts of 36 organizations that have hosted students for the *Environmental Studies Internship* course (2011-2024) and/or the *Public Scholars on Environmental Issues* course (2017 – 2025). In a few cases an organization no longer existed so no attempt was made to contact them. (See Appendix for a copy of the questionnaire). I have taught both courses and so had the email addresses for each of these organizations. In total, 51 people from the 36 organizations were contacted as some organizations, particularly government, had students engaged with multiple offices or sections over the years. Of those 51 contacted, three email addresses were no longer valid or the person had left the organization. Therefore, the eligible number of participants for the research was 48.

The email sent to community partners explained the context and aim of the research and included a link to the online questionnaire, consisting of 20 open and closed-ended questions, available on the Microsoft forms platform. Response options for Questions 10 to 16 were structured as a Likert scale from “strongly disagree” to “strongly agree” (McIver & Carmines, 1981). Stata 18 Data Analysis and Statistical software was used to calculate frequencies and percentages for each of the answers (Stata Corp, 2023). Due to the small sample

size, no statistical tests regarding differences between sub-groups in the data were done. Answers to the four open-ended questions (Questions 17 - 20) were analysed qualitatively (Patton, 2002) and coded according to main themes of benefits, challenges, and suggestions for better preparation for students or instructor support. Each respondent was assigned a number from 1 – 27, and these numbers are used for reference when including responses from Questions 17 to 20. However, quotations are not provided from all participants. As an incentive, participants were given the opportunity to enter a draw for a gift card to a bookstore. The questionnaire data was not linked to the names of those who chose to participate in the draw.

Results

Twenty-seven of the 48 eligible respondents completed the questionnaire indicating a response rate of 56.3 %. Of the respondents, most represented NGOs (N= 15; 55.5 %), with NGOs focused primarily on environmental protection, conservation or restoration (N= 12; 44.4 %) being most numerous (Table 2). Most respondents were either the Head/Coordinator of their organization/department or the Program Director/Manager (N= 22; 81.5 %). Twenty-one respondents (77.8 %) said that they had hosted students for the *Environmental Studies Internship* course with 12 (57.2 %) stating that they had hosted multiple times (Table 3). The majority of respondents (N= 17; 81.0 %) had served as the mentor or supervisor for the students. Most respondents (N= 15; 55.6 %) said that their organization had not hosted a group of students for the capstone course (Table 3). Of those who did host a group of students, five (41.7 %) had hosted only once with three (25.0 %) hosting multiple time. All respondents said that they had been the mentor or supervisor for the group of students.

	Number of respondents	% of respondents
Government (federal, provincial, municipal)	7	25.9
Non-governmental organization focused primarily on environmental protection, conservation or restoration	12	44.4
Non-governmental organization focused primarily on education with children or adolescents	1	3.7
Non-governmental organization focused primarily on research and/or advocacy	2	7.4
Business/private sector	1	3.7
Other	4	14.8
Total responding to question	27	100.0

Table 2. Respondents by organization type

	Internship course		Capstone course	
	Number of respondents	% of respondents	Number of respondents	% of respondents
Once	6	28.6	5	41.7
2 – 3 times	1	4.8	2	16.7
4 – 5 times	5	23.8	1	8.3
More than 5 times	6	28.6	0	0.0
Not sure	3	14.3	4	33.3
Total responding to question	21	100.0	12	100.0

Table 3. Frequency of hosting a student for the internship or capstone course

Participants were asked why their organization had hosted Environmental Studies students and to choose all responses that applied from a list of five possible reasons. Respondents could also choose “other” as an option and were asked to explain their response. The main motivation for organizations was an interest in contributing to youth education and development ($N = 25$; 92.6 %). Similarly, the second most common response was that hosting students provided them with an opportunity to share experience and knowledge ($N = 20$; 74.1 %). The majority of organizations were interested in developing a relationship with the university ($N = 17$; 63.0 %). Roughly half of organizations said that hosting students helped fulfill unmet needs in their organizations ($N = 14$; 51.9 %) and was a way to attract future employees ($N = 13$; 48.1 %) (Table 4).

Theme	Description of Theme	Survey Question Number
Motivation to host students	• Interest in contributing to youth education/development • Opportunity to share experience/knowledge • Develop relationship with UPEI for future projects • Fill unmet needs of organization • Attracting future employees	9
Benefits	• Fill unmet needs of organization • Contribute to youth development • Build relationship with UPEI • Attracting future employees • Creativity/gain a fresh perspective	17
Challenges	• Limits of student preparation/knowledge • Matching student skills to organizational need • Lack of professionalism/reliability • Finding tasks that can be completed within the semester time frame • Limited number of staff to supervise students	18

Table 4. Summary of themes in survey results.

In responding to an open-ended question asking them to list the top two or three benefits to their organizations from hosting students, some of the 27 responses echoed the common motivations for hosting students. For example, Participant 13 listed: “tasks that our team can’t get done; fostering future environmentalists and creating a network where they can come back, ask questions, get help is very important to us. We want people to get excited about conservation.” Similarly, Participant 24 indicated, “An opportunity for us to share our areas of interest with young people considering their plans for the future; an opportunity to learn from students what’s important to them in the current context; support with special projects that we would otherwise not have been able to take on.” Participant 20 offered, “Having additional support to work on projects, research or initiatives we may otherwise not be able to; building relations with the students and UPEI, contributing to their education.” Participant 5 stated, “Having extra people to assist with events; creating connections with students who will be entering this field of work and may apply for jobs with our organization or organizations we work with.”

Another benefit theme highlighted by respondents concerned the fresh perspectives that hosting students brought to their organizations. Participant 15 commented, “Fresh perspectives and ideas. Interns sometimes introduce new approaches or creative ideas that enhance our programming, particularly in climate and environmental education. . . .” Participant 17 said, “Getting an outside perspective on the work we do and policies and procedures we employ, i.e. a fresh perspective. . . .” Participant 3 explained that “This student project has initiated the vision that’s been on the mind of our organization’s leadership for decades, so that was the number one benefit. Having a starting point to work from to develop our plans further is another massive benefit. Finally, engaging students in a space that they’ve never been in before is part of our overall goal of diversifying our audience.”

In answering questions structured as a Likert scale, all respondents agreed or strongly agreed that students were respectful in their interactions with the organizations. Almost all respondents ($N=26$; 96.3%) felt that overall, their organization had a good experience hosting Environmental Studies students (agree or strongly agree). A large majority of respondents agreed or strongly agreed that communication with the course instructor had been clear ($N=26$; 96.3%). Similarly, 96.2% ($N=25$) agreed or strongly agreed that the support that the course instructor provided to their organization had been adequate. Twenty-two respondents (81.5%) agreed or strongly agreed that students were well prepared to engage in the tasks that they were being asked to do. Similarly, 21 (77.8%) agreed or strongly agreed that students had sufficient knowledge to engage in the tasks that the organization was asking of them. Eighty-eight percent ($N=22$) agreed or strongly agreed that students followed through on research projects or assigned tasks.

In listing the top two to three challenges for their organization in hosting students many of the things listed by the 26 respondents were related to the

Likert scale questions 12 – 14. Concerning student preparation and having knowledge to engage in the tasks, Participant 4 listed “Students did not seem prepared for the project and did not do enough background research. This meant check in meetings were often spent going over basic information such as how to research (search engines, keywords, etc.) and how to write a paper (formatting, keeping professional tone, staying on track, etc.) . . .” Participant 15 reported, “ . . . Matching student skills to organizational needs. Students may come in with strong academic knowledge but limited experience in youth engagement, curriculum development, or translating complex environmental topics into hand-on, age-appropriate activities. . . .”

A few respondents commented on the reliability of students in following through on the projects and assigned tasks. Participant 5 noted, “Some students we have hosted have been unreliable (i.e. did not show up to events, unresponsive to emails, etc.). Participant 1 stated, “Deadlines were often not met with the students even after making things very clear, but we were flexible.” Elaborating on some areas of concern, Participant 4 explained, “.... The students did not communicate well. There were times the students joined video calls from loud, public areas. There was also a time the students forgot to cancel a meeting and did not show. I had to contact them to find out it was cancelled. Students did not share their work. Although I asked for updates very early on, the students did not share any of their work until late in the semester. By then I realized they were not going in the right direction, but it was too late to steer them back completely.” Critically, three respondents said that they had had no challenges with students in the open-ended question.

Respondents were asked what the course instructor could do to better support the organization while hosting students. Of the 24 people who answered the question, 12 said that everything worked well and they had no suggestions for improvement. One theme that emerged from the responses was the importance of making sure that both students and community partners clearly understand the expectations for the collaboration at the beginning of the semester. One respondent stated, “Maybe making it more clear to students what the expectations are for the project, deliverables etc” (Participant 1). Another said “give examples of what is and is not expected of the community partner. For example, how much of the research process should the community partner be involved in and at what point should the students be on their own?” (Participant 4). One suggested that an intake interview with students and a bio of the mentors that students can review would be helpful in advance of choosing who to work with (Participant 9). Another theme concerned the professionalism of students. One respondent commented, “Perhaps more accountability for students who do not follow through with assigned tasks during their internships” (Participant 15). Some community partners would prefer that student internships be structured so that they were able to volunteer in eight-hour blocks, following the staff hours.

The last question asked the respondents to suggest ways that the course instructor could better prepare students for their volunteer internships or group

research projects. Of the 25 who answered the question, nine had no suggestions as they felt that students were well prepared for their placements. Similar to previous responses, the theme of professionalism emerged in the answers to this question. Participant 15 stated, “Set expectations around professionalism and collaboration and encourage students to approach the placement as a professional learning experience, with punctuality, clear communication, and initiative.” Another commented, “All of the training on showing up on time, being prepared, with physical appearance taken into consideration etc. This is very important at this stage of their life and will serve them well. There is nothing worse than taking on student that shows up in sweatpants. PUT THEIR PHONES AWAY” (Participant 25). Having a good work ethic was a related theme with Participant 5 emphasizing the need for students to follow through on their commitments and communicate with the host organization in a timely manner. Another said, “Prepare them to show up with a good work ethic for the hours that they are supposed to be there. Some tasks aren’t fun and can be tedious or labour-intensive, but they are necessary to the job” (Participant 11).

Some internship placements required students to be engaged in outdoor field work with the local organizations sometimes in inclement weather. Several respondents mentioned the importance of the professor advising students on how to dress properly for field work and the need for them to be physically capable of doing the work required. One said, “Ensure that the student is prepared for hard physical work. Dress appropriately” (Participant 7). Another respondent wrote, “Being ready for the weather (talking about outdoor gear and where to find it second hand or cheap)” (Participant 23). Participant 19 suggested, “Let them know that this is physical work and to be fit and strong is necessary.”

Another suggestion related to research and writing skills. This is of particular importance for the capstone research projects but could also be relevant to other situations depending on a volunteer internship placement. A few respondents suggested that some students required more preparation in basic research and writing skills. For example, Participant 21 suggested that some students may require more guidance on projects so that they are approaching them with the appropriate depth. One stated that the professor should “Ensure that students know how to conduct a research project, including writing a paper” (Participant 4). Participant 1 commented that “more training on professional writing, research techniques, etc. prior” was needed.

Other challenges noted by community organizations concerned being able to find tasks that can be done in the time available during the semester. Participant 21 indicated, “Finding tasks that can be completed by students within the allowed time frame that are not too challenging, not critical, and able to be completed without breaking confidentiality.” Similarly, Participant 15 indicated, “Limited timeframe for meaningful contribution. With only 30 hours, it can be difficult for students to gain deep understanding of our programs and make a substantial contribution. Onboarding, orientation, and training take time, which leave fewer hours for productive work.”

Challenges were also related to the limited number of staff in many organizations in PEI which affected their ability to develop tasks and mentor the students. Participant 24 wrote, “Our own staffing – we don’t have many employees, and we all have many demands on our time, so there were times when we may have let a student down by not being totally present, or by providing contradictory advice/feedback.” Similarly, Participant 3 commented, “Our biggest challenge was from our end, in that we run an organization with a very small staff so finding the time to disseminate knowledge and meet with the students properly was the most difficult part. Students could have benefited from a bit more direction on our end, but we’re ecstatic with the results.” Another stated, “Having sufficient capacity to take away from other duties to devote to students; having accessible activities for students to do that do not take a large amount of training” (Participant 17). Participant 25 highlighted that “There needs to be a champion that can organize a project and easily manage a student. Ideally there is a physical space where they can work in the office. In our case, we didn’t have a desk, so the student was working in a small, shared lounge.”

Discussion and Conclusions

This research confirms the anecdotal evidence previously received from community partners that, overall, these organizations have a very positive view of their collaboration with these two environmental experiential learning courses. It is a credit to the Environmental Studies students who have completed these courses that all community partners found them to be respectful in their interactions with their organizations. The emphasis that I placed on continuous communication with community partners before, during and after the semester, including the requirement of signed placement agreements, may have contributed to their positive view of these collaborations. The need for good communication in community-based learning collaborations was emphasized in several studies (Chidwick et al., 2024; Karasik, 2020; Karasik & Hafner, 2021). Positive experiences are the reason why community organizations have continued to host students multiple times over the years. While respondents saw these collaborations as having mutual benefits for both students and their own organizations, there were some challenges, and they suggested some areas for improvement, particularly related to student professionalism and preparation for placements.

Motivations of Community Partners

Most organizations were motivated to host students as a way to contribute to the education of young people and help them to grow and develop their environmental skillset. Since most community partners are working within the environmental field, these collaborations provided an opportunity to pass along that knowledge and expertise and inspire future environmental leaders. Similar

community partner motivations were found in studies from fields other than the environmental field (Chidwick et al., 2024; Jackson et al., 2017; Karasik, 2020; Karasik & Hafner, 2021). As in these cited studies, community partners were also motivated by their own needs, as hosting students enabled them to accomplish work that would not otherwise have been done. This is not surprising in the context of this research since PEI is Canada's smallest province with a population of about 182,000 (Government of Prince Edward Island, 2025). Most organizations, including government departments, have a small number of staff with limited time and capacity to carry out all the work they might like to do.

Networking is a common way for people to find employment, and so unsurprisingly community partners viewed the collaboration with the two courses as a way to assess students for future employment opportunities. In fact, my earlier research (Brown, 2023) found that many students were able to find summer or permanent employment with the organization that had hosted them for the course-based 30 hour volunteer internship. With only one university on PEI, it is to be expected that community organizations might want to look for opportunities to benefit from academic collaborations. Apart from the island context, the proximity of a university to a community helps to facilitate these sorts of collaborations that have the potential to be beneficial for both parties (Booth et al., 2020; Buzzelli & Asafo-Adjei, 2023). Undoubtedly these community partner motivations to seek a relationship with UPEI, along with being in an island context, enabled me to find the internship opportunities and community research projects for students.

Benefits of Hosting Students

Benefits identified by the community partners were similar to that found in other studies and contexts (Bono, 2025; Chidwick et al., 2024; Hollenbeck, 2024; Karasik, 2020; Karasik & Hafner, 2021). As mentioned previously, one benefit to small organizations is having more people to help implement various projects or programs which is of particular concern in many fields. Hosting students also enabled some projects to go ahead that otherwise might never have been achieved. As cited by one organization, hosting a group of students helped them to begin to implement a vision that their leadership had had for years but were unable to find the time to focus on. The enthusiasm, creativity and fresh perspectives that students can bring to a community organization can be very energizing and beneficial. As highlighted by one NGO, students brought new ideas and approaches to their educational programming for children related to climate and environment.

Challenges and Ways Forward

While most organizations had a positive experience hosting students from these two courses, some challenges align with those in other studies (Jackson

et al., 2017; Karasik, 2020; Karasik & Hafner, 2021). Some community partners highlighted the unreliability and lack of professionalism of some students, which is perhaps not unexpected for some students at the undergraduate level. For the most part, community partners recognize that part of their role is in helping undergraduate students develop those professional skills and over the years they have been very understanding when students do not always measure up to their expectations. While a discussion of professional ethics forms part of the students' preparation for their 30-hour volunteer internship, results of this research suggest this focus should be expanded and emphasized in both courses. As explained previously, the evaluations that community partners complete for the *Environmental Studies Internship* course are very helpful in providing feedback to students and pointing out areas where they can improve in the future.

Some concerning examples were cited of students not having the research and writing skills to contribute to completing the research project for the organization. This is a little surprising, given that students are in the third or fourth years of their degree program when taking these courses. While these comments may reflect the particular challenges of a few students who would benefit from some extra help to develop those skills, it does demonstrate the need to review the BES program requirements to make sure that students are developing research and writing skills through prior courses. For those students engaged in outdoor field activities, it is important that they be reminded of the reality of the requirements for working outside when they choose a particular placement.

Another challenge identified by respondents concerned having the capacity to identify suitable projects and mentor students throughout the 13-week semester. These challenges were found to be a key reason that organizations did not host work-integrated learning students (Jackson et al., 2017). Karasik (2020) identified similar challenges in such collaborations especially concerning matches between the needs of the community partner and the students, as well as the time required for orientation, training and supervising their placements. While the placement agreements are helpful in ensuring an understanding of the responsibilities of students, community partners, and the professor, they do not address everything. Therefore, it is important to be very clear when contacting community organizations about the expectations for their role and the time commitment involved in hosting students.

Frontloading discussions about the needs of the community organization and the nature of the students they will be hosting will help to avoid potential mismatches. It may also be helpful to facilitate a connection between potential new community partners and those who have hosted previously, so that a potential new community partner could learn from the experience of previous host organizations. It is essential to have ongoing communication to address any questions or concerns. For both courses, students are provided with information at the beginning of the semester about what they might be doing in a volunteer placement or a capstone research project to help them prioritize

their choices. Links to the website of each community partner are also provided so that students can familiarize themselves with the scope of an organization's work when deciding about preferred placements. Even with more information, sometimes it may be difficult for students to fully understand what a placement will entail before starting it.

Limitations of the Research

This research represents a small case study of two environmental experiential learning courses which may limit its applicability. However, its focus on the perspectives of community organizations engaged in collaboration with these two courses, in some cases for over a decade, provides some understanding as to how such university-community collaborations work over the long term. Another limitation concerns the potential bias that is introduced by the fact that I have taught both these courses for over a decade and also conducted the research. Even though there was no link between the answers on the questionnaire and the name or contact information of respondents, some may have been reluctant to criticize me or the approach to these courses. Another source of bias concerns the fact that while over half of the organizations who hosted students participated in the research, these may represent those who had positive experiences in hosting students. It is possible that those who chose not to participate had fewer positive experiences.

Key Takeaways

Despite these limitations, this case study provides some insight that is applicable to such community based experiential learning courses, particularly in smaller communities that are in proximity to a university. The very nature of this 'town-gown' proximity often simplifies the channels of communication, making it easier to make connections with local organizations and find placements for students. However, it is extremely important that a professor of such courses clearly communicates, beginning when community organizations are initially contacted through providing sufficient information about the course, the nature of the students and the expectations for the collaboration. There should be established timelines for checking in with a community partner during the semester but also ensuring the freedom to contact the professor or departmental office at any time, if concerns arise. Placement agreements that outline the responsibilities of the instructor, the students and the community partners can be helpful to ensure that all understand the nature of the collaboration. A standard feedback form about the collaboration should also be provided to community partners at the end of the semester so improvements can be made for future collaborations.

An increased desire for students to have experiential learning opportunities, particularly in small communities with universities, can place a burden on

local organizations that may become overwhelmed with requests from various departments to provide placements for students. To overcome this challenge, it might be helpful for universities to have a central office which helps to facilitate and coordinate the interaction of various professors and courses with community partners. This office could standardize procedures and protocols about how such collaborations should work and evaluate the collaboration at the end of each semester. Having a third party evaluate the partnership is especially important in small communities where social interactions are common as it will create some distance between the community partner and the professor. Such an office can also provide some capacity-building to help those professors who wish to engage community partners to provide experiential learning placements for students. Given the expanded emphasis of universities on experiential learning, it is incumbent upon them to conduct research about how such community collaborations are working across departments so that benefits can be highlighted and challenges addressed.

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Conflicts of interest

None.

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Appendix A

Environmental Studies Internship Placement Agreement Form

Professor name: _____ Phone: _____

Email: _____

Student name: _____ Phone: _____

Email: _____

Community Volunteer Placement: _____

Supervisor name: _____ Phone: _____

Email: _____

Brief description of project(s) to be completed during this placement: _____

Instructor

The instructor will be responsible for:

- Providing the student with training before placement around professional conduct
- Ensuring that students are matched with placements that are appropriate to their training, skills, and abilities.
- Supporting the student throughout the placement via meetings/feedback on weekly reflections
- Supporting the supervisor in addressing any issues that arise with the student during the placement
- Designing, collecting, and assessing assignments concurrent to the placement to structure student reflection and learning
- Granting academic credit to the student upon successful completion of course and placement work

Student

The student will be responsible for:

- Applying information about professional conduct and standards, provided by the instructor, throughout the placement
- Following workplace policies and procedures as outlined by the supervisor
- Completing the work assigned in both the academic and placement components of the course
- Communicating with the instructor and supervisor should any issues arise which would hinder successful completion of the placement
- Documenting the volunteer hours completed through the placement

Community/Work Placement Supervisor

The community/work placement supervisor will be responsible for:

- Providing an orientation for the student upon arrival at the placement
- Providing any training and/or equipment required to perform the assigned work
- Respecting the student's rights as a volunteer
- Establishing clear and consistent expectations, in cooperation with the student
- Alerting the instructor should any issues arise which would hinder the successful completion of the placement
- Offering the student feedback throughout the placement
- Providing to the Professor an evaluation of the student's personal and professional qualities as observed during the volunteer internship

Instructor signature: _____ Date: _____

Student signature: _____ Date: _____

Supervisor signature: _____ Date: _____

Appendix B

Research Project Agreement UPEI Bachelor of Environmental Studies Public Scholars on Environmental Issues

Background

A key part of the Bachelor of Environmental Studies degree is to provide students with experiential learning opportunities to develop, integrate and apply their theoretical knowledge of environmental studies in various fields. The capstone course for the program, Public Scholars on Environmental Issues, provides a forum for students to interact and learn from local, national and international experts in various fields of environmental studies. In order to develop their own expertise as public scholars, students will be involved in practical experiences or research projects with private, public or non-governmental organizations that are engaged with environmental issues. Lectures, readings and in-class discussions among students will assist students in developing an interdisciplinary and integrated approach to analysing their experiences.

Teams of 3 students will engage in a research project identified by a community partner that is of benefit to the organization. Students are expected to address the objectives of the research project in collaboration with the community partner, do an oral presentation of their results for the community partner and also write up their results in the form of a report. There is no expectation of payment to the students.

Roles and Responsibilities

The Research project relies on the engagement of a learning triad: student, project supervisor, and the course instructor.

Students

Bachelor of Environmental Studies students offer organizations a theoretical foundation and interdisciplinary understanding of the environmental field and applied research methodologies. A team of BES students will contribute their knowledge and skills to filling a need in the organization by completing the research project as defined by the organization's project supervisor. Students are expected to:

- Be prompt and professional in their conduct and communication with the sponsor organization, course instructor, and all other members of the general public or clientele encountered during the course of the research
- Meet all course and project deadlines and project deliverables
- Seek feedback and further clarification from the project supervisor and/or course instructor when needed
- Engage in a reflective learning cycle through in-class discussions and assignments

Project Supervisor

- The project supervisor is employed by the host organization and is responsible for overseeing the research project for the team of students collaborating with the organization. The supervisor is expected to:
- Define the student project and provide the student with any relevant resources

- Communicate project milestones, deadlines, and deliverables
- Make introductions to anyone relevant to completion of the project
- Compensate the student for any direct expenses associated with the research project (e.g. travel)
- Provide constructive feedback to the student and/or course instructor as needed

Course Instructor

The course instructor is employed by UPEI as a Professor of Environmental Studies. The instructor acts as a liaison between project supervisor(s) and the team of students to ensure that research project meet course objectives and students meet the organization's expectations.

The course instructor is expected to:

- Coordinate the timely completion of the Project Agreement, ensuring all parties understand project expectations and the responsibilities of each role
- Design and implement a curriculum based on best practices in experiential learning to support students in the successful completion of their research project
- Maintain clear and open communication with project supervisor and students, addressing any issues as they arise
- Evaluate student learning through course assignments
- Student and supervisor are invited to contact the course instructor at any time to discuss project goals, structure, or process.

Course instructor:

Email:

Phone:

Project Overview

Project supervisors and students are asked to complete the relevant sections below. The course instructor will collate supervisor and student input and share the final Project Agreement with both parties prior to the start of the work-study placement.

Sponsor Organization:			
Supervisor Name:		Lead Student Name:	
Email:		Email:	
Phone number:		Phone Number:	
Section 1 (to be completed by Project Supervisor)			
<i>Brief Project Description:</i>			

Expected deliverables (research proposal, presentation, report: .
Expected timeline (project milestone deadlines etc.):
<i>Additional comments:</i>
Section 2 (to be completed by student)
<i>Learning goals: (Why did you select this project? What do you hope to gain from the experience?)</i>
<i>Additional comments:</i>

Sign below to indicate your agreement with the details of this project as outlined above:

Student Name: _____

Signature: _____ Date: _____

Student Name: _____

Signature: _____ Date: _____

Project Supervisor Name: _____

Signature: _____ Date: _____

Course Instructor Name: _____

Signature: _____ Date: _____

Canadian environmental and sustainability education in preservice teacher education

Douglas D. Karrow, Brock University; Richard Kool, Royal Roads University; Maurice DiGiuseppe, Ontario Tech University; Matthew Trafford, Brock University; & Madelyn [Maddie] Sturgeon, Brock University

Abstract

This survey research assesses environmental and sustainability education in preservice teacher education (ESE-PTE) in Canadian faculties of education. In 2019, university faculty members across Canada participated in an online questionnaire, yielding qualitative and quantitative data on their ESE-PTE program knowledge, and their pedagogical views and experiences related to ESE-PTE. The sample included 32 faculty members engaged in teaching ESE-PTE (62 % response rate) from 26 faculties of education (57 % response rate). Key findings include: (a) strong and widespread interest in ESE-PTE; (b) a belief that ESE should be prioritized in PTE programs, with concerns about teacher preparation; and (c) pedagogy—where pedagogical approaches were influenced by Indigenous, Bioregionalist/Place-based, and Praxic perspectives. Recommendations include policy advocacy and further research.

Résumé

Cette enquête porte sur la formation des futur·es enseignant·es en éducation à l'environnement et au développement durable dans les facultés de sciences de l'éducation au Canada. En 2019, nous avons fait parvenir un questionnaire en ligne à des membres de ces facultés un peu partout au pays pour recueillir des données qualitatives et quantitatives relatives à leurs connaissances sur le programme de formation en éducation à l'environnement et au développement durable, à leur point de vue pédagogique et à leur expérience du programme. L'échantillon était composé de 32 participant·es qui enseignent l'éducation à l'environnement et au développement durable (taux de réponse de 62 %) provenant de 26 facultés d'éducation (taux de réponse de 57 %). Les principaux résultats révèlent : a) un intérêt considérable et répandu envers le programme; b) la conviction que ce programme devrait être une priorité dans la formation des futur·es enseignant·es de même que des inquiétudes quant à leur préparation à cet égard; et c) le fait que la dimension pédagogique du programme est largement influencée par les approches autochtone, biorégionaliste (ou fondée sur le lieu) et praxique. Pour conclure, l'article recommande la mise en place de politiques pour ce type de programme et la poursuite des recherches sur le sujet.

Keywords: preservice teacher education, environmental and sustainability education, Canada.

This research study assessed the status of Canadian environmental and sustainability education¹ in preservice teacher education (ESE-PTE), extending earlier, related research stemming from the early 1970s to the late 2000s (Rioux, 1973; Towler, 1980; Lin, 2002; Swayze et al., 2012). Almost 20 years have elapsed since the last survey research was conducted, all of which precede the United Nations Decade of Education for Sustainable Development (DESD). Over this time, socio-environmental challenges have continued to increase at an alarming rate worldwide (Rockström et al., 2024) increasing the need to periodically assess the status of ESE-PTE in Canada and elsewhere.

In general, ESE-PTE addresses the many and varied socio-environmental challenges facing the world today, including pressing public health issues, climate change, biodiversity loss, pollution, desertification and top-soil erosion, and food and water security (UN Environment, 2019). Teachers must be equipped to address these challenges in the classroom to prepare students for a world that is becoming increasingly uncertain.

As an interdisciplinary framework emphasizing approaches such as inquiry-based learning, problem-solving, and place-based learning, ESE-PTE aims to prepare preservice teachers² to integrate environmental sustainability education into all aspects of their teaching.

Another goal of ESE-PTE is to strengthen preservice teachers' appreciation of the many theory–practice relationships in ESE, including connections among systems thinking, environmental ethics, and experiential learning, helping preservice teachers translate abstract ideas into effective classroom learning experiences.

Research Problem

Literature and Rationale

This survey research was inspired through a directive of the National Action Plan of the *National Roundtable on Environmental and Sustainability Education in Preservice Teacher Education* (henceforth, “National Roundtable”),³ held in June 2016 at Trent University in Peterborough, Ontario, Canada (Karrow & DiGiuseppe, 2019). Roundtable discussions regarding the findings of previous Canadian ESE-PTE survey research (Lin, 2002; Swayze et al., 2012; Towler, 1980), which consistently indicated significant deficiencies in ESE-PTE, led participants to call for a reappraisal of the status of ESE in PTE programs across Canada.

The importance of ESE-PTE is well-established, both historically and globally, dating back to a report by the International Union for Conservation of Nature's (IUCN) Conference on Environment and Conservation Education (Cervovsky & Withrington, 1972), with a dedicated session devoted to “recognizing the importance of ITE [Initial Teacher Education] in progressing the principles and

practices that underpin sustainability” (Evans et al., 2021, p. 1352). Since then, the United Nations Educational, Scientific and Cultural Organization—United Nations Environmental Programme (UNESCO—UNEP, 1978, 1988) and the United Nations Economic Commission for Europe (UNECE, 2005, 2012, 2016) have been reinforcing the principles and practices that underpin sustainability. The UNESCO Chair on Reorienting Teacher Education for Sustainability (York University, 2020), the Decade of ESD (UNESCO, 2005), and the Global Action Programme on ESD (UNESCO, 2018a) support these international bodies and their initiatives. More recently, UNESCO published “ESD for 2030,” (UNESCO, 2020) providing a broad framework for advancing education in support of the United Nations’ 2030 Agenda for Sustainable Development (ASD). This framework focuses on integrating sustainability across education systems by strengthening policies, learning environments, teacher preparation, student engagement, and community involvement. It aims to develop the knowledge, skills, values, and attitudes needed to address major environmental and social challenges and support more sustainable and equitable societies. However, despite countries reporting a “high-level of policy commitment to the Guiding Principles” of ESD in PTE, there remains a relatively “less than sufficient level of support for teacher training on the Guiding Principles in the context of pre-service teacher education” (UNESCO, 2018b, p. 9). On this point, international and Canadian ESE-PTE clearly have more work to do.

Assessing the current status of ESE-PTE in Canadian faculties of education has never been more important. Our research contributes to the well-established tradition of survey research on ESE-PTE in Canadian faculties of education, providing longitudinal insights and positioning Canada as a key contributor to international ESE-PTE research. Most importantly, however, ESE-PTE research provides future generations with critical information and insights about living more sustainably in a changing world.

Research Question

The following research question guided our research: *What is the current status of ESE-PTE in Canadian faculties of education?*

Objectives

In this article, we will focus on the following objectives:

1. Programming.
2. Barriers affecting programming.
3. Survey participants’ program perceptions and experiences.
4. Recommendations on program enhancements and improvements.
5. Suggestions for further research.

Theoretical Influences

The Purpose of ESE-PTE

This study employed the theoretical lens of cultural reproduction theory, as presented by Bilton et al. (1996). Cultural reproduction is the process by which cultural practices, norms, values, and social class distinctions are maintained and transmitted across generations. Whereas education currently tends to reproduce a form of education that supports neoliberalism (global unlimited growth) through the deleterious ideology of social efficiency and instrumentalism (Magrini, 2014), we subscribe to a view of education more consistent with education for sustainable development (ESD), as established by the United Nations General Assembly (UNESCO, 2019a). Such a view is consistent too, with the purpose of ESE-PTE, which emphasizes helping teachers, and by implication their students understand complex global challenges and develop the ability to make informed, responsible decisions that support more sustainable and equitable societies.

Canadian and International Perspectives on ESE-PTE

Canadian ESE-PTE scholars subscribe to a variety of theoretical perspectives reflecting diverse nomenclatures and discourses (Karrow et al., 2022; Karrow & DiGiuseppe, 2019). Sometimes, or not, these reflect provincial/territorial Ministry of Education preferences, (e.g., in Ontario, Environmental Education; and in Manitoba, Education for Sustainable Development). Canadian researchers have generally adopted a hybrid of two paradigmatic theoretical frameworks, namely EE and ESD. For instance, the Standing Committee on ESE-PTE, a sub-committee of the Environmental Education and Communication Network of Canada (EECOM) adopted “ESE,” when it became established in 2017. It was reasoned that by asserting the importance of “environmental” and “sustainability” to “education,” whilst removing problematic associations with “development” (Jickling, 1994), a fidelity between ESE and the purpose of ESE-PTE, could be achieved. Exceptions to this generalization can be found in Sauv   (2005), where a cartography of theoretical “currents” (fifteen) are surveyed in relation to conceptions of the environment, aims of environmental education, and programmatic approaches.

Internationally, research on ESE-PTE reflects distinct geographical affinities for particular theoretical perspectives: EE is more common in the United States of America, while ESD is typically used in Europe (Blom & Karrow, 2024). As noted previously, Canadians are increasingly employing ESE. The various theoretical perspectives reflect a historical progression of ideas that have generated some debate (Jickling, 1994; Kopnina, 2012, 2014; Le Grange, 2017; Skordoulis, 2020). Subtending these theoretical frames are other perspectives that influenced our survey design (e.g., Evans et al., 2017; Lin,

2002; Sauvé, 2005; Swayze et al., 2012). These are discussed in more detail below. Furthermore, we use Yueh et al.'s (2010) analysis to help us understand the barriers to advancing ESE in the PTE context, and what might be done to overcome these barriers.

Materials and Methods

Research Design

Cross-sectional Survey-based Research. We employed a cross-sectional survey design to collect data (quantitative and qualitative¹) to assess the status of ESE-PTE programs in Canada. Consistent with Creswell and Guetterman's (2019) description of cross-sectional survey design,² we employed this approach to solicit faculty members' "attitudes, opinions and beliefs" about ESE-PTE (p. 386). Readers are directed to (Karrow & DiGiuseppe, 2019, pp. 306-307) for a detailed historical review of former Canadian ESE-PTE research studies, featuring Lin's (2002) and Swayze et al.'s (2012) survey research. Our own contribution to this historical record extends their work methodologically and theoretically.

Data Collection Instrument: Online Survey. Our data collection instrument was an online survey in the form of a questionnaire via the QuestionPro platform (www.questionpro.com). This method aligned with our research objectives, timeline, and budget; and enabled efficient data collection, processing, and analysis from faculty members in PTE programs across Canada. Creswell and Guetterman (2019) suggest adapting or creating survey instruments when a pre-existing survey instrument does not exist. Accordingly, we adapted two previously administered Canadian ESE-PTE surveys (Lin, 2002; Swayze et al., 2012). In particular, Lin (2002) provides a historical analysis of trends in environmental education within Canadian PTE programs from 1979 to 1996, focusing on how programs evolved over time. Swayze et al. (2012) was a national survey of faculties of education in Canada, primarily involving program administrators such as deans of education, examining the extent to which ESD was being integrated into PTE programs and identifying variations in implementation.

Survey Item Adaptation. Technical adjustments were made to accommodate online delivery. Our questionnaire included closed-ended questions (e.g., yes/no; multiple choice; Likert scale) and open-ended questions (e.g., questions asking participant to freely place comments within textboxes). In general, survey items focused on participants' personal/professional demographic information, and on their ESE-PTE program knowledge, views, and experiences.

While most items were based on Lin's (2002) survey, some of Lin's questions regarding barriers were modified or expanded to reflect the current PTE context. For example, we added "competition with other PTE courses," and we split Lin's

“Lack of administrative/faculty support for EE in programs” into two, which offered us the chance to see which kind of support (or lack thereof) was of importance (lack of administrative support, or lack of faculty support). Further questions were modified from Swayze et al. (2012), while others were inspired by the theoretical contributions of Evans et al. (2017) and the seminal work of Sauvé (2005).

In particular, we included questions inspired by the conceptual framework in Evans et al.’s (2017) research, including questions regarding programmatic approaches for embedding ESE in PTE courses and programs; rationales used by faculty members for embedding ESE in PTE; theoretical frames underpinning the embedding of ESE in PTE; pedagogical approaches used for embedding ESE in PTE; and problems and challenges faced by teacher educators who wish to embed ESE in PTE. Additionally, Sauvé’s (2005) classic study provided a typology of “currents of environmental education” consisting of 15 propositions, which informed a subset of our questions. Notably, we added an “Indigenous”⁵ current to Sauvé’s original “Ethnographic” current to reflect the growing recognition of Indigenous contributions to Canadian ESE-PTE programs (see Table 4).

Pilot-testing Survey Items. Our survey was pilot-tested by members of the Research Development Group,⁴ and various members of the Canadian Network for Environmental Education and Communication (EECOM) Standing Committee on ESE-TE. These individuals were asked to complete the survey, analyze the questions, and provide the Research and Author Team⁵ with feedback for improving the structure, content, and comprehensibility of individual survey items and the survey. Members of the Research Development Group incorporated their feedback in the survey (Appendix C).

Data Collection and Analysis. Survey development occurred from fall 2017 until fall 2018. The survey was written in English and professionally translated into French for use by francophone participants.⁶ Through the spring and summer of 2018, the Research Development Group obtained ethics clearance from their respective institution’s research ethics board. Purposive sampling was used to recruit faculty members known to be involved in ESE-PTE teaching, research, and service. We identified potential participants through the Association of Canadian Deans of Education (ACDE) website and other teacher education resources, sending invitations to 52 faculty members across Canada, including 11 faculty members in francophone faculties or schools of education (Appendix A), and to 41 faculty members in Anglophone institutions (Appendix B).

Data collection began on March 11, 2019, when invitations and informed consent documents, in English and French, were emailed to prospective participants across Canada (see Appendices A and B for the names of institutions that were contacted). Invitations in French, were sent to faculty members in most of the francophone universities in Quebec, New Brunswick, and Manitoba, with a web link directing them to the French-language survey.

English invitations with weblinks were sent to identified faculty in Anglophone institutions. All invitations indicated that the survey would be active from March 11 until November 15, 2019. Reminders were sent to invitees in September and October 2019.

Quantitative Data. Quantitative data were collected through yes/no responses and items involving rating scales and Likert-like scales. Quantitative data were initially analyzed using QuestionPro software and further examined in Microsoft Excel. Descriptive statistics (percentages; scale ratings) were used to summarize quantitative survey results, which in most cases are illustrated using bar charts.

Results

Survey questions and responses are organized according to three thematic categories: (a) participant demographics; (b) programming; and (c) pedagogy.

Participant Demographics

Institutions and Faculty Members. Table 1 summarizes data illustrating the number of participating institutions and faculty members.

1.	Number of faculties of education/schools of education in Canada ^a	62
2.	Number of Canadian faculties of education/schools of education invited to participate in this study ^b	46
3.	Number of faculties of education/schools of education that responded to the survey (percentage of faculties/schools of education that responded to the survey).	26 (57 %) ^c
4.	Number of individual faculty members invited to participate in this study.	52
5.	Number of faculty members that responded to the survey (response rate; percentage of faculty members that responded to the survey).	32 (62 %) ^d

Table 1. Survey Participation

Note. Survey response rates for faculties of education and faculty members are consistent with standards expected of survey research (Sataloff & Vontela, 2021; Wu et al., 2022).

- ^a This value represents the total number of faculties/schools of education in Canada as found in the ACDE website (plus others) identified by the research team in the 2017-2018 academic year.
- ^b See Appendices A and B for institution names.
- ^c Row 3 value ÷ Row 2 value x 100 %.
- ^d Row 5 value ÷ Row 4 value x 100 %.



Figure 1. Geographic Distribution of Participating Institutions
 Note. Figure 1 shows the distribution of participating institution by language of instruction. Individual faculty member survey responses included eight (8) faculty members from British Columbia (25 % of all participants); two (2) from Alberta (6 %), two (2) from Saskatchewan (6 %), four (4) from Manitoba (13 %); twelve (12) from Ontario (38 %), two (2) from Quebec (6 %), one (1) from New Brunswick (3 %), and one (1) from Nova Scotia (3 %).

Professional Status and Academic Background

The majority of our participants were full-time faculty (29; 88 %), with three participants (9 %) being part-time faculty, and one participant (3 %) being a department head. While the majority of participants indicated a background in Education (20; 63 %), relatively large proportions also indicated backgrounds in Life Sciences (13; 41 %), Environmental Education (13; 41 %), and Ecology/ Environmental Science (11; 34 %), with the rest having backgrounds in Earth Science (5; 16 %), Humanities (5; 16 %), Social Science (4; 13 %), Environmental Studies (3; 9 %), and Fine Arts (2; 6 %). Note: participants were asked to choose all backgrounds that applied to them from a list of backgrounds (see Appendix C); thus, percentages do not necessarily add to 100 %.

Programming

Priority. Participants were asked to indicate the extent:to which they felt ESE was a priority in their faculty’s 2017–2018 PTE program; and to which they felt ESE should have been considered a priority. (Figure 2)

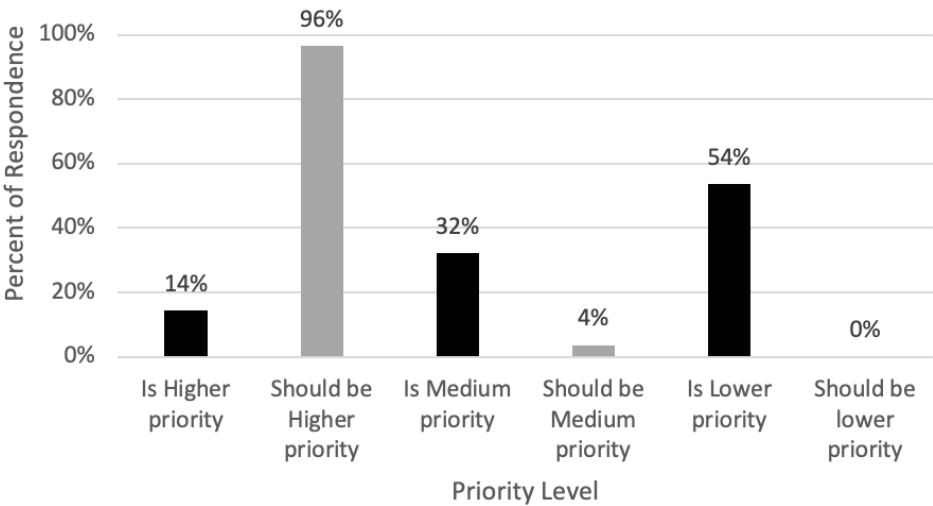


Figure 2. Degree to Which ESE was considered a Priority, and should be considered a Priority, in 2017–2018

A majority (54 %) of our participants felt that ESE was of lower priority in their faculty (Figure 2) while 32 % indicated that ESE was of medium priority, and only 14 % felt it was a higher priority element in their faculty. Conversely, we can also see that the vast majority of participants (96 %) felt that ESE should have been considered a higher priority in 2017–2018, with only 4 % indicating that it should have been a medium priority, and none indicating that it should have been a lower priority.

Rationales Justifying Programs. According to Evans et al. (2017), four key rationales are typically used by teacher educators to justify ESE programming in PTE:

- A. Preparing preservice teachers to develop:
 - i. *capacity* to embed ESE into their teaching practices;
 - ii. *commitment* to embed ESE into their teaching practices.
- B. Responding to international educational policy priorities;
- C. Disrupting instrumentalist, neoliberal education systems; and
- D. “Others” (alternative rationales) (p. 411).

Participants were asked to rank rationales A(i), (ii), B, and C, in order of importance, using a ranking scale in which “1” represented the “most important” rationale and “4” represented the “least important” rationale.

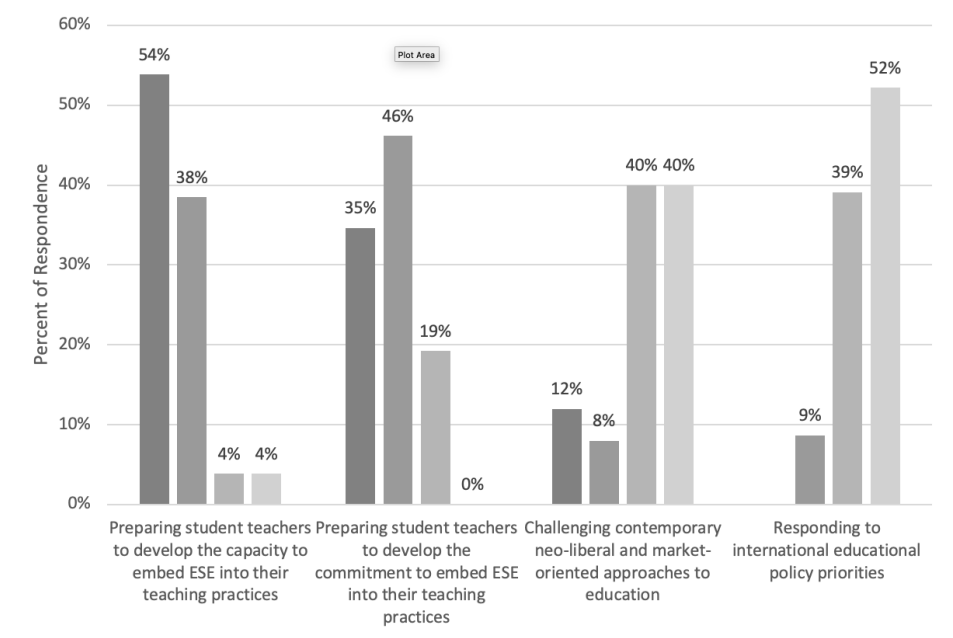


Figure 3. *Rationales for Supporting or Advancing ESE-PTE*

A majority of our participants ranked “Preparing student teachers to develop the *capacity* to embed ESE into their teaching practices” as the most important rational for justifying the inclusion of ESE in PTE programs (Figure 3), with 92 % ranking this rational 1 or 2 out of 4, and only 8 % ranking it 3 or 4 out of 4. The rationale, “Preparing student teachers to develop the *commitment* to embed ESE into their teaching practices” was the second-most highly ranked rationale, with 81 % of participants ranking this rational 1 or 2 out of 4, and only 19 % ranking it 3 or 4 out of 4. In terms of rationales “B” and “C”, only 20 % of participants ranked “Challenging contemporary neo-liberal and market-oriented approaches to education” 1 or 2 out of 4, with 80 % ranking this rationale 3 or 4 out of 4. Only 9 % of participants ranked “Responding to international educational policy priorities” as 1 or 2 out of 4, with 91 % ranking it 3 or 4 out of 4. It is obvious that, in general, our participants viewed rationales A(i) and A(ii) as more important justifications for including ESE in PTE programs than rationales B and C.

Programming Models. Evans et al.’s (2017) review of ESE in PTE programs indicated that, in general, there are four models used to embed ESE in PTE: Model 1 - Integration across whole curriculum areas, courses, or institutions;

Evans et al.'s Models	Results
Model 2. What type of ESE-related courses does your faculty/program offer? ⁷	Science-based courses (n = 19; 28 %) Survey courses (n = 12; 17 %) Field-based courses (n = 11; 16 %) Methods courses (n = 10; 14 %) Humanities-based courses (n = 7; 10 %) Social sciences-based courses (n = 5; 7 %) "Other" (non-specified) types of courses (n = 5; 7 %)
Model 2. In the 2017/2018 academic year, did your preservice teacher education program include an ESE course that all preservice students were required to take?	42 % of participants answered "Yes" 33 % of participants answered "No" 25 % did not answer "Yes" or "No" but provided verbal comments instead. Comments included: "We tried to embed [ESE] across curricula." "The two courses where ESE was integrated were officially designated as Science Education and Curriculum Design." "[ESE content was provided] in combination with Indigenous education."
Model 3. (a) In the 2017/2018 academic year, did your preservice teacher education program have courses that included ESE <i>content</i> as one of a number of components and that all preservice students were required to take.	42 % of participants answered "Yes" 33 % of participants answered "No" 25 % did not answer "Yes" or "No" but provided verbal comments only. Comments included: "We tried to embed across curricula - place-based Indigenous perspectives are a strong emphasis for us and in BC curriculum." "[ESE was] integrated within the elementary science program." "It [ESE] may have been part of a required course in Indigeneity"
Model 4. (a) Did your preservice teacher education program offer non-required (e.g., elective/ optional) ESE courses primarily focused on ESE-related <i>teaching methods</i> in the 2017/2018 academic year?	52 % of participants answered "Yes" 48 % of participants answered "No" No comments were provided.
Model 4. (b) Did your preservice teacher education program offer non-required (e.g., elective/ optional) courses primarily focused on ESE- related <i>content</i> in the 2017/2018 academic year?	48 % of participants answered "Yes" 36 % of participants answered "No" 16 % of participants did not answer "Yes" or "No" but provided verbal comments instead. Comments included: "[ESE was] integrated within the elementary science program." "[An elective] begins in 18/19." "Not this year, but in previous years yes, and next year there will be an elective for senior years." "A series of extra-curricular workshops [were offered]."

Table 2. ESE-PTE Programming Models

*Note.*⁸ The courses identified by participants are courses required as part of teacher certification.

Model 2 - Integration through dedicated core/compulsory courses; Model 3 - Integration through a component of a core/compulsory course focused on (a) ESE content or (b) ESE-related teaching methods; or Model 4 - Integration through a dedicated elective course. While Evans (2017) framework outlines four program models, the present survey was designed to examine Models 2, 3 and 4 only, reflecting the survey instrument, available data (Table 2) and previous surveys (Rioux, 1973; Towler, 1980; Lin, 2002; Swayze et al., 2012).

Adequacy of Preservice Teacher Preparation. Participants were asked whether they felt their preservice teachers received adequate preparation for teaching ESE in their future teaching careers. Our results show that the vast majority of our participants indicated that their preservice students received inadequate preparation to teach ESE-related topics (Figure 4).

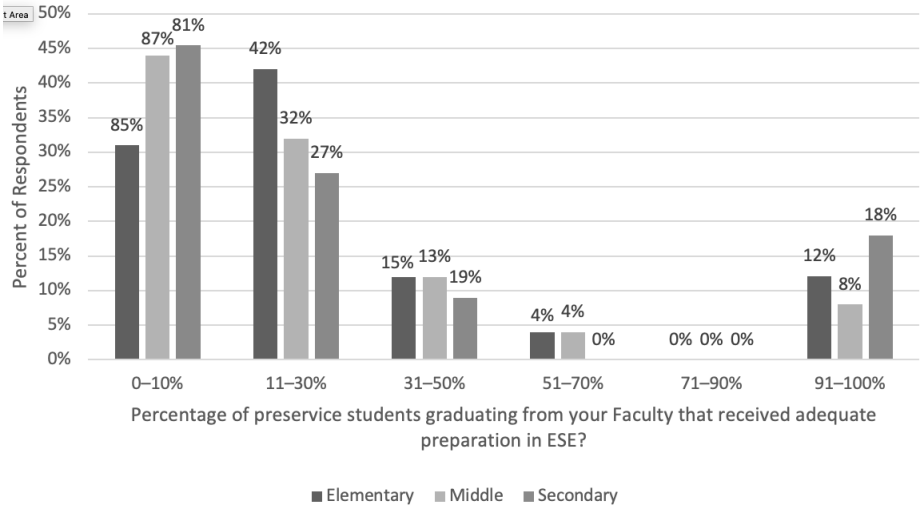


Figure 4. *Adequacy of Preparation in ESE-related Teaching*

Figure 4 indicates that, overall, less than 20% of our respondents felt that their preservice teachers across the three teaching domains had received adequate preparation in ESE pedagogy. Indeed, nearly half of all respondents indicated that their faculty’s middle and secondary school preservice students had had virtually no adequacy at all to teach ESE-related topics.

Barriers in ESE-PTE Programs. We asked participants to rate, on a 5-point scale, a variety of barriers previously identified in the literature as hindering ESE-PTE programs (see especially Lin, 2002, on which this question was based). In this scale, “1” indicated that a particular barrier was considered to be “unimportant”; “2” indicated that the barrier was “somewhat unimportant”; “3” indicated that the barrier was “neither important nor unimportant”; “4” indicated that the barrier was “important”; and “5” indicated that the barrier

was “very important.” Figure 5 illustrates responses 1 (most unimportant) and 4 (most important) to compare multiple barriers.

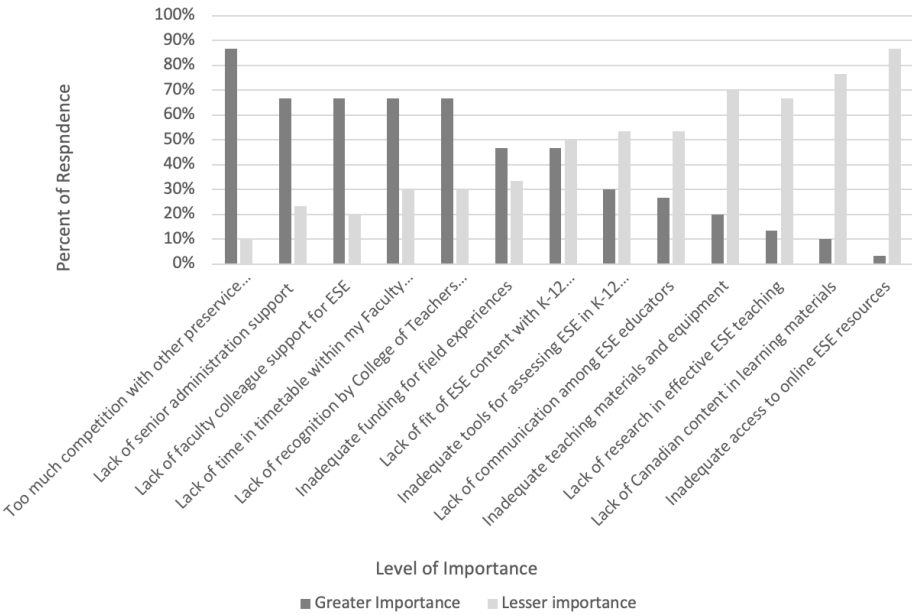


Figure 5. Barriers in ESE-PTE Programs: Levels of Importance

Competition with Other PTE Courses. Figure 5 clearly indicates that the vast majority of our participants felt “Competition with other preservice courses” was an important barrier in ESE-PTE programs (a combined total of 87% of participants indicated this to be a “very important” barrier (67%) or “important” barrier (20%), with a mean Likert scale rating of 4.3/5.

Lack of Senior Administrator Support for ESE-PTE. Participants placed “Lack of senior administration support” among the top five barriers in PTE-ESE. A combined total of 66% of participants indicated this to be a “very important” barrier (43%) or “important” barrier (23%), with a mean Likert scale rating of 3.6/5.

Lack of Faculty Colleague Support for ESE-PTE. Another important barrier noted by our study’s participants was “Lack of faculty colleague support for ESE.” A combined total of 67% of participants indicated this to be a “very important” barrier (40%) or “important” barrier (27%), with a mean Likert scale rating of 3.8/5.

Lack of Time in the PTE Program Timetable. A significant majority of participants indicated that “Lack of time in the PTE program timetable” was an important barrier (combined total of 67% of participants indicating this to

be a “very important” barrier (57 %) or an “important” barrier (10 %), with a mean scale rating of 3.6/5). It should be noted, however, that a small, but not insignificant proportion of our participants considered “Lack of time in the PTE program timetable” not to be a major barrier, with a combined total of 30 % believing it to be “unimportant” (23 %) or “somewhat unimportant” (7 %).

Lack of Professional Governing Body Leadership. Teacher certification bodies (e.g., College of Teachers) are governmental agencies or self-governing organizations that authorize/certify qualified individuals to teach in the public-school systems of the country. Our participants generally indicated that “Lack of recognition by college of teachers ... that ESE is a legitimate teachable subject” poses a significant barrier in ESE in Canadian faculties of education (Figure 5). A combined 67 % of participants indicated this to be a “very important” barrier (47 %) or “important” barrier (20 %), with a mean Likert scale rating of 3.7/5. However, a not insignificant smaller proportion of participants (30 %) considered it a “somewhat unimportant” (13 %) or “unimportant” (17 %) barrier.

Inadequate Funding for Field Experiences. ESE courses often involve outdoor or off-campus experiences which incur additional costs and logistical challenges for students, instructors, and programs. Nearly half (47 %) of respondents indicated that this was a significant barrier to furthering ESE in their faculties.

Lack of Fit or Alignment between ESE in PTE Programs and ESE in K-12 Curriculum. Effective curricular integration requires alignment between the “explicit” curriculum (Eisner, 1985) (i.e., a province’s “official” K-12 curriculum), and the ESE curriculum provided in a faculty of education’s ESE-PTE program. In our study, participants were asked about any “Lack of fit of ESE content with K-12 curriculum in schools” as a barrier in ESE-PTE. Responses varied widely with a combined 47 % of participants indicating this to be a “very important” barrier (7 %) or an “important” barrier (40 %), and a similar combined 50 % indicating that a lack of fit between their faculty’s ESE-PTE content and official K-12 curricula is a “somewhat unimportant” barrier (13 %) or an “unimportant” barrier (37 %).

Inadequate Tools for Assessing ESE in K-12 Schools. A majority of participants (54 %) viewed “Inadequate tools for assessing ESE in K-12 students in schools” as an “unimportant” (37 %) or “somewhat unimportant” (17 %) barrier in ESE-PTE programs. It should be noted, however, that a small, but not insignificant proportion of our participants considered “Inadequate tools for assessing ESE in K-12 students in schools” to be important, with a combined total of 30 % believing it to be “important” (17 %) or “very important” (13 %).

Lack of Communication among ESE Educators. More than 50 % of our survey participants did not consider “Lack of communication between ESE educators” as being a major barrier, with a combined total of 54 % indicating that this potential barrier was “somewhat unimportant” (27 %) or “unimportant” (27 %), and only a combined total of 27 % considering this barrier as being “important” (17 %) or “very important” (10 %).

Inadequate Teacher Resources and Equipment. A significant majority of our participants (70 %) indicated that “Inadequate teaching materials and

equipment” was “unimportant” (43 %) or “somewhat unimportant” (27 %) as a barrier in ESE-PTE programs.

Lack of Research in Effective ESE Teaching. A combined total of 67 % of our participants felt that a “Lack of research in effective ESE teaching” is an “unimportant” (40 %) or “somewhat unimportant” (27 %) barrier in ESE-PTE programs.

Lack of Canadian Content in Learning Materials. A significant majority of participants (77 %) believed “Lack of Canadian content in learning materials” to be an “unimportant” (50 %) or “somewhat unimportant” (27 %) barrier in ESE-PTE programs.

Inadequate Access to Online Resources. A significant majority of our participants (86 %) viewed “Inadequate access to online ESE resources” as an “unimportant” (73 %) or “somewhat unimportant” (13 %) barrier in ESE-PTE programs.

Pedagogy

Theoretical Propositions. Participants were asked to: (a) identify how Sauvé’s (2005) “currents” (including our newly created “Indigenous” current) were present in their faculty’s ESE-PTE courses and programs, and then (b) to rank the currents as to which ones were the most influential in their programs. In the rating scale for this item, “1” meant that the current was “not at all” present in the program, and 5 meant that the current was a “principal current” in the program. The descriptors that participants were to use in their rankings are included in the Survey in Appendix C. Results for this item are illustrated in Figure 6.

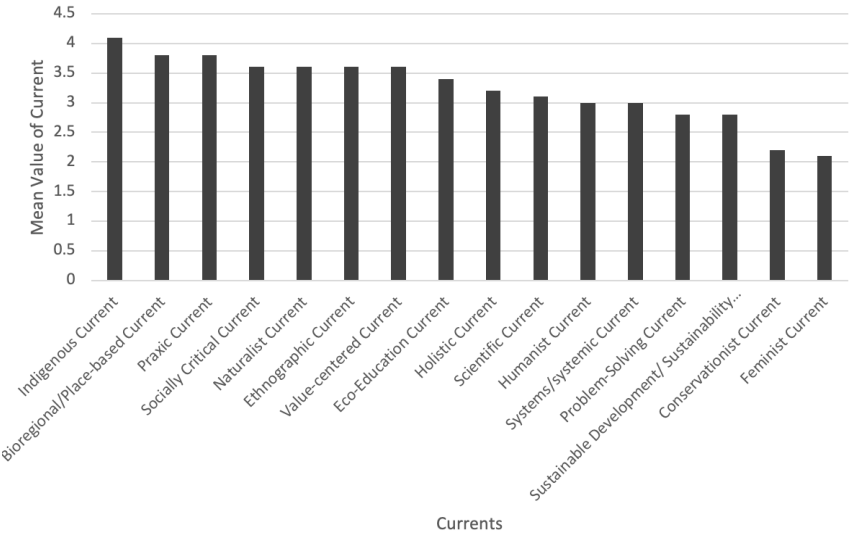


Figure 6. Presence of Sauvé’s (2005) ESE Currents in ESE-PTE Programs

In Figure 6, the three highest-rated currents are the *Indigenous* current, the *Bioregionalist-Place-Based* current, and the *Praxic* current. The lowest-rated currents include the *Problem-solving* current, the *Sustainable Development/Sustainability* current, the *Conservationist/Resourcist* current, and the *Feminist* current. We were surprised by the high ratings given to the *Indigenous* current, and in the context of Canada’s journey of “Truth and Reconciliation” (Truth and Reconciliation Commission of Canada, 2012), we found this to be a significant result, worthy of further investigation.

Effectiveness of Pedagogical Approaches. Previous studies (e.g., Evans et al., 2017; Lin, 2002; Swayze et al., 2012; Towler, 1980) have indicated that PTE instructors employ a variety of pedagogical approaches in their ESE courses and programs. While Evans et al. (2017) included descriptions of various pedagogical approaches employed internationally, they did not explore instructors’ views on their effectiveness. In our survey, we asked participants to rate the effectiveness of ten (10) different ESE-oriented pedagogical approaches on a 1-5 rating scale, where 1 represented the most effective strategy and 5 represented the least effective strategy. Results of this survey item are summarized in Figure 7.

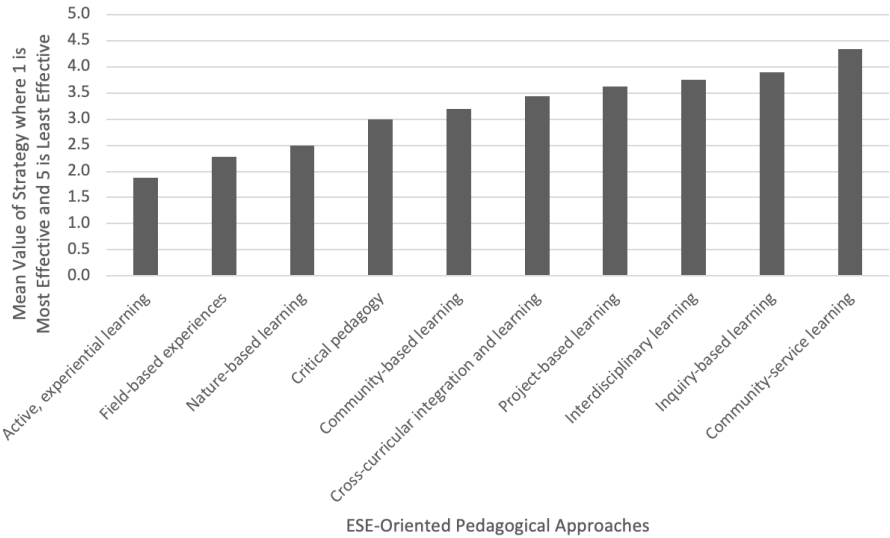


Figure 7 Effectiveness of Pedagogical Approaches in ESE-PTE.

Figure 7 shows that participants viewed most of the approaches as moderately effective, with highest ratings for community service learning, inquiry-based learning, interdisciplinary learning, and project-based learning. These highest-rated approaches tend to be those involving more applied and action-oriented forms of learning. In contrast, active experiential learning,

field-based learning, and nature-based learning received lower scores, possibly reflecting lower effectiveness on account of greater challenges instructors may have experienced in their implementation.

Discussion

ESE and its cognates (environmental education, outdoor education, conservation education etc.) have long occupied a marginal position within compulsory education. While environmental education has been included in some Canadian PTE programs for nearly 50 years, it has rarely achieved a status comparable to that of more traditional, established subjects such as English, mathematics, or the traditional sciences of biology, chemistry and physics. In this section, we will revisit our research question, summarize our findings, and explore implications regarding policy advocacy and research.

What is the Current Status of ESE-PTE in Canadian Faculties of Education?

The following discussion focuses on three major themes emanating from the collected data, namely: ESE-PTE priorities, ESE-PTE programming, and ESE-PTE pedagogy. Where relevant, we compare our findings with earlier Canadian survey research in the field (e.g., Lin, 2002⁹; Swayze et al., 2012), and other research informing our survey questions (e.g., Evans et al., 2017) and Sauvé (2005).

ESE-PTE Priorities. Most of our participants viewed ESE as a low priority in their PTE programs, with less than 25 % considering that it rates a high priority in their faculty. Swayze et al. (2012) did not pose this question but did generate data on the degree to which PTE programs were moving in the direction of better addressing ESE in their curricula (a quasi-indicator of ESE-PTE status). They determined that Canadian Faculties of Education “are beginning to make progress toward reorienting their curricula and contributing to the DESD, [though] there is progress yet to be made toward full implementation” (Swayze et al., 2012, p. 38). In contrast, Lin (2002) reported that 23 % of her participants indicated ESE-PTE was accorded high priority. In particular, our results indicate that only 14 % of participants felt that their faculties accorded ESE-PTE a high priority, while 96 % believed it *should* be given higher priority, and none thought it should be lowered. Lin (2002) did not pose this variation of the question. Although these results are discouraging, they are mitigated by our finding that the majority of respondents teaching ESE feel it should be prioritized more within PTE programs.

ESE-PTE Programming. Our results show that, overall, our participants felt that developing the “capacity” for integrating ESE into preservice teachers’ future teaching practices was the most important rationale for including ESE in PTE programs, followed by developing preservice teachers’ “commitment” to ESE-embedding practices. This helps further extend the work of Evans et

al. (2017) who identified various rationales but provided no indication of their popularity or adoption rates.

Recall, programming models 2, 3 and 4 were surveyed. Regarding Model 2 (i.e., integration through dedicated core/compulsory courses), 42 % of our participants reported the presence of this programming model. In their survey, Evans et al. (2017) reported that this model was unusual, while Swayze et al. (2012) reported a 16 % adoption rate, and Lin (2002) noted a 34 % adoption rate. Regarding Model 3 (i.e., integration through a component of a core/compulsory course focused on (a) ESE content and (b) ESE-related teaching methods), 42 % of our participants indicated that their ESE-PTE programs included a component of a core/compulsory course focused on ESE content, and 52 % of our participants indicated that their ESE-PTE programs included a component of a core/compulsory course focused on ESE-related teaching methods. Evans et al. (2017) reported this to be the most common of the four program models, though Swayze et al. (2012) and Lin (2002) appear not to confirm this, with 17 % and 5 % adoption rates, respectively. Lastly, with Model 4 (i.e., integration through a dedicated elective course), just under half of our participants (48 %) indicated that their PTE programs offered their preservice teachers elective/optional courses specifically focused on ESE content. Evans et al. (2017) reported this to be the most common program model in their survey, while Swayze et al. (2012) and Lin (2002) did not include this item in their surveys. Overall, our survey results reveal an uptake of programming Models 2, 3 and 4, with the uptake of Models 2 and 3 being greater than they were in Swayze (2012) and Lin (2002).

Pre-service Teacher Preparation. We asked participants to evaluate whether their 2017–2018 ESE programs adequately prepared preservice teachers to address ESE in their future careers. Our results indicate that a majority of participants felt that most of their preservice teachers were not suitably prepared to adequately address ESE in their future careers as teachers. These were very disquieting findings, but not unexpected. As environmental challenges grow, the lack of preparation for teachers to address these issues creates a significant gap in our society's ability to address current and future environmental challenges. Despite increasing awareness of environmental problems, Canadian faculties of education seem to be falling short in addressing this critical need. We surmise the reasons for this can be linked with barriers to ESE-PTE programming, which we turn our attention to next. After all, if barriers to programming exist, teacher preparation falters.

Barriers to ESE-PTE Programming. An important part of our study involved assessing the types of barriers our participants felt were impeding ESE-PTE programming in their faculties. While our findings confirm that ESE still has many advocates in PTE programs across the country, it remains on the curricular margins, and barriers to its entrenchment mirror those faced by many new and novel subject areas. Yueh et al. (2010) examined this phenomenon in detail in the context of the introduction of environmental education in the

Taiwanese national curriculum. Yueh et al. (2010) based much of their work on the earlier work of Layton (1972) and Goodson (1987) which primarily focused on K-12 curriculum implementation in the UK.

Yueh et al. (2010) noted that the most important factor in hindering the successful introduction of a new subject area was the lack of its presence in the academic timetable. In our study, our participants indicated that timetabling was a problem for ESE in their PTE programs, noting in particular that there was “too much competition with other preservice courses” (mean = 4.3/5, with 85 % indicating that this is “important,” rated 4 or 5), and that there was a “lack of time in the timetable” (mean = 3.6/5, 62% indicating that this is “important,” rated 4 or 5). These two factors were identified as the first- and fourth-highest barriers to teaching ESE.

Current study (rank)	Lin (2002) (rank)
1. Competition with other PTE courses.	n/a ^a
2. Lack of senior administrator support.	3. Lack of administrative/faculty support for EE in programs
3. Lack of faculty colleague support.	n/a
4. Lack of time in the PTE program timetable.	2. Lack of time/space in pre-service teaching programs
5. Lack of professional governing body recognition.	n/a
6. Inadequate funding for field experiences.	1. Inadequate funding
7. Lack of fit, or alignment, between ESE-PTE curriculum and K-12 curriculum.	4. No demand/mandate/interest of EE in institutions and/or schools
8. Inadequate tools for assessing ESE-PTE in K-12 education.	n/a
9. Lack of communication among ESE educators.	10.5 Lack of communication among EE educators
10. Inadequate ESE teaching materials.	8.5 Inadequate texts for K-12 schools & 5. Inadequate teaching materials and equipment
11. Lack of research in effective ESE teaching.	10.5 Lack of research
12. Lack of Canadian content in learning.	6.5 Lack of Canadian content in materials 11. EE is only offered in the summer
13. Inadequate access to online ESE resources.	6.5. Inadequate texts for teachers

Table 3. Barrier rankings in the current study and Lin (2002)
Note.^a Lin (2002) did not collect data for these barriers.

Our participants also indicated that lack of support from senior administrators was also a significant obstacle. In fact, “lack of senior administration support” was identified as the second-most important barrier to advancing ESE. In

addition, without the support of faculty colleagues, it is hard to influence administrative decisions. While Swayze et al. (2012) did not explore barriers to ESE-PTE implementation, they did note that “[i]n many instances, the traditional academic culture was itself considered to be a barrier to reorienting teacher education to ESD” (p. 61). Lin (2002), on the other hand, identified the following as major barriers impeding ESE-PTE: “barriers in institutional practices and organizations, barriers at the faculty level, and barriers encountered by instructors of preservice teachers” (p. 212). Interestingly, Lin (2002) stated that at “the faculty level, a lack of awareness, interest, commitment, direction, and leadership” were significant implementation barriers (p. 213). Table 3 provides a comparison of the current study’s rankings of barriers with those reported in Lin’s (2002) study.

Yueh et al. (2010) noted that lack of a university department to house a new subject, lack of external examinations, and lack of support from a coherent group of faculty members were important factors hindering the new subject’s implementation. In our study, we found that the second-most important barrier our participants noted was “lack of faculty colleague support for ESE.” Also, our findings indicate that ESE faculty members and courses tended to be associated with science education departments, and that the interdisciplinary nature of ESE may have caused it not to be taken as seriously as other courses by colleagues teaching in the more traditional “hard” science disciplines.

Further, Yueh et al. (2010) also points out the importance of “the presence of central government leadership.” In our study, we expected that a “lack of professional governing body leadership” would be an important barrier, and our findings confirmed this. We believe that as long as provincial K–12 curricula do not formally recognize or include ESE-related topics and activities, post-secondary administrators will be less inclined to prioritize ESE within PTE programs. Similarly, we believe that ESE will remain marginalized in PTE programs if provincial accrediting bodies continue to resist making ESE a “teachable subject” required for teacher accreditation. An interesting finding in our study was the split in our participants’ responses to “lack of fit, or alignment, between ESE in PTE programs and ESE in K-12 Curriculum” as a barrier. Approximately half considered this to be a “very important” or “important” barrier, with the other half believing it to be a “somewhat unimportant” or “unimportant” barrier. This may be a reflection of provincial differences in curricular fit. While our sample size is too small to make reliable generalizations, it is interesting to note that the two participants from the oil-producing and strongly conservative province of Alberta indicated that this is an important barrier (mean = 4.5), as did the two respondents from the Maritime provinces (mean = 4). Conversely, the seven participants from British Columbia, where the provincial curriculum offers more opportunities for ESE integration, did not see this as a major issue (mean = 2.0).

Similar to Lin’s (2002) findings, a majority of our participants did not view “lack of communication among ESE educators” or “lack of research in

effective ESE teaching” as significant barriers. Given the prevalence of digital communication and rapid dissemination of research, these are unlikely to be key factors hindering ESE’s integration any longer. Furthermore, “lack of ESE teaching resources and equipment,” “lack of Canadian content in learning materials,” “inadequate access to online resources,” and “inadequate tools for assessing ESE in K-12 students in schools,” were relatively “unimportant” or non-problematic barriers in Canadian ESE-PTE. This aligns with Lin’s (2002) findings.

ESE-PTE Pedagogy. Our study included several items exploring participants’ use of Sauvé’s (2005) environmental education “currents.” The three highest-rated currents were the Indigenous current, the Bioregionalist/Place-Based current, and the Praxic current. These findings align with Evans et al. (2017), who identified “inquiry and/or place-based education, experiential education, constructivist and/or socially critical approaches, [and] integrating theory” as popular theoretical propositions. However, Evans et al. (2017) concluded that (at the time) “it was not possible to create a useful taxonomy of theoretical approaches to embedding sustainability in teacher education” (p. 411–412). Table 4 lists Sauvé (2005) “currents” in terms of their historical relevance.

Among those “currents” with a Longer Tradition in Environmental Sustainability Education (ESE)	Among those “currents” more Recently Emerged in Environmental Sustainability Education (ESE)
Naturalist Current Conservationist/Resourcist Current Problem-Solving Current Systemic Current Scientific Current Humanist/Mesological Current Value-centered Current	Holistic Current Bioregionalist Current Praxic Current Socially Critical Current Feminist Current Ethnographic Current Education Current Sustainable Development/Sustainability Current

Table 4. Sauvé’s (2005) Currents of Environmental Education

Of interest and perhaps needing further exploration are those “currents” that received the lowest ratings in our survey, namely, the Problem-solving current, the Sustainable Development/Sustainability current, the Conservationist/Resourcist current, and the Feminist current. Particularly interesting in the Canadian context is that given the UN DESD, the “sustainable development” current was not seen as particularly important by the faculty members we surveyed. There are several reasons that may explain this: (1) the allegiance to the Standing Committee of ESE-PTE’s preference to “ESE” over ESD; (2) reasonable critiques against ESD within the Canadian academic community (Jickling, 1994); and (3) the skewing of participants to jurisdictions where currents other than ESD prevail (BC and Ontario). While in certain parts of Canada resource extraction

industries have spent considerable funds to promote a “Resourcist” approach to ESE (e.g., Keary & Chestnut, 2025), our participants have indicated that this approach is not seen as having a significant place in PTE programs.

Further, we assessed participants’ views on the effectiveness of various pedagogical approaches in ESE teaching and learning, and found that, overall, participants—not unexpectedly—rated “Active, Experiential Learning,” “Field-based Experiences,” and “Nature-based Experiences,” as the three most common pedagogical approaches in their ESE-PTE programs. Swayze et al. (2012) determined that 50% of participants had made significant progress in incorporating “interdisciplinary learning and pedagogical approaches that are consistent with ESD (e.g., systems thinking, futures thinking, active learning, and emphasizing local and global perspectives)” (p. 43). However, comparisons to Lin (2002) are not possible, as her study did not assess this characteristic of ESE-PTE.

Conclusions

This study has found that a large majority of Canadian faculty involved in ESE-PTE are full-time academics with backgrounds in life sciences and education, a pattern that has remained largely unchanged over time. It also shows that interest in and engagement with ESE-PTE within faculties of education across Canada has remained relatively stable.

The study further indicates that, while Canadian ESE-PTE programs are often afforded lower status than more traditional subject areas, such as science and history, nation-wide, most participants believe they should be given greater, if not equal, importance. Participants emphasized that ESE programming plays a key role in developing preservice teachers’ capacity to integrate ESE topics into their teaching in meaningful and action-oriented ways.

Despite showing strong support for including ESE in PTE programming, this study indicates that there is ongoing concern about preservice teacher preparedness, noting that a large proportion of preservice teachers are not adequately equipped to address ESE in their future careers. Participants identified several key barriers that help explain this gap, including limited time within a crowded curriculum, competition with other required courses, and the interdisciplinary nature of ESE, which can make it difficult to implement. They also pointed to a lack of support from senior administrators, limited engagement of faculty colleagues, and insufficient leadership from professional governing bodies. These challenges point to a broader issue in Canada, in that ESE is taught inconsistently in PTE programs, and not always covered with the depth it requires.

In terms of theoretical approaches, the study found that participants placed highest value on Indigenous perspectives, bioregional or place-based approaches, and praxic frameworks that emphasize action and reflection. This emphasis supports wider calls for approaches that may better integrate

Indigenous knowledge with ESE. In contrast, approaches that focus mainly on problem-solving, sustainability frameworks, resource management, and feminist perspectives were rated lower, possibly because they are seen as more abstract or systems-based approaches and less directly amenable to experiential or place-based learning, which were themselves more highly preferred methods. Participants may have indicated preference for these strategies because they see them as moving learning beyond simple awareness and toward more practical, action-oriented engagement.

The findings of this research connect to a broader national conversation about the essential role teachers play in enhancing environmental literacy, sustainable behaviour, and informed decision-making (Environment and Climate Change Canada, 2024), while simultaneously revealing the numerous, persistent implementation challenges faced by Canada's PTE programs.

Overall, while this study shows broad agreement on the importance of providing high-quality ESE-PTE programs across Canada, it also indicates that successful large-scale implementation continues to lag. Strengthening ESE-PTE will require a more concerted effort in addressing the key gaps and barriers outlined in this and earlier research, including the establishment of clearer and more consistent program standards, improving the overall depth and quality of preservice teacher preparation, and providing ongoing support and professional learning for preservice teachers and their PTE program educators. Furthermore, ESE should be made more prominent and better integrated into PTE program curricula, rather than it being treated as a necessary, even vital, yet peripheral add-on. Without successfully addressing these persistent and long-standing challenges, large-scale and effective implementation will likely continue to lag despite widespread recognition of ESE-PTE's importance.

Implications and Recommendations

In Canada, over 10 years have passed since Swayze et al. (2012) published their research, and over 20 years have elapsed since Lin (2002) released her study. Over this period, socio-ecological challenges have grown more urgent, increasing the need for improvements in ESE-PTE. While ESE and related disciplines have maintained a presence in PTE programs, they remain sustained by a relatively small contingent of highly dedicated faculty members and administrators.

In the absence of provincial government direction, many teacher accreditation bodies are not recognizing ESE and related disciplines as "teachable subjects"¹⁰ (Alberta Education, 2020; British Columbia Ministry of Education, 2023; Ontario College of Teachers, n.d.; Ontario Ministry of Education, 2017; Swayze et al., 2012). As a result, most faculty members and senior faculty administrators are unlikely to prioritize ESE in their PTE programs. This study, therefore, is both timely and necessary. It provides an important assessment of the status of ESE-PTE in Canadian faculties of

education at a time when significant improvements are needed. In general, we find the current status of Canadian ESE-PTE to be unacceptable, and in need of significant improvement. Therefore, we make the following recommendations aimed at enhancing ESE-PTE across Canada:

Policy Advocacy

- Members of the EECOM Standing Committee on ESE-TE, and ESE educators more broadly, are called to focus more of their energies on ESE-PTE advocacy/lobbying with relevant government bodies (e.g., ministries of education), professional associations (e.g., ACDE, provincial teacher accreditation bodies), and other policy-making bodies.
- The EECOM Standing Committee on ESE-TE, and ESE educators more broadly, should focus on strengthening links between ministries of education and ministries of the environment to raise the profile and legitimacy of ESE-related curricula in K-12 systems across Canada. Once governments officially recognize the essential nature of ESE-related curricula and instruction, teacher accreditation bodies should then be more willing to recognize preservice teachers' credentials in undergraduate (or graduate) environmental/sustainability education, environmental/sustainability science, and related disciplines, and recognize ESE as a K-12 "teachable subject".

Research

- Retrospective and/or current policy research on the development of ESE-PTE policy at the government level (ministry-level), association level (e.g., ACDE-, CMEC-level), or institution level (e.g., PTE provider-level, university-level, faculty-level).
- Longitudinal surveys examining national and international trends in ESE-PTE.
- Survey-based research on the status and current development of Canadian ESE- PTE in the context of faculty administrators (deans, associate deans, provosts).
- Mixed methods research on the status and current development of Canadian ESE- PTE in the context of faculty members (instructors, professors, researchers).
- Comparative research examining how formerly marginalized fields (e.g., feminism, multiculturalism, information technology) successfully transitioned from post-secondary curricular margins to the curricular mainstream, in relation to curricular developments in ESE-PTE.
- In depth case study research into ESE-PTE barriers and solutions.

These policy advocacy and research recommendations sow the seeds for another generation of ESE-PTE researchers to extend the work of an earlier

generation of scholars (Rioux, 1973; Towler, 1980; Lin, 2002; and Swayze et al., 2012) by an additional 15 years. Such iterative contributions are vital to tracking the history of the field. It is our hope that contemporary and future ESE-PTE researchers extend this scholarly activity moving forward to prepare the next generation of teachers, and by implication, future generations of children, to live safely, ethically, knowingly, and flourishingly in an uncertain world.

Notes

- ¹ In the Canadian context, researchers and educators are increasingly adopting the expression and acronym “environmental and sustainability education” (ESE) as a hybrid of more established expressions, such as “environmental education” (EE) and “education for sustainable development” (ESD).
- ² In this paper, the term “preservice teacher” is used synonymously with “preservice student” and “student teacher,” referring to individuals enrolled in initial teacher education programs who have not yet obtained certification or entered the profession as fully qualified teachers.
- ³ The National Roundtable on Environmental and Sustainability Education in Preservice Teacher Education, the first of its kind in Canada, brought together 73 delegates who attended the 3-day event (Karrow & DiGiuseppe).
- ⁴ For the purposes of this manuscript and length restrictions, only the quantitative data is presented and analyzed.
- ⁵ “In cross-sectional survey design, the researcher collects data at one point in time” (Creswell & Guetterman, 2019, p. 386).
- ⁶ Indigenous Current: This current actively connects Indigenous and traditional understandings of human connections and participation in the natural world.
- ⁷ The Research Development Group was a sub-set of Standing Committee members who conceptualized and developed the survey.
- ⁸ The Research Author Team included: Douglas Karrow, Richard Kool, Matthew Trafford, Maddie Sturgeon, and Maurice DiGiuseppe
- ⁹ The Research Author Team acknowledge the translation contribution of Dr. Laura Sims, Université de Saint Boniface in Winnipeg, Manitoba.
- ¹⁰ The courses identified by participants are courses required as part of teacher certification.
- ¹¹ For the purposes of this discussion, Lin’s (2002) survey research, which references Rioux’s (1973) and Towler’s (1980) works, will serve as a comparison baseline.
- ¹² “Teachable subject” refers to distinct, certifiable areas of specialization for which teachers may obtain formal qualifications, commonly including subjects such as Science, History, and Mathematics. These “teachable subjects” contrast with non-certifiable content that is commonly addressed through the integration of cross-curricular themes across a variety of subjects, including areas such as Indigenous Education, Citizenship Education, and Numeracy.

Notes on Contributors

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Matthew Trafford is a Master of Education graduate from Brock University whose research interests include pedagogy in higher education, and the psychosocial dimensions of the student experience.

Madelyn (Maddie) Sturgeon recently completed her M.Ed. in Education at Brock University. Her MRP, grounded in environmental and sustainability education, examines consumerism in K–12 contexts through a critical pedagogy lens

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Appendix A: French Language Institutions Contacted

Université de Moncton	Université du Québec en Abitibi-Témiscamingue
Université de Saint Boniface	Université du Québec en Outaouais
Université du Québec à Montréal*	Université du Québec à Rimouski
Université du Sherbrooke*	Université du Québec à Trois-Rivières
Université Laval	

* Two invitations to this institution

Appendix B: English Language Institutions Contacted

Acadia University	Bishop's University
Brandon University	Brock University
Burman University	Cape Breton University
King's University College	Lakehead University
Laurentian University	Memorial University of Newfoundland
Mount Royal University	Nipissing University
Queen's University	Red Deer College
Saint Francis Xavier University	Simon Fraser University*
Thompson Rivers University	Trent University
Trinity Western University	University College of the North
University of Alberta	University of British Columbia*
University of Lethbridge	University of Manitoba
University of Northern British Columbia	University of Ontario Institute of Technology*
University of Ottawa	University of Prince Edward Island
University of Regina	University of Saskatchewan*
University of Toronto/OISE	University of Victoria
University of Windsor	University of Winnipeg
Vancouver Island University	Western University
York University	

* Two invitations to this institution

Appendix C: English Language Survey

The Canadian Network for Environmental Education and Communication (EECOM) Standing Committee on Environmental and Sustainability Education in Teacher Education (ESE-TE)* is conducting a survey to examine the status of ESE and associated domains in Canadian Faculties of Education.

We invite you to participate in this survey, which will help us develop a contemporary picture of ESE in preservice teacher education in Canada and allow us to begin to draft recommendations to help advance programs, policy, and practice.

Please answer the survey questions in the context of this past academic year, 2017/2018. While the survey will use the term Environmental and Sustainability Education (ESE) throughout, we are referring to a range of approaches including Environmental Education, Sustainability Education, Education for Sustainability, Education for Sustainable Development, Energy Education, Outdoor Education, Place-based Education etc.

Your responses will be anonymous. This survey will not collect any identifying information beyond your institutional affiliation and your position/rank within the institution; however, this information may make you identifiable and this should be taken into consideration in your decision to participate. In reports and presentation emerging from the study, data will be pooled, and responses will be reported in a way that minimizes the possibility of participant identification. There will be no linkage between your consent to participate and the answers you provide in the survey.

The data collected will be stored on a Canadian server and will not be subject to scrutiny under the US Patriot Act. There are no anticipated risks involved in your participation in the survey, although it is possible that you may experience some emotional distress related to the topic. If you do not want to participate, please do NOT press the final 'submit' button on the survey; you do not have to submit the completed survey. Your submission of the completed survey is an indication that you have read and are fully informed about and give consent to participate in the project. Once the survey is submitted, we will not be able to find and remove your submission. Raw data will be archived for future comparative studies.

If you do not have enough time to complete the survey in one sitting, you can return to the partially completed survey by clicking on the link you received in your invitation email. The survey should take approximately 30–45 minutes to complete and includes options for open-ended responses. Once you click on the final 'submit' button, you will not be able to enter the survey again.

The project has been reviewed and has received ethical approval from each of the participating institutions as required.

Findings from the research will be shared with those who have been invited to participate and others who are interested in the findings.

Many thanks for your willingness to engage in this research project.

Members of the ESE-TE Research group... [names deleted]

Please start by clicking on the NEXT button below.

What position do you currently hold at your institution?

- 1. Part-time/sessional faculty
- 2. Full-time faculty
- 3. Department head
- 4. Faculty administrator (Assistant or Associate Dean)

In your view, relative to content currently required in your faculty’s preservice teacher education, ESE:

	High priority		Medium priority		Low priority
is considered to be a...	☐	☐	☐	☐	☐
should be considered to be a...	☐	☐	☐	☐	☐

What type of ESE-related courses does your faculty/program offer? Select all that apply.

- 1. General survey course(s)
- 2. Field-based courses
- 3. Methods courses
- 4. Science-based courses (e.g., ecology, sustainability, natural history)
- 5. Humanities-based courses (e.g., environmental philosophy, environmental arts)
- 6. Social science-based courses (e.g., environmental psychology)
- 7. None
- 8. Comments / Other _____

Lucie Sauvé (2005) identified ‘currents’, or theoretical frameworks, which influence environmental pedagogy (see Currents in Environmental Education: Mapping a complex and evolving pedagogical field. Canadian Journal of Environmental Education, 10, 11–37). How are these ‘currents’, outlined below, present in your Faculty’s ESE-TE courses or program?

	Not at all (1)	2	3	4	A principal 'current' (5)
Bioregionalist/Place-based Current: "... leads us to see a place from the point of view of natural and social systems, whose dynamic relations contribute to creating a sense of "living place" rooted in natural as much as cultural history."	☐	☐	☐	☐	☐
Conservationist/resourceist Current: "... centered on resource "conservation... Concern for environmental "management" is a recurring theme."	☐	☐	☐	☐	☐
Eco-Education Current: "dominated more by educational concerns than environmental ones. There is no question of pragmatic solving problems or 'managing' the environment, but rather of leveraging our relationship with the environment to further personal development as the basis of meaningful and responsible action."	☐	☐	☐	☐	☐
Ethnographic Current: "... proposes not only that pedagogy should be adapted to different cultural realities, but also that inspiration be drawn from the pedagogy of these diverse cultures, which have another relationship to the environment."	☐	☐	☐	☐	☐
Feminist Current: "...sheds light on the relations between the domination of women and the domination of nature..."	☐	☐	☐	☐	☐
Holistic Current: "... an exclusively analytic and rational approach to environmental realities is at the origin of many contemporary problems..."	☐	☐	☐	☐	☐
Humanist Current: "...places the accent on the human dimension of the environment, forged at the junction of nature and culture."	☐	☐	☐	☐	☐
Indigenous Current: "... actively connects indigenous and traditional understandings of human connections and participation in the natural world	☐	☐	☐	☐	☐

Naturalist Current: "...centered on human relationships with nature."	☐	☐	☐	☐	☐
Praxic Current: "...emphasizes learning in action, by action, and for the ongoing improvement of action."	☐	☐	☐	☐	☐
Problem-Solving Current: "the environment is considered first as a set of problems."	☐	☐	☐	☐	☐
Scientific Current: "...tackling environmental realities and problems rigorously, of better understanding them and more specifically identifying their cause-and-effect relationships."	☐	☐	☐	☐	☐
Socially Critical Current: "...promotes analysis of the social dynamics underpinning environmental realities and problems..."	☐	☐	☐	☐	☐
Sustainable Development/ Sustainability Current: "...economic development is at the basis of human development and recognizes that a "sustainable" economy is closely linked to the conservation of natural resources and the equitable sharing of resources..."	☐	☐	☐	☐	☐
Systems/systemic Current: "Systemic analysis allows for identification of the various components of an environmental situation or issue, as well as for distinguishing their interrelations, including the relations among biophysical and social elements."	☐	☐	☐	☐	☐
Value-centered Current: "...the foundation of our relationship to the environment is moral or ethical in nature..."	☐	☐	☐	☐	☐

Of the "currents" you rated 4 or 5, please rank the top 5 currents you believe are the most influential in your faculty (with 1 being the most influential).

- Bioregionalist/Place-based Current: "...leads us to see a place from the point of view of natural and social systems, whose dynamic relations contribute to creating a sense of "living place" rooted in natural as much as cultural history." _____
- Conservationist/resourceist Current: "...centered on resource "conservation... Concern for environmental "management" is a recurring theme." _____
- Eco-Education Current: "dominated more by educational concerns than environmental ones. There is no question of pragmatic solving problems or 'managing' the environment, but rather of leveraging our relationship with the environment to further personal development as the basis of meaningful and responsible action." _____

- Ethnographic Current: "... proposes not only that pedagogy should be adapted to different cultural realities, but also that inspiration be drawn from the pedagogy of these diverse cultures, which have another relationship to the environment." _____
- Feminist Current: "...sheds light on the relations between the domination of women and the domination of nature..." _____
- Holistic Current: "... develop new forms of understanding" _____
- Humanist Current: "...places the accent on the human dimension of the environment, forged at the junction of nature and culture." _____
- Indigenous Current: "... actively connects indigenous and traditional understandings of human connections and participation in the natural world" _____
- Naturalist Current: "...centered on human relationships with nature." _____
- Praxic Current: "...emphasizes learning in action, by action, and for the ongoing improvement of action." _____
- Problem-Solving Current: "the environment is considered first as a set of problems." _____
- Scientific Current: "...tackling environmental realities and problems rigorously, of better understanding them and more specifically identifying their cause-and-effect relationships." _____
- Socially Critical Current: "...promotes analysis of the social dynamics underpinning environmental realities and problems..." _____
- Sustainable Development/ Sustainability Current: "...economic development is at the basis of human development and recognizes that a "sustainable" economy is closely linked to the conservation of natural resources and the equitable sharing of resources..." _____
- Systems/systemic Current: "Systemic analysis allows for identification of the various components of an environmental situation or issue, as well as for distinguishing their interrelations, including the relations among biophysical and social elements." _____
- Value-centered Current: "...the foundation of our relationship to the environment is moral or ethical in nature..." _____

Please rank according to importance to your program or Faculty, some rationales commonly cited as supporting and advancing ESE in preservice teacher education (select all that apply).

- Preparing student teachers to develop the capacity to embed ESE into their teaching practices _____
- Preparing student teachers to develop the commitment to embed ESE into their teaching practices _____
- Responding to international educational policy priorities _____

- Challenging contemporary neo-liberal and market-oriented approaches to education _____

Below are some commonly reported problems or barriers concerning the teaching of ESE in a preservice teacher education program. How important are these commonly reported problems or barriers to your preservice teacher education program?

	Unimportant (1)	2	3	4	Very important (5)
Lack of senior administration support for ESE in my Faculty of Education	☐	☐	☐	☐	☐
Inadequate access to online ESE resources	☐	☐	☐	☐	☐
Lack of communication among ESE educators	☐	☐	☐	☐	☐
Inadequate funding for field experiences	☐	☐	☐	☐	☐
Inadequate teaching materials and equipment	☐	☐	☐	☐	☐
Lack of research in effective ESE teaching	☐	☐	☐	☐	☐
Lack of faculty colleague support for ESE	☐	☐	☐	☐	☐
Too much competition with other preservice courses	☐	☐	☐	☐	☐
Lack of time in timetable within my Faculty of Education	☐	☐	☐	☐	☐
Lack of Canadian content in learning materials	☐	☐	☐	☐	☐
Lack of fit of ESE content with K-12 curriculum in schools	☐	☐	☐	☐	☐
Lack of recognition by College of Teachers (or equivalent) that ESE is a legitimate teachable subject	☐	☐	☐	☐	☐
Inadequate tools for assessing ESE in K-12 students in schools	☐	☐	☐	☐	☐

Of the problems or barriers, you rated 4 or 5, please rank the top 5 you believe are the most pressing in your faculty (with 1 being the most influential).

- Lack of senior administration support for ESE in my Faculty of Education _____
- Inadequate access to online ESE resources _____
- Lack of communication among ESE educators _____
- Inadequate funding for field experiences _____
- Inadequate teaching materials and equipment _____
- Lack of research in effective ESE teaching _____
- Lack of faculty colleague support for ESE _____
- Too much competition with other preservice courses _____
- Lack of time in timetable within my Faculty of Education _____
- Lack of Canadian content in learning materials _____
- Lack of fit of ESE content with K-12 curriculum in schools _____
- Lack of recognition by College of Teachers (or equivalent) that ESE is a legitimate teachable subject _____
- Inadequate tools for assessing ESE in K-12 students in schools _____

If there are other constraints and/or challenges faced by teacher educators who wish to embed ESE into preservice teacher education at your institution, please explain.

Do you plan on initiating an ESE program or ESE courses in your faculty?

1. Yes, we do plan on implementing ESE courses/program
2. No, we do not intend on implementing ESE courses/program

Can you please explain what your preservice teacher education program intends to do around incorporating ESE.

What would you find most helpful in initiating an ESE program or ESE courses in your faculty. Please rank the top 5 initiatives you believe would be most helpful from the list below (with 1 being the most helpful).

- Developing basic ESE knowledge and skills and understanding about the role of the teacher educator _____
- Exploring how to integrate ESE into existing teacher education programming _____
- Continuing Professional Development with teacher educators to grow and gain confidence through critical reflective practice _____
- Developing partnerships and networks of Teacher Education Institutions for developing teacher educators' competencies in ESE through collaboration _____
- Developing novel ESE curriculum and resources _____
- Developing monitoring and assessment strategies and Quality Assurance instruments to assess programs _____
- Recognition of ESE as a teachable subject by provincial accreditation boards _____

Below are some commonly reported problems or barriers concerning the teaching of ESE in a preservice teacher education program. How important are these commonly reported problems or barriers to your preservice teacher education program?

	Unimportant (1)	2	3	4	Very important (5)
Lack of senior administration support for ESE in my Faculty of Education	☐	☐	☐	☐	☐
Inadequate access to online ESE resources	☐	☐	☐	☐	☐
Lack of communication among ESE educators	☐	☐	☐	☐	☐
Inadequate funding for field experiences	☐	☐	☐	☐	☐
Inadequate teaching materials and equipment	☐	☐	☐	☐	☐
Lack of research in effective ESE teaching	☐	☐	☐	☐	☐
Lack of faculty colleague support for ESE	☐	☐	☐	☐	☐

Too much competition with other preservice courses	☐	☐	☐	☐	☐
Lack of time in timetable within my Faculty of Education	☐	☐	☐	☐	☐
Lack of Canadian content in learning materials	☐	☐	☐	☐	☐
Lack of fit of ESE content with K-12 curriculum in schools	☐	☐	☐	☐	☐
Lack of recognition by College of Teachers (or equivalent) that ESE is a legitimate teachable subject	☐	☐	☐	☐	☐
Inadequate tools for assessing ESE in K-12 students in schools	☐	☐	☐	☐	☐

Of the problems or barriers, you rated 4 or 5, please rank the top 5 you believe are the most pressing in your faculty (with 1 being the most influential).

- Lack of senior administration support for ESE in my Faculty of Education _____
- Inadequate access to online ESE resources _____
- Lack of communication among ESE educators _____
- Inadequate funding for field experiences _____
- Inadequate teaching materials and equipment _____
- Lack of research in effective ESE teaching _____
- Lack of faculty colleague support for ESE _____
- Too much competition with other preservice courses _____
- Lack of time in timetable within my Faculty of Education _____
- Lack of Canadian content in learning materials _____
- Lack of fit of ESE content with K-12 curriculum in schools _____
- Lack of recognition by College of Teachers (or equivalent) that ESE is a legitimate teachable subject _____
- Inadequate tools for assessing ESE in K-12 students in schools _____

In the 2017/2018 academic year, did the preservice teacher education program include an ESE course that all preservice students were required to take?

1. Yes
2. No
3. Comments _____

As the preservice teacher education program includes an ESE course(s) in the 2017/2018 academic year that all preservice students were required to take, tell us about those specific courses:

	Course name	Primary (P), Intermediate (I) or Secondary (S) Years	Duration (hours)	Total 2017/2018 enrollment	Do students receive recognition upon completion (e.g., a certificate)
Course 1	☐	☐	☐	☐	☐
Course 2	☐	☐	☐	☐	☐
Course 3	☐	☐	☐	☐	☐
Course 4	☐	☐	☐	☐	☐
Course 5	☐	☐	☐	☐	☐

In the 2017/2018 academic year, did the preservice teacher education program have courses that included ESE content as one of a number of components and that all preservice students were required to take?

1. Yes
2. No
3. Comments _____

As the preservice teacher education program had courses in the 2017/2018 academic year that included ESE content as one of a number of components that all preservice students were required to take, tell us about those specific courses:

	Course name	Primary (P), Intermediate (I) or Secondary (S) Years?	Duration (hours)	Total 2017/18 enrolment	Do students receive recognition upon completion (e.g., a certificate)
Course 1	☐	☐	☐	☐	☐
Course 2	☐	☐	☐	☐	☐
Course 3	☐	☐	☐	☐	☐
Course 4	☐	☐	☐	☐	☐
Course 5	☐	☐	☐	☐	☐

Did the preservice teacher education program offer non-required (e.g., elective/ optional) ESE courses primarily focused on ESE-related teaching methods in the 2017/2018 academic year?

- 1. Yes
- 2. No
- 3. Comments _____

As the preservice teacher education program included non-required (e.g., elective/optional) ESE courses primarily focused on ESE-related teaching methods, tell us about those specific courses:

	Course name	Primary (P), Intermediate (I) or Secondary (S) Years?	Duration (hours)	Total 2017/18 enrolment	Do students receive recognition upon completion (e.g., a certificate)
Course 1	☐	☐	☐	☐	☐
Course 2	☐	☐	☐	☐	☐
Course 3	☐	☐	☐	☐	☐
Course 4	☐	☐	☐	☐	☐
Course 5	☐	☐	☐	☐	☐

Did the preservice teacher education program offer non-required (e.g., elective/ optional) courses primarily focused on ESE-related content in the 2017/2018 academic year?

- 1. Yes
- 2. No
- 3. Comments _____

As the preservice teacher education program included non-required (e.g., elective/optional) ESE courses primarily focused on ESE-related content, tell us about those specific courses:

	Course name	Primary (P), Intermediate (I) or Secondary (S) Years?	Duration (hours)	Total 2017/18 enrolment	Do students receive recognition upon completion (e.g., a certificate)
Course 1	☐	☐	☐	☐	☐
Course 2	☐	☐	☐	☐	☐
Course 3	☐	☐	☐	☐	☐
Course 4	☐	☐	☐	☐	☐
Course 5	☐	☐	☐	☐	☐

In the 2017/2018 academic year, did the preservice teacher education program charge students additional fees (e.g., incidental fees) for ESE-based courses?

- 1. Yes
- 2. No
- 3. Not sure _____

As your preservice teacher education program charged students additional fees for ESE-based courses, indicate the approximate amount(s) charged per course.

In the 2017/2018 academic year, in your opinion, what percentage of preservice students graduating from your faculty received adequate preparation in ESE?

	0–10 %	11–30 %	31–50 %	51–70 %	71–90 %	91–100 %
Elementary (primary /junior, grades K-5) preservice teachers	☐	☐	☐	☐	☐	☐
Middle School (junior /intermediate, grades 6–8) preservice teachers	☐	☐	☐	☐	☐	☐
Secondary (intermediate / senior, grades 9–12) preservice teachers	☐	☐	☐	☐	☐	☐

In the 2017/2018 academic year, did the preservice teacher education program allow “major” and/or “minor” specialization in ESE?

1. “Major” specialization
2. “Minor” specialization
3. Both
4. None
5. Not sure
6. Comments (please describe what your major or minor specialization in your program) _____

Below are some common pedagogical approaches employed in ESE. Considering the choices below, please rank the top 5 approaches that, in your opinion, are most effective in addressing ESE in a preservice program (with 1 being the most effective in your opinion).

- Active, experiential learning _____
- Community-based learning _____
- Community-service learning _____
- Critical pedagogy _____
- Cross-curricular integration and learning _____
- Field-based experiences _____
- Inquiry-based learning _____
- Interdisciplinary learning _____
- Nature-based learning _____
- Project-based learning _____

What acknowledgements, encouragements and/or incentives (if any) are offered

to teacher educators who wish to embed ESE into preservice teacher education at your institution?

Are you or any of your faculty colleagues involved in funded non-research projects (e.g., development of learning resources or curricula) in ESE?

- 1. Yes
- 2. No

As you or your colleagues are involved in funded non-research projects (e.g., development of learning resources or curricula) in ESE, can you give project title(s) and brief descriptions?

Are you or any of your faculty colleagues involved in funded research projects in ESE?

- 1. Yes
- 2. No

As you or your faculty colleagues are involved in funded research projects in ESE, can you give project title(s) and brief descriptions?

Are you or your faculty colleagues involved in non-funded research projects in ESE?

- 1. Yes
- 2. No

As you are involved in non-funded research projects in ESE, can you give project title(s) and descriptions?

In your opinion, during the 2017/2018 academic year, which categories (if any) of your elementary school (~ grades K-5) preservice teacher candidates engaged in ESE work during their school-based practica? (if you have no opinion or have no students in this category, skip this question)

	0–10 %	11–30 %	31–50 %	51–70 %	71–90 %	91–100 %
Elementary Science	☐	☐	☐	☐	☐	☐
Elementary Language Arts	☐	☐	☐	☐	☐	☐
Elementary Maths	☐	☐	☐	☐	☐	☐
Elementary Social Studies	☐	☐	☐	☐	☐	☐
Elementary Physical Education	☐	☐	☐	☐	☐	☐
Elementary Technology Education	☐	☐	☐	☐	☐	☐
Elementary Arts	☐	☐	☐	☐	☐	☐

In your opinion, during the 2017/2018 academic year, which categories (if any) of middle school (~ grades 6–8) preservice teacher candidates engaged in ESE work during school-based practica? (if you have no opinion or have no students in this category, skip this question)

	0–10 %	11–30 %	31–50 %	51–70 %	71–90 %	91–100 %
Middle-school Sciences	☐	☐	☐	☐	☐	☐
Middle-school Language Arts	☐	☐	☐	☐	☐	☐
Middle-school Maths	☐	☐	☐	☐	☐	☐
Middle-school Social Studies	☐	☐	☐	☐	☐	☐
Middle-school Physical Education	☐	☐	☐	☐	☐	☐
Middle-school Technology Education	☐	☐	☐	☐	☐	☐
Middle-school Arts	☐	☐	☐	☐	☐	☐

In your opinion, during the 2017/2018 academic year, which categories (if any) of secondary school (~grades 9–12) preservice teacher candidates engaged in ESE work during school-based practica? (if you have no opinion or have no students in this category, skip this question)

	0–10 %	11–30 %	31–50 %	51–70 %	71–90 %	91–100 %
Secondary Sciences	☐	☐	☐	☐	☐	☐
Secondary Language Arts	☐	☐	☐	☐	☐	☐
Secondary Maths	☐	☐	☐	☐	☐	☐
Secondary Social Studies	☐	☐	☐	☐	☐	☐
Secondary Physical Education	☐	☐	☐	☐	☐	☐
Secondary Technology Education	☐	☐	☐	☐	☐	☐
Secondary Arts	☐	☐	☐	☐	☐	☐

If your preservice teacher education program offers ESE-related courses, is there an expectation that teacher candidates taking such courses will engage in ESE practice during school-based practica?

- 1. Yes
- 2. No
- 3. Not sure
- 4. Not applicable
- 5. Comments _____

If preservice teacher candidates engage in school-based ESE work during practica, is this recognized, recorded, celebrated or assessed in any way?

- 1. Yes
- 2. No

Please explain how preservice teacher candidates engaged in school-based ESE work during practica are recognized, recorded, celebrated or assessed in any way.

Do teacher candidates that are particularly interested in ESE have opportunities to engage in (check all that apply):

1. Public school-based practica that support the candidate's interest in ESE
2. Private school-based practica that support the candidate's interest in ESE
3. Non-school based experiences (e.g., science centres, outdoor education facilities, camps) that support the candidate's interest in ESE
4. None of the above

As your program offers non-school based experiences, indicate the settings where those activities take place (check all that apply).

1. City farms
2. Environmental NGOs
3. Museums
4. Outdoor education centres
5. Rural farms
6. Science centres
7. Social justice NGOs
8. Zoos
9. None of the above
10. Other _____

Please provide the name of the institution you are reporting on in this survey.

1. Acadia University
2. Bishop's University
3. Brandon University
4. Brock University
5. Cape Breton University
6. Carleton University
7. Concordia University
8. Concordia University of Edmonton
9. Dalhousie University
10. Lakehead University
11. Laurentian University
12. McGill University
13. Memorial University of Newfoundland
14. Mount Saint Vincent University
15. Nipissing University
16. Queen's University
17. Redeemer University College
18. Saint Francis Xavier University
19. Saint Mary's University

20. Simon Fraser University
 21. St. Thomas University
 22. Thompson Rivers University
 23. Trent University
 24. Trinity Western University
 25. Université de Moncton
 26. Université de Montréal
 27. Université de Saint-Boniface
 28. Université de Sherbrooke
 29. Université du Québec à Chicoutimi
 30. Université du Québec à Montréal
 31. Université du Québec à Rimouski
 32. Université du Québec à Trois-Rivières
 33. Université du Québec en Abitibi-Témiscamingue
 34. Université du Québec en Outaouais
 35. Université Laval
 36. University College of the North
 37. University of Alberta
 38. University of British Columbia
 39. University of British Columbia-Okanagan
 40. University of Calgary
 41. University of King's College
 42. University of Lethbridge
 43. University of Manitoba
 44. University of New Brunswick
 45. University of Northern British Columbia
 46. University of Ontario Institute of Technology
 47. University of Ottawa
 48. University of Prince Edward Island
 49. University of Regina
 50. University of Saskatchewan
 51. University of the Fraser Valley
 52. University of Toronto
 53. University of Victoria
 54. University of Windsor
 55. University of Winnipeg
 56. Vancouver Island University
 57. Western University
 58. Wilfrid Laurier University
 59. York University
 60. Other _____
-

What is your academic background? (Please indicate all that apply)

1. Ecology/Environmental science
2. Environmental studies
3. Environmental education
4. Education
5. Life sciences
6. Physical/Earth sciences
7. Social sciences (e.g. geography, history)
8. Humanities
9. Fine Arts
10. Other _____

Layering participation pathways in school-based environmental education

Geneviève Grégoire-Labrecque & Natasha Blanchet-Cohen

Abstract

This article identifies possibilities for fostering meaningful and transformational participation by layering pathways of participation. Drawing on a year-long doctoral study in two Montreal high schools and their school service centre, this research explores three initiatives supporting environmental education: one elective curriculum-based course, one youth-led extracurricular activity, and one at the institutional level. Grounded in a comparative case study, informed by ethnographic and participatory approaches, the study suggests that multiple and concurrent participation pathways enable a relational and political approach to environmental education in schools. A more systemic approach to environmental education entails paying attention to intentionality and coherence within and across forms of participation that unfold at different levels.

Résumé

Cet article présente comment les parcours participatifs multiples encouragent les élèves à s'investir dans leur parcours de manière constructive et transformatrice. La recherche, inscrite dans le cadre d'une étude doctorale, s'est déroulée pendant un an dans deux écoles secondaires de Montréal et leur centre de services scolaires. Elle examine trois initiatives de soutien en éducation environnementale : un cours à option crédit, une activité parascolaire menée par des jeunes et une activité parascolaire proposée par l'école. Fondée sur des approches ethnographiques et participatives, cette étude de cas comparative montre que des parcours participatifs multiples suivis en parallèle favorisent une approche relationnelle et politique à l'éducation environnementale dans les écoles. La mise en place d'une approche systémique en éducation environnementale requiert un souci d'intentionnalité et de cohérence pour chaque forme de participation, et entre elles, perceptible sur plusieurs plans.

Keywords: environmental education, schools, young people, participation, pathways

Introduction

While the importance of young people's participation is well recognized, acknowledging, valuing, and acting upon it in school settings remains a challenge (Liebel & Meade, 2024; Wyness, 2018). Schools are rooted in political ideologies

and broader societal agendas, which often do not align with young people's environmental priorities and aspirations (Biswas, 2023). But safeguarding the planet's future entails exploring new possibilities for participation and education, including supporting young people in being part of their own learning journey (Biswas & Mattheis, 2021).

Informed by a year-long doctoral study, this article explores participation in environmental education in schools in terms of pathways. We suggest layering participation pathways as an avenue for meaningful and transformative participation in environmental education in school contexts. Below, we situate our study within the literature on approaches to environmental education and on youth's participation in schools.

Approaches to Environmental Education and Young People's Participation

Introduced in the 1970s by the United Nations Environment Program, environmental education aimed to (re)build healthy, meaningful, and ethical relationships with the natural world (Dorn, 2020). Now faced with human-driven climate change, education systems in Canada and worldwide are adopting policies and curricula to address the environmental crisis (Field et al., 2023; UNESCO, 2021). Participation is being recognized as a key aspect of environmental education—agency central to shaping society (Sen, 1985; Vromen, 2003). We review various approaches and pedagogies that foster diverse forms of participation, showing the value of complementarity.

Environmental education in schools has historically often relied on transmissive, teacher-to-student approaches to instruct on environmental issues and promote “good behaviours,” while giving students little room to assert themselves (Glithero, 2018; Jickling & Wals, 2008). These approaches often expect students to spread environmental knowledge beyond the classroom, shaping family and community practices (Damerell et al., 2013; Grégoire-Labrecque, 2023). While young people can influence their families, participation is also complex, contextual, and relational. Participatory approaches, grounded in youth agency, relationality, and collective imagination, are proving more adaptive in addressing evolving climate imperatives (Field, 2017; Jickling & Wals, 2013). These approaches offer powerful opportunities for amplifying young people's voices and for actualizing their political agency meaningfully in schools and broader society (Cutter-Mackenzie & Rousell, 2019).

Not all participatory processes, however, are meaningful and transformative, nor welcomed in school institutions. Youth participation tends to be meaningful when rooted in respectful relationships, aligned with their interests and concerns, and linked to decision-making (Tisdall, 2021; Valentine, 2017). It becomes transformative when it serves as a learning process through which young people challenge power structures, foster empowerment, and promote the democratization of social relations and society (Liebel & Saadi, 2012; Teamey &

Hinton, 2014). Enabling such participation is the use of pedagogies that focus on co-production, performance or that are multimodal. These emphasize creativity, emotional engagement, and embodiment, thus facilitating interactions between young people and decision-makers thereby affirming young people's abilities and potential (Tisdall, 2013).

Meanwhile, schools have an ambiguous relationship with young people's activism, a form of political participation frequently defined as a collective action to shift power dynamics through public displays such as petitions, protests, demonstrations, school strikes, and sit-ins (Taft & O'Kane, 2024; Wright et al., 2024). The 2018–2019 wave of school strikes against climate change stands as a prominent example of youth activism, responses to their civil disobedience highlighting tensions between education and political participation. According to Biswas and Mattheis (2021) and Hayward (2021), school strikes had an educational potential, whereby participants exchanged knowledge, educated others, and gained experience in democratic organizing and civic action. In contrast, school administrations urged young people back “to learning,” framing school as their legally mandated place devoid of political agency (Dupuis-Déri, 2021).

Formal school settings often fall short in nurturing students' capacity for critical and systems thinking, civic engagement, and activism, due to rigid curricula, limited resources, and political constraints (Bartlett & Yemini, 2025; Carey et al., 2021). There is a need for adults and institutions to recognize and support young people's active role in their own learning, including through political participation and activism in all its forms of expression (Biswas & Mattheis, 2021).

Another approach to environmental education—a relational and ecocentric approach—advocates for viewing humans as nature and focuses on developing meaningful relationships with the more-than-humans world. It favours learning with non-humans, fostering an understanding of everyday life that is interwoven with relationships between beings, non-beings, and natural systems (Mitten, 2017; Taylor, 2017). From an environmental education and participation perspective, it involves staying open to new ways of being and learning. For example, whether by carrying stones in their pockets or leaping into snow, children's impulses to touch and interact with more-than-humans foster a unique, relational, and embodied way of knowing the world (Rautio, 2013b; Rautio & Jokinen, 2016). It entails engaging critically, artistically and emotionally with one's environment, namely through more embodied and relational pedagogies and practices which involve being receptive from head, heart, and all the senses (Lasczik et al., 2023; Mitten, 2017; Taylor, 2017; Tooth & Renshaw, 2020).

These approaches to environmental education promote diverse modes of participation that can complement one another. Although ecocentric and human-centered perspectives may seem at odds, they are not as incompatible as they appear, especially when transmissive and participatory approaches offer time and space to experience “lived curricula” (Ruck & Mannion, 2021). For example, outdoor, flexible, and small-group activities in the Polli:Nation

Conservation project encouraged free play and discovery between and around formal tasks. Unscripted moments sparked fascination over unexpected encounters and empathy for other species. Moving beyond formal curricula to appreciate spontaneity and unstructured moments in education opens up new ways of knowing (Rautio, 2013a). Through varied relationships with nature, a new foundation for young people's political participation in environmental education is foreseeable (Derr et al., 2025; Tooth & Renshaw, 2020). Fostering ethical, emotional, and meaningful relationships with the environment and living beings, including other humans, can lead to a strengthened commitment towards them (Tooth & Renshaw, 2020; Villemagne & Sauvé, 2021).

Underlying participatory initiatives to care or protect the environment is the relationship with nature—the more-than-human world—that invites for reciprocity, not just responsibility (Derr et al., 2025; Tooth & Renshaw, 2020). Connectedness with nature can be displayed through advocating and caring for the well-being of local places, such as community gardens, which can be reciprocated by offering sensory experiences, fresh air, and sustenance (Tooth & Renshaw, 2020). Relational approaches to environmental education can be reconciled with participatory and political participation; they are in fact complementary, especially when relational, embodied, and embedded in caring practices.

Furthermore, a coherent and consistent implementation of environmental education based on complementary participation implies looking at education and its systems broadly. Enabling transformation involves the entire school environment supporting and reflecting those programs/approaches in a coherent and consistent way, aligning with institutional policies (Fielding & Moss, 2011; Wals et al., 2024). It entails examining education's underlying values and goals, schools' governance and culture, formal and informal learning processes, including teaching methods and curricula, and connections to communities and families to influence students' learnings. Teachers play a vital role by offering nature experiences and reflections and holding inclusive spaces for student expression and skill-building (Dunlop et al., 2021; Renshaw & Tooth, 2018). They are equally central in equipping students to challenge systemic power structures by critically examining forms of political participation, through perspective-taking, argument evaluation, and respectful deliberation (Dunlop et al., 2021). It is within this framing that recognizes multilevel and multidimensional participation that we make sense of the findings of this study.

Context and methods

This article draws on a doctoral study that investigates how youth participation, as it relates to environmental education, unfolds in a school context, and explores its transformational potential. The research was conducted in two high schools in Montreal (Quebec, Canada), each featuring an environmental initiative, and

in the school service centre that oversees projects across both schools and is responsible for the policies that shape them.

Since 2000, the school service centre (at the time, a Montreal school board) has implemented its own environmental policy, with a first Green Plan in 2006, which acknowledges public schools' responsibility and their role in addressing climate change (CSDM, 2000, 2006). The 2019–2025 Green Plan prioritized environmental education as a foundational element of their pedagogical approach (CSDM, 2019). It aims to support students, parents, and staff in becoming ecocitizens—environmentally conscious and responsible individuals engaged in addressing ecological challenges—by embedding environmental education into teaching and an ethic of ecoresponsibility in school management. The plan emphasizes the importance of participation in climate action, the role of environmental education in fostering connection to nature and respectful, intergenerational relationships, and the need for consistency within and across schools.

The first environmental initiative examined was the Environment and Urban Agriculture program. It was an elective that students could choose to complete their school curriculum. Based on a partnership between the school service centre, the high school, a horticultural school, and local community organizations, the program featured a theoretical environmental component and practical agriculture and horticulture work. Resulting from a public consultation with the community on educational needs, the program sought to enhance students' engagement in their learning, strengthen their sense of belonging to their school and community, alongside raising awareness and act on environmental issues. This high school served an ethnoculturally diverse community with low socioeconomic background and faced challenges in attracting local families.

A “Green” Committee was the second environmental initiative documented. It was an extracurricular school activity aimed at raising awareness and acting on environmental issues in and around the school. Generally, between five to 15 students from secondary 1 to 5¹, averaging 12 to 17 years of age, participated in the committee, supported by two or three school staff members throughout the year. The Green Committee was located in a high-performing high school, well regarded by the community, and serving an ethnoculturally diverse population.

The third initiative was the school service centre's Engagement Committee which stemmed from an interest in deepening the learnings on participation. They considered the doctoral research an opportunity to inform their work and contribute to the educational review process under way. The research could provide valuable insights into the newly created Environment and Urban Agriculture program. A first meeting thus evolved into an “Engagement Committee” to enable more meaningful participation among students in broad support of environmental education.

This qualitative study emerged from a collaboration between the school service centre, two schools, and the author, Geneviève, responding to practitioners' needs and young people's call for environmental action. It is

grounded in a comparative case study and is informed by ethnographic and participatory approaches. A comparative case study enables in-depth, flexible, and process-oriented exploration of complex situations in real-life contexts, foregrounding inductive, ethnographically informed inquiry (L. Bartlett & Vavrus, 2017). Throughout the study, Geneviève intentionally engaged in “deep listening” to allow time, mitigate power imbalances, and enable participatory initiatives to emerge (Veissière, 2009). While iterative collaboration took place with institutional actors in the Engagement Committee, such participatory processes were absent with students—perhaps due to over-solicitation, pandemic-related constraints, or a lack of interest. Intersecting social issues and the researcher’s positionality in the inquiry could also affect young people’s participation (Jacobson & Mustafa, 2019). Nonetheless, Geneviève was mindful throughout of their positionality as a white cisgender woman from Quebec, an early-career researcher focused on children’s and young people’s rights and participation.

More specifically, the research is based on a one-year data collection from November 2020 to December 2021. It draws on participant observation, group discussions, and individual semi-structured interviews as research methods. Observation and participation were carried out in an everyday school context. However, 21 people participated directly in the research through group discussions and interviews: from the Green Committee, four students and three staff members; from the Environment and Urban Agriculture program, four students and four staff members, and from the school service centre, three educational advisors and three professionals.

Participant observation of Environment and Urban Agriculture classes and Green Committee and Engagement Committee meetings allowed to build relationships with students and school staff. It made it possible to be present during real-life events, to observe, respond, and share experiences with them (Ghasarian, 2002). Geneviève supported Environment and Urban Agriculture teachers and students in their classroom and garden activities, assisted Green Committee members by taking notes and aided with facilitation and organizational tasks, and collaborated with Engagement Committee members in their reflection and action process. The Environment and Urban Agriculture class took place in two consecutive sessions during each nine-day course schedule, while the Green Committee convened biweekly over lunch—whether at school or via online platforms. Engagement Committee meetings were held once a month virtually. The research taking place during a global COVID-19 pandemic affected in-person meetings, forcing committees to meet online or in a hybrid mode. It also influenced the types of actions available to the Green Committee and encouraged outdoor activities within the environmental program.

Five group discussions were conducted. From the Green Committee, two were carried out with students and one with school staff. From the Environment and Urban Agriculture program, one was conducted with students, while Engagement Committee school staff and professionals participated in one group discussion. Each session lasted between 60 to 90 minutes. These provided

insights into each group's perspective on student participation and their experience within the initiatives and school environment, and the role of the school and staff in supporting this participation. Six semi-structured interviews were also conducted: one with a Green Committee student who wished to continue the conversation after a group discussion; two with students from the Environment and Urban Agriculture program to accommodate preferences; and two with staff from the same program and one with a school service centre professional for additional information on the initiatives and everyday tasks. Interviews and group discussions were recorded and transcribed, except for two individuals who opted out of recording. Handwritten or audio notes were taken to detail observations on student and school staff interactions, reactions and behaviors, activity structure, and pedagogy, alongside the researcher's reflections, emotions, questions, and moments of discomforts.

A thematic analysis was conducted which involved reviewing transcribed notes, group discussions and individual interviews, formal and informal activities, and comments describing them. These were coded based on types of activities and characteristics of participation. Codes were then grouped into broader themes, defined as "participation pathways" which ultimately corresponded to each initiative. To ensure anonymity and inclusion, gender-neutral language is used throughout this text with a code for each participant. Given the study was carried out in French, quotes were translated into English for their inclusion in this article. The study was approved by the research ethics boards of Concordia University as well as the school service centre and includes parental consent for students below 18 as required in Quebec. Participants were regularly reminded of the voluntary nature of participation and their right to opt out.

Participation Pathways in School Contexts

Emerging from the research is a realization that each initiative involved a distinct pathway of participation in environmental education. The Environment and Urban Agriculture program mostly centred on developing and nurturing relationships with nature, while the Green Committee focused on youth-led actions, and the school service centre's Engagement Committee addressed institutional changes. Below, we present each initiative and critically reflect on the different forms of participation it offered. We consider these to constitute pathways of environmental education in schools.

Environment and Urban Agriculture Program and Building Relationships with Nature

The Environment and Urban Agriculture program mostly centred around developing and nurturing relationships with nature, including humans, through gardening and outdoor activities. Students participated in the garden's life

cycles, experiencing seasonal changes emotionally and physically. Early spring, students began growing seedlings indoors. As the plants grew, so did their curiosity and excitement about gardening. By late May, students transplanted them in garden plots, enjoying the first warmer days. Over the summer, a local NGO and a student volunteer cared for the garden, harvesting vegetables for the community. In early fall, students returned to their garden to pick up the last vegetables. With temperatures steadily dropping, they closed the garden for winter by November, composted the frozen remains for next season.

Gardening activities fostered relationships with nature through hands-on care. Being attentive to the garden's needs, learning how to use tools, and applying those skills daily made their participation concrete, meaningful, and a relational learning process. In early fall, gardening staff taught students to weed, prune, water, and harvest, and they immediately tended their plots. "It was cool that they trusted us" commented a participant (E5), indicating the significance of being entrusted with garden care and tools.

Connecting with students and adults was also an important part of the program. Adults from different backgrounds gravitated around it, including a horticulture school and two NGOs. Students valued the involvement and knowledge adults shared, although frequent staff changes—even for valid reasons such as sick or parental leave—made it difficult to build strong connections. Students also learned to collaborate with classmates. Participants enjoyed being paired with friends because of the reassuring familiarity and the gardening help it provided. Yet, they also faced challenges like uneven workloads or conflicts over garden plots. Still, most learned together in a warm atmosphere, with gardening fostering informal and friendly discussions.

Another particularity of the program was its flexibility. In and between tasks, students could explore their environment. They could also choose tasks, for example cut dead plants, move soil or spread mulch, and work at their own pace. They could even take a break, lean on trees, and chat. The program also made space for spontaneous park walks or outdoor playtime. One February afternoon, teachers led students on a stroll in the snowy park. Students were engaging with the snow and each other, flurrying it back and forth across the path, while chatting and laughing. Overall, spending time outside was appreciated by students: "I really like that we go out into the garden, or we go on outings, or sometimes, we go to the park; we don't usually do that at school" (E6).

In instances where gardening could not take place, the program shifted focus to more academically oriented activities on environmental and awareness-raising matters, such as presentations on healthy lifestyle and environmental footprint, and documentaries on circular economy and overconsumption. Quizzes, small scale action projects, self-assessment consumption behaviours, reflections on environmental challenges and inequality took place. Despite the emphasis on building relationships with nature, there was a noticeable absence of activities designed to help process experiences, individually or together.

The Green Committee and Youth-Led Actions

The Green Committee's activities involved youth-led actions against climate change, including education for more environmental-friendly behaviours and advocating for institutional changes. To do so, meetings focused on identifying and planning actions. At the beginning of the school year, students proposed project ideas they would like to carry out, such as recycling, awareness-raising campaign, reusable placemats and cutlery sale, advocacy letter for greener facilities in the new school's cafeteria, more greenery in and outside of school. Subsequent meetings focused on project tasks: follow-ups, reviews of outcomes, planning next steps, and teamwork.

Debriefs were spaces for reflection, from overcoming obstacles to envisioning change. At the third meeting, students and staff discussed strategies to boost enthusiasm for recycling, and institutional barriers to composting. A deeper discussion emerged after non-Green Committee students criticized the reusable placemats and utensils sale, highlighting the school's responsibility to provide dishwashing infrastructure, and raising concerns about overconsumption and profit. Some Green Committee students also expressed skepticism about their capacity for sustainable change at school, noting recycling efforts often collapsed when individuals left high school. While students sought institutional reforms, staff encouraged and supported small, local projects, based on past experiences with students feeling overwhelmed by broad environmental issues and discouraged by institutional refusals.

This form of participation in environmental education led to notable achievements: students and staff initiated projects, saw tangible outcomes, and celebrated successes. A student (E2) shared: "I'm really glad that we managed to organize ourselves, like the placemats sale was a success; the Kahoot quiz worked; our presentation; the [book box] project". Year-round recycling and the recruitment of 50 students for Earth Week yard cleaning marked both environmental impact and determination. A major win was the school's agreement to implement Green Committee demands, including gardens, a picnic area, waste sorting and a dishwasher in the new school. Committee involvement also gave students a sense of agency and empowerment. As the same student (E2) later noted: "I think it's cool to be able to go the extra mile and get resources [...] to have all the possibilities we want, and to tell ourselves: 'we want to do this project' and we are given the opportunity to work to complete it". Staff hoped this participation would spark broader student engagement.

When reflecting on their role, staff believed that adults' presence and support could be beneficial in a student-led committee if they listened and stayed open to youth input. They emphasized balancing guidance with giving students space to reflect, ponder, plan, and lead actions: "At the beginning, you really have to push students and take up more space, but once they're ready, you must let them shine, and sometimes, make mistakes" (SP9). In practice,

this proved difficult. During a student-initiated discussion on decision-making (Who votes? Who has final say?), staff ultimately decided to evaluate each case individually rather than apply a uniform rule. Reflecting on the year, they recognized their assertiveness had impacted student participation: “[Students] expressed their concerns very clearly: ‘I don’t want it to be all the adults who decide’. (...) But if we had left it all in the students’ hands, I think we wouldn’t have done as much, and they might have lost interest without a sense of accomplishment” (SP11). While staff hoped for more student-led activities, such as facilitating meetings and leading recruitment, challenges remained.

In many ways, students were given a clearly defined framework in which to participate—often limited to small-scale projects. This restrictive view underscores adults’ difficulty in supporting them in their own environmental formation, but also the importance of doing so to access diverse participation perspectives as they relate to environmental education in schools. In a research debrief, students stressed that leading change required being treated as equals. One argued adults in student committees shouldn’t hold authority or have voting rights but could help by answering questions without interfering. The “for and by students” dimension was fundamental to students’ engagement in the Green Committee.

Teamwork and team spirit were seen as essential for building a “solid base” to address key questions of purpose and goals. Leading change in school also meant recognizing individual strengths, preferences and identity: “not everybody can be a ‘positive leader’” (E1). Students proposed strategies to be heard and drive change, such as recruiting peers to confront schools, striking and raising issues publicly, or partnering with schools to find solutions to structural barriers together. These point to challenges generated by choosing this mode of participation in a school setting, and the relational and creative work needed to break through impasses.

The Engagement Committee and Institutional Change

Less directly involved with students or environmental education, the Engagement Committee focused on enabling institutional change for more meaningful student participation across their 35 high schools. The most compelling aspect of this committee’s experience is the participatory process of institutional change that developed over time. As a school service centre’s subcommittee, they were initially tasked with developing a shared vision on student participation for school administrators. Members, including educational advisors and professionals, embarked however on a participatory action research journey that led to the creation of a comprehensive tool to help school staff foster student engagement and meaningful participation across the service centre.

The shift was driven by members’ eagerness to make a difference and to deepen collective learnings. A professional noted (P17): “Can we also help ourselves by creating something? A tool? A schema?”. Their journey

reflected school staff engagement toward young people's meaningful participation which could spark institutional change. Enabling conditions of such iterative process of learning and action show the importance of flexibility, openness, facilitation, commitment, trust, equality among participants, and time. From the beginning, they set clear intentions, remained flexible and open to questions, willing to adjust their initial plan and ready to invest themselves.

A voluntary facilitator taking notes, summarizing ideas, asking clarifying questions, and supporting decision-making eased the participatory process. Members' readiness to take part in such a journey was highly valued: "It's the group that did it by accepting, by answering questions, by being volunteers, by saying 'We're going this way'" (P17). This complementarity was seen as a "participatory" process—a contract not imposed but evolving with the group's accord. Creating a "safe" and friendly space also allowed participants to be vulnerable, challenge ideas respectfully, and build trust. A member shared the difficulty of the work and their honesty was welcomed, highlighting the importance of communication to move forward. The meaningfulness of the work—meeting needs, producing positive outcomes, monitoring progress—legitimized the process and motivated staff to carve out time to meet.

Participating in the Engagement Committee allowed professionals to form new knowledge and deepen existing theoretical frameworks on student participation, setting the stage for institutional change:

I realized that I was focusing a lot on the classroom, on the act of teaching, on the teacher-student relationship. It's still present, but with the concepts of participation, diversity, and inclusion, it allowed me to see that it's bigger than the classroom. [...] the vision must come from the institution, from the school, so that it can influence the teachers as well, and then, it can enter the classroom. (P18)

Intertwined in this new knowledge is a notion of personal and professional growth. "Enriched perspective," "new intervention levers," and "a 360 degrees vision" were words they used to describe their professional journey within the Engagement Committee. Members realized that the distinctiveness of their journey toward more meaningful student participation lay in the iterative process of reflection and action they had undertaken. This process resulted in the creation of a participatory tool designed for all school professionals engaged in continuing education within the school service centre. The tool, a customizable participation and engagement framework, encourages reflection when planning an intervention related to student participation and can be adapted as professionals' learning and experience evolve. Nonetheless, as deep, honest, and thorough as this participatory journey was, students' input to inform both the tool and process were absent.

Discussion

Emerging from this study is an understanding that each initiative offered a potential for participation—a pathway—in school-based environmental education (see Table 1 for summary).

Initiatives	Participation pathways	Forms of participation	Gaps	Ways forward
Environment and Urban Agriculture program	Building connection with nature	• Fostering relationships with nature, including peers, adults, and more-than-humans • Flexible and unstructured moments, everyday interactions, outdoor time, gardening, and embodied pedagogies	Lack of reflective opportunities to come to know with nature	More intentional participation processes to encourage awareness, deeper reflection, youth-led or collective actions to protect living environments
Green Committee	Youth-led actions	• Reflection and discussion on change processes and decision-making, leading actions • Empowerment and skills development rarely covered in classrooms	Tensions between students and staff stemming from adults' predefined notions of environmental change, youth participation, climate action	Stronger focus on relationality through embodied pedagogies, building relationships with nature, imagining futures together
Engagement Committee	Institutional change	• Participatory process to address professionals' representations, educational values and goals, pedagogies, and school spaces for more meaningful student participation • Taking time to be in relationships and to work through situations	Lack of student perspectives and disconnected from environmental policy	Integration of students and of environmental policy in the process

Table 1. Summary of Participation Pathways: Forms, Gaps and Ways Forward

In the Environment and Urban Agriculture program, participation rested primarily on building relationships with nature, through peers, adults, and more-than-humans in everyday interactions, outdoor time, and gardening. These activities, coupled with unstructured moments, allowed students to explore and engage with their environment through bodies and senses, thus experiencing “lived curricula” (Ruck & Mannion, 2021). Such everyday relational spaces were fundamental in fostering connection and togetherness with nature—both central elements of environmental education.

Oscillating between transmissive and participatory approaches to environmental education, the Green Committee focused on youth-led actions, from awareness-raising among peers, to leading interventions on school grounds, and advocating for long-term changes within their school. This extracurricular initiative offered participation opportunities on the margins of formal schooling and addressed topics and skills rarely covered in classrooms, such as civic engagement and critical and systems thinking (T. Bartlett & Yemini, 2025; Carey et al., 2021). Participation lay in students’ intent to influence their school through reflecting on change processes, discussing decision-making, leading actions, and experiencing empowerment.

As for the Engagement Committee, its potential for participation was three-fold. First, it hinged on professionals working toward institutional change for more meaningful student participation in schools, broadly aligned with environmental education. Second, it involved fostering an iterative process of reflection and action to address professionals’ representations, educational values and goals, pedagogies, and school spaces. Finally, it addressed the need for reflection and consciousness by taking the time to *be* in relationships and to work *through* situations.

Findings also highlight obstacles or limits within each initiative that constrain their participation potential. These barriers bring into focus the question of layering of forms of participation for more meaningful and transformative experience in environmental education and to uphold environmental policies. Despite considerable attention to engaging with nature in the Environment and Urban Agriculture program, the lack of reflective moments compromising the processes of coming to know *with* nature—the links between experiences, feelings and perceptions of one’s relationship with the world and a deeper desire to care for the environment (Derr et al., 2025; Taylor, 2017; Tooth & Renshaw, 2020).

Indeed, more intentionality in relational participation processes is called for. An added effort to include different ways of knowing, such as listening practices and to encourage deeper reflections through (un)structured debriefings on students and staff’s experiences could help raise awareness on the emotions, feelings, and reflections encountered when interacting with nature, including humans. This could open the door to another type of participation in environmental education, such as collective or youth-led actions to protect students’ living environment as called for by Villemagne and Sauvé (2021).

This study also highlights tensions between students and school staff, and between participation and education. In retrospect, the Green Committee was driven by a predefined notion—shaped by the school and adults—of what environmental change meant and how students should participate. Most of the time, this predefined notion entailed adopting transmissive approaches or confronting institutions without considering participation's relational and contextual dimensions (Grégoire-Labrecque, 2023). School staff struggled to recognize students' agency beyond the well-defined youth-led actions, thus making it difficult to take the time to reflect, listen, and act upon students' unique views on participation in schools. A stronger focus on relationality—through embodied pedagogies, through building relationships with nature in a broad sense, and through imagining futures together—could open up to a wider range of political participation practices, transform oneself and one's relationships to the world (including student-staff relationships), and ultimately create more meaningful and transformative participation.

In terms of participation limits to environmental education, the Engagement Committee could benefit from being more integrated with existing student committees. This raises questions about the timing and mechanisms for implementing student participation at the institutional level. The school service centre's environmental policy could have been a useful cross-cutting tool for reframing participation in a broad relation to environmental education. Generally, there could have been more cross-pollination across these initiatives, rather than them operating largely in isolation—an issue exacerbated by the pandemic preventing collective processes.

This study points to the value of layering participation pathways to environmental education for more coherent, consistent, meaningful, and transformational participation in schools. Layering different forms of participation provides a holistic and systemic perspective on environmental education (Wals et al., 2024), paving the way for a deeply relational participation at each level. This process has the potential to create more respectful relationships by supporting the interconnection of the more-than-human world in everyday life, providing for students' interests and concerns through listening as well as influencing decision-making. Combined, this multi-level perspective can foster empowerment among students, teachers, and administrators working within the school system. Infusing more reflection and intentionality in participatory and participation processes makes it also possible to challenge power structures in the political sense of participation.

A layering of participation also draws attention to the need for relational and political approaches to environmental education to inform one another, as a driver for action and as an ethic of collaboration. We suggest that this synergy can be supported by collaborative, creative, and embodied pedagogies as well as through everyday caring practices (Derr et al., 2025; Lasczik et al., 2023; Mitten, 2017; Tooth & Renshaw, 2020). We also propose recognizing the relational

and political dimensions of environmental education by reconnecting it to its historical aims: cultivating healthy, meaningful, and ethical relationships with nature and addressing ever-evolving climate change. Moving in this direction will, however, as Skovdal and Campbell (2015) identify, require adequate resources, external support, and awareness of schools' embeddedness in broader systemic challenges. In many ways, layering participation pathways calls for activism as a form of political participation. This positioning is part of embracing participation as a way of being, relating, learning together with nature, including humans, inside and outside of the school system.

Notes

- ¹ In Québec, the high school system is structured into five levels or years, known as Secondary 1 to 5.

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Exploring the limits of knowing and discovering Reverence: The fundamental shift from STEAM to CREATIVE Learning

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Abstract

This article explores a transformative shift in science education from the traditional STEAM model to a CREATIVE framework, emphasizing Calculation, Reverence, Environment, Art, Technology, Innovation, Values, and Engineering. The authors utilize personal narratives underpinned by theory to operationalize Reverence as an elemental relational virtue fostering ecological consciousness. Through concepts like friluftsliv and environmental relationality, they advocate for nurturing awe, responsibility, and a sacred connection to land and sea. The CREATIVE model aims to inspire educational practices that honour interdependence, challenge anthropocentrism, and cultivate a reverent, sustainable way of being in and with the world.

Résumé

Cet article s'intéresse à une transformation en sciences de l'éducation en proposant une transition du modèle STEAM (sciences, technologies, ingénierie [engineering], arts et mathématiques) vers le modèle CREATIVE (calcul, révérence, environnement, arts, technologies, innovation, valeurs et ingénierie [engineering]). L'auteur et les autrices se servent de récits personnels appuyés par la théorie pour opérationnaliser la révérence en tant que vertu relationnelle élémentaire qui favorise la conscience écologique. Mobilisant des concepts tels que le friluftsliv et la relationnalité écologique, il et elles plaident en faveur de l'émerveillement, de la responsabilité et d'un lien sacré à la terre et à l'eau. Le modèle CREATIVE vise à inspirer des pratiques pédagogiques qui honorent l'interdépendance des formes de vie, remettent en question l'anthropocentrisme et cultivent une façon d'être au monde qui soit durable et respectueuse.

Key Words: Transformative Education, Reverence, Relationality, Interdependence, Experiential Education

We live in an era of ecological emergency that is the inevitable consequence of humanity's alienation from the Earth and Sea. An axiological shift that challenges our existing and collective relationship to the environment can help facilitate a movement towards ecological Reverence¹. In this paper, Shane, Robyn, and Megan theorize, conceptualize, and operationalize Reverence as an essential element in science education. It is our intention through this writing to shift the narrative in science education from **Science**, **Technology**, **Engineering**,

Art and **Math** (STEAM) to **CREATIVE**, a framework of science teaching and learning that includes all the elements of STEAM but also opens up a space for **Reverence**, **Innovation**, and the **Environment Calculation** (as a combination of **Math** and **Science** from the STEAM model), **Reverence**, **Environment**, **Art**, **Technology**, **Innovation**, **Values**, and **Engineering**). For the purposes of this article, we will limit our discussion to **Reverence** with self-evident connections to the **Environment** as there is already significant literature outlining connections to STEAM (Burnard & Colucci-Gray, 2019; Barkatsas et al., 2019; Bertrand & Namukasa, 2023), **Innovation** through play-based Learning (Dillon, 2018; Sahlberg & Doyle, 2019; Edwards, 2017), and **Values** in Education (Apple, 2004) and **Engineering** (Florman, 1996) as examples of the ubiquity of values in all our lived experiences.

With sincere gratitude, we acknowledge the narratives of seminal works such as, to name but a very few, Leopold's *Sand County Almanac* (2001), Lopez's *Arctic Dreams* (2002), and Moitessier's (1996) *The Long Way*, in guiding our thinking on phenomenological narrative inquiry on Reverence which forms the framework for this article. While an articulation of Reverence is outlined in the subsequent section, just as Leopold, Abbey, and Moitessier articulate their unique contexts and experiences of Reverence, so too do the contributing authors to this article. And in so doing, it is our profound hope that each reader explores within their own contexts and experiences an opportunity to reflect on Reverence. Carson & Pratt (1966) in her book, *The Sense of Wonder*, expresses the sincere belief that "it is not half so important to know as to feel" (p. 56). It is this feeling, this resonance, this reciprocity, this relationship that we have, for the purposes of this article and the CREATIVE framework, articulated as Reverence.

An Environmental Foundation for Reverence

My name is Shane Theunissen, and I have an incredible privilege that has allowed me the resources and time to complete a voyage of over ten thousand nautical miles of ocean sailing in the past year. My main motivation, in planning this trip was to introduce my sixteen-year-old son and fourteen-year-old daughter to the wonders of the ocean. Through the course of two trans-Atlantic crossings, we saw severe gale force winds and twenty-foot waves, windless days with glassy calm seas, and we saw dolphins, flying fish, whales, swordfish, and bioluminescence. We altered courses to go around active underwater volcanoes and witnessed countless stars and shooting stars—all this, and more, while sailing along at an average speed of about 4.5 knots (8.334 km/h), a speed that invites contemplation. The world as seen from the perspective facilitated by a slow-moving sailboat is psychologically and culturally inconsistent with the perspective (Swart, 2010) that confronts the average passenger on a commercial airplane travelling up to a hundred times faster and isolated from the elements in a climate and pressure-controlled cabin thirty-thousand feet or nine km above sea level.

Jules Verne articulated the essence of this cognitive, psychological, and cultural adjustment in his book, *Around the World in 80 Days*, which was originally published in 1872. The following excerpt highlights the conversation that catalyzed the protagonist, Phileas Fogg's, travels and also articulates a poignant insight into the evolution of our understanding of Earth:

"... The world is big enough."

"It was once," said Phileas Fogg, in a low tone. . . .

"What do you mean by 'once'? Has the world grown smaller?"

"Certainly," returned Ralph. "I agree with Mr. Fogg. The world has grown smaller, since a man can now go round it ten times more quickly than a hundred years ago."

(Verne, 1872 p. 17)

My daughter, after eighteen days at Sea travelling from Cape Verde to Barbados, was aware of this evolving dissonance when she remarked "you don't know how big the Sea is until you sail across it." Turnbull (2006) conceptualizes these utterances as the effects of Copernicus on modern society's relationship with the earth. He explains that flight, space travel, and finally satellite imagery are the most recent manifestations in the logical progression of the Copernican revolution. He succinctly states, "As the earth is transformed into a cosmological representation, the earth loses its ontological status as a site of dwelling and is reduced to an object of possible knowledge for modernity's technological subject," (p. 131) suggesting that:

only a world supported by the earth can give things their proper measure; and without this relation, things have no true measure (and in such a case, the measurement of the world in terms of an abstract mathematicised facticity—required for the efficient maintenance of purely technological relationships—becomes the anthropocentric measure of all things). (Turnbull, 2006, pp. 131-132).

Packer (2011) recognizes the environmental implications of the evolving perception and representation of Earth and suggests that "it is precisely our current moral paradigm—our attitude toward the planet, our attitude toward other cultures—that needs to be changed" (p. 38) if we hope to realize an alternative ecological trajectory.

This reclamation of relations with Earth coalesces with Wilson's (2008) articulation of relations with the land and the cosmos when he states, "the distance between ourselves and the environment is sacred, and so you do ceremonies to bridge that space or that distance . . . experiences on the land shape everything" (pp. 87-88).

With respect to being transparent, it was not until the very moment of reflecting on this last paragraph in preparation to continue writing, that I internalised the word *sacred*. My plan, as readers can tell from my introductory paragraph (which I will leave unchanged as evidence of the evolution of my thinking) was to discuss *wonder* as a catalyst to building relations to the Sea.

Now, almost intuitively, I feel that wonder, as a concept, lacks the gravity one might link with the sacred, and wonder consequently feels incongruent. And so, after some reflection, I articulate the emotion that is manifest in the distance between ourselves and the environment as Reverence.

Reverence, as it turns out, is problematic to define. To this point, Kovak (2013) writes:

Like all other virtues, reverence cannot be defined precisely, because virtues are in the tense middle. For example, courage is a middle ground between fearlessness and timidity. In Greek culture, reverence was the virtue opposite to hubris, the tragic flaw of tyrants like Oedipus who tried to act like gods (p. 749).

Woodruff (1997) was cognizant of this and through his seminal work “*Reverence: Renewing a Forgotten Virtue*” introduces the definition of Reverence as a schema, a framework to be augmented by our own experience with an understanding that this process “is a project not for a book but a lifetime” (p. 13). He goes on to suggest that in addition to Reverence being “a virtue that keeps human beings from trying to act like gods” (p. 4), it is also “a cardinal virtue” (p. 7) that “begins in a deep understanding of human limitations; [and] from this grows the capacity to be in awe of whatever we believe lies outside our control” (p. 3). Notably, Woodruff, through his study of ancient Greek and Chinese cultures found examples that illustrated that “[b]oth peoples cared deeply and thought long about the meaning of ceremonies in the texture of their religious and political lives, and in this meaning, they saw the deeper value of reverence” (p. 7). Consequently, in Reverence, we see a connection to Wilson’s (2008) ceremonies as a means of enacting the meaning of sacred. Ceremony as the manifestation of the meaning of sacred lends credibility to Solomon’s (2002) assertion that:

Reverence requires an active role, an engagement, not merely the experience of awe. In human affairs, reverence means taking a stand, in active and full participation. Reverence means taking responsibility, recognizing and accepting one’s limitations, but not shirking from responsibility. . . . To be awe-struck is to be paralyzed. To be reverent is to be moved to action. (pp. 40-41)

Woodruff (1997) is quick to remind us that:

Reverence must stand in awe of something . . . Something that reminds us of human limitations . . . Something that satisfies at least one of the following conditions:

1. it cannot be changed or controlled by human means
2. is not fully understood by human experts
3. was not created by human beings
4. and is transcendent. (p. 117)

One example of Reverence, which in many Western contexts emerges as ceremonial acknowledgement of unceded ancestral territory, is inadequately

understood. Rocha (as cited in Pinar, 2023) challenges us to consider that “the reality of ‘unceded ancestral territory’ can be understood in more than one way,” first as “a political statement of non-surrender,” but also “as a spiritual statement of non-surrender.” He explains:

We are not gathered on soulless, inanimate ground; there is no modern scientific sovereignty over the metaphysical reality of this place. Unceded, ancestral territory, in this sense of spiritual resistance, is another way to say that the land is always-already sacred and it will never be surrendered to a worldview where nothing is sacred. The demand is not for tolerance or respect; sacred land demands *reverence*. (Rocha as cited in Pinar 2023)

While Rocha’s articulation of unceded ancestral territory is associated with land, we feel that this “spiritual statement of non-surrender” (p. 144) is also appropriate in articulating our relations to the Sea. Further to this, we posit that there can be no differentiation of the Sea, for each drop coalesces in the whole, and consequently the entirety of the Sea is sacred. With this understanding in mind, we would revise Rocha’s last line from “sacred land demands Reverence” (p. 144) to the Land commands Reverence because, in our understanding, all Land is sacred, and a demand, involves the possibility of non-acquiescence, while a command is non-negotiable. We only need to look at many of the commands the climate change invokes on our fragile human structures to embody this understanding. Woodruff (1997), appears cognizant of the causal relationship between thought and action when he articulates the emotive, spiritual, and intellectual shortcomings that plague contemporary humans; he states, “To forget that you are only human, to think you can act like a god—this is the opposite of reverence (p. 4). A Reverence of the land and sea as sacred is essential for “Ancestral Land acknowledgements” (Rocha, 2020 p. 144) to have meaning in the context of Western ceremony. This is also true if we regard, due to a lack of Reverence, the earth as “an object of possible knowledge for modernity’s technological subject” (p. 131) and not the foundation of life for all living things. So, while science may allow us to wield enormous power, we are beholden to remember that “[p]ower without reverence is aflame with arrogance” (Woodruff, 1997, p. 4).

And so, the incorporation of Reverence into science programming is essential because we need to be aware that: “The Earth isn’t just something all around me; it’s a part of me” (Rocha, 2020 p. 144). Macy and Brown articulate:

*We have forgotten who we are
We have alienated ourselves from the unfolding of the Cosmos
We have become estranged from the movements of the Earth
We have turned our backs on the cycles of life
We have forgotten who we are. (1991 p. 153)*

And we are, or might aspire to become, *homo reverens* or as the Maya Tsel'tal say "ch'ul jkanan "steward[s] of the sacred" or Kanan k'inalat "protector[s] of Mother Earth" (Celidwen & Keltner, 2023, p. 2). But in order to come to these spaces of Reverence, a very specific emphasis on the relational dynamic between humans and the environment needs to be explored.

In the following sections, Robyn explores these relational elements through concepts of *friluftsliv* and interdependent relations while Megan explores reverential relationships through her experiences in tall ship voyaging and provides some concrete examples of exploring environmental relationality as a pathway to Reverence through the lesson plans she provides at the conclusion of this article.

Reverence as Being in Relation with the Environment

My name is Robyn Ashley, and my family's value of the natural environment as a resource, a respected and living entity, and as a fundamental setting for life from childhood to old age, has significantly impacted the way I understand how humans are constantly in a reciprocal connection with nature. Throughout my studies and early teaching experiences, I became aware and struggled emotively and cognitively, as Shane does, with the artificial divide constructed between children and nature. This separation, that Shane discussed as a Copernican consequence, between children and the natural world exists and is perpetuated in the social, emotional, economic and spiritual relations that dominate Western society, and is reinforced through many institutional structures including curricula. Through many state sponsored curricula, the relational understanding between the human and more-than-human world is severed. This is accomplished through learning objectives that espouse separateness by using language such as *about* and *for* the environment rather than promoting a connection with it culturally or with a sense of belonging by using terms such as *with* or *part of*. This separation between children and nature is a catalyst for an environmental education that focuses on learning about nature with distance between the learner and the subject (Taylor, 2017). This artificial divide is indicative of a lack of Reverence, as humans perceive and position themselves as external agents who lack an understanding how they can be connected to the environment through more than just our dependency to live off nature's resources. Taylor (2017), like Packer (2011) in the previous section, argues that there is an urgent need for educational practices that resist humanist perceptions of our relationships with the natural environment as separate and should instead be viewed as an entangled web of interdependent relations between humans and more-than-human others. This interdependence of relations is what I and others (Wilson, 2008; Tynan, 2021) call relationality, *and it is the essential stimulus for the cultivation of Reverence*. It is essential, in order to develop this relational and ontological way of being,

that humans engage with nature. In the contexts within which I typically work, this manifests as Nature play.

Nature play is typically experienced in the outdoor setting. Therefore, researchers have occasionally grouped the two experiences of nature play and outdoor play together, making it challenging to understand if they're referring to outdoor spaces in natural environments or to manufactured playgrounds with minimal natural materials. From my personal and work experience, I am aware that some of the outdoor play settings (i.e. traditional playgrounds built mainly with steel or plastic) have not supported or encouraged children to connect with or take notice of nature in their surroundings. At the same time, I have observed children in these spaces seeking out opportunities to include more-than-humans in their play through engaging with bugs, rocks, weeds, and birds. Their actions of reaching out to pull nature into their space indicate an intrinsic need for the inclusion of nature in their daily lives.

Because children, young adults, and many other adults are disenfranchised of their power to construct or manifest the educational experiences that influence their development, it is imperative that we introduce educational supports such as our CREATIVE model to prioritize **Reverence** and **Environmental** relationality.

Friluftsliv, is a model that we feel acknowledges the imperative and intrinsic need for the inclusion of nature in our daily lives, and it stands in stark contrast to the positivistic pedagogical perspectives by promoting an ongoing relational engagement with the environment that we feel is the fundamental foundation to the cultivation of Reverence. The premise of *friluftsliv* is that one is constantly close to nature, meaning people are engaging themselves in any type of natural space, or incorporating being outside as an essential part of a daily routine (Gelter, 2000). More specifically, Gelter (2000) defines the true meaning of *friluftsliv* as being exposed to the open-air and immersing oneself within a natural area, which is any place that one can listen, look, and feel nature around them. Rather than labelling life outdoors as an “adventure” or something to be conquered, this concept creates an image of nature connection that is accessible to more people. Gelter (2000) also makes a profound point in stating that someone who is practicing *friluftsliv* is willing to accept and participate in all that the natural space has to offer, which implies that being open and prepared to learn is a key component in Scandinavian connections to outdoor lifestyles; this humility, as discussed earlier, is a key element in the facilitation or operationalization of Reverence.

Willis (2011) further reiterates the importance of being outside as an essential part of a daily routine and posits that we need not limit our being outside to engaging in and with areas historically categorized as wilderness because:

The term ‘wilderness’ is popularly understood to refer to environments minimally modified by human activity. However, truly pristine landscapes untouched by human activities do not exist anywhere on Earth today. Air and water currents have

spread toxic pollutants throughout the world, anthropogenically induced climate change affects every square inch of the globe, and most of the places that have been designated by Western societies as wilderness have been traversed by, used by, and often inhabited by people for hundreds if not thousands of years. Wilderness is not a clearly definable geographical category, but rather a concept. (p. 96)

Willis further articulates that because wilderness is a concept, we can subjectively reconceptualize or restore its meaning. She insists:

Instead of rehashing old stories of adventuresome men overcoming all the obstacles that nature puts in their way, new stories must be told, stories that challenge what adventure is and who heroes are, stories that open up possibilities for being and acting and that bring renewed meaning to people's lives and to the more-than-human world. (p. 104)

Further to this, Coe (2016) echoes Willis' (2011) argument that nature should not always be perceived as untouched and pristine wilderness. Coe states that we do not necessarily need to be completely immersed in a natural forest area to learn about and with nature because nature can be experienced in a variety of forms. This means that nature comes to us as small as the slugs children find on the playground or the spider in the classroom, the fieldtrip to the local park's forested pathways, or as large as Shane's transoceanic voyaging. Throughout his discussions, Coe (2016) emphasizes that place-based education (Gruendewald, 2003) promotes the opportunity for children to learn based on their hands-on and lived experiences in their own microsystemic communities (Bronfenbrenner, 1996), and because of this, they build relationships in the locales that they engage with most frequently. These locales are also auspiciously the contexts that most people will be able to individually and collectively influence.

Consequently, engaging in *friluftliv*, as a way of being, represents an opportunity to develop a "conceptualize[d] self as belonging to a kin relational, collective Earth system network—its ecosystems and life cycles . . . In ecological belonging all of existence belongs to environmental systems and networks" (Celidwen & Keltner, 2023, p. 2). Ecological belonging allows each of us the opportunity to restore our relationship with Nature. We, like Willis and Coe, encourage interaction with spaces that surround us in our everyday lives, so that our consistent, and mindful interactions may serve as a catalyst to our understanding of relationality as a pathway to Reverence.

Reverence, to this juncture, has been conceptualised as emerging from our relationships with being outside. But, it is absolutely essential to remember that while reverence may initially manifest from direct exposure to outdoor spaces, we should also understand that any separation between humans and the non-human world is a deceptive construction. A direct consequence of this is that Reverence that emerges from our relationship with outdoor spaces improves the reverence and accountability to all our relationships (Wilson, 2008). Shawn

Wilson (2008) recounts a story from his uncle of how Reverence can manifest in relationships in an automated world:

This machine here is made from mother earth. It has a spirit of its own. This spirit probably was not recognized, and given the right respect that it should. When we work in a world of automated things, we forget that . . . everything is sacred, and that includes what we make. (p. 90)

These words feel all the more meaningful when contemplating our everyday choices because nature is never absent from our life. The impacts of cobalt mining are carried in our phones, plastic accumulation in the Land and Sea is carried in our disposable coffee cups, a Silent Spring (Carson, 2002) sits within the produce in our fruit bowls, and exploitation in all its guises sits on the shelves of our local dollar store emporium. That is why we so strongly advocate for the inclusion of environmental Reverence precipitated by *friluftliv* in the work that we do, and why in the CREATIVE framework the first E is for Environment as the way of being that informs the second E of Engineering. It is this relational environmental perspective, linked with action, that we hope can help facilitate a global shift towards environmental Reverence, initially, but universal Reverence ultimately. In an attempt to illustrate the potential for Reverence in diverse and universal contexts, we transition between early learning contexts to secondary school on the high Seas.

Environmental Relationality as a Pathway to Reverence in the Context of Tall Ship Programing

My name is Megan MacLeod. I am a graduate and the current principal of the Class Afloat program. I have over thirty-thousand nautical miles of sailing experience, and I am uniquely situated to envision how Reverence might be incorporated as an elemental point of reflection within the experiential context of tall-ship voyaging.

Class Afloat is a travelling school for students in Grade 11, Grade 12, and those having just completed high school. Students spend a nine-month school year studying and partaking in academic high school classes or entry level university classes offered in partnership with one of our Atlantic Canadian post-secondary institutions—Acadia University. They do so while working as crew members—trainees—aboard a tall ship that circumnavigates the Atlantic Ocean, covering approximately fourteen thousand nautical miles and visiting more than a dozen ports of call. The ship's name's sake, Alexander von Humboldt, was considered for decades to be the father of environmentalism. The school was created as a response to the 1984 UN International Year of Youth which carried the themes of Peace, Participation, and Development. This academic school year, Class Afloat will celebrate 40 years of offering experiential education.

Living, working, and undergoing academic study at sea provides students with the environment and exposure to experiences that quite naturally act as a catalyst for the development of Reverence, or at the very least, opportunity for reflection on the concept. The novelty of the ocean environment, the way in which, at times, it is more reminiscent of a desert than an ocean, its changing hues and Sea state, and the act of observing the horizon in all directions from the top of the mast, are all awe-invoking, particularly when experiencing them for the first time.

Community has always stood as *the* core value to the school. Students live in tight quarters, making it difficult for one individual to consume more space or resources than their peers. The co-ordination required to ensure that all crew members (students, faculty, and maritime crew) remain physically safe and healthy, can accomplish the shared goal of reaching the other side of the Ocean, undertake academic study, and maintain relative harmony between one another is significant. The shipboard environment is often described as a microcosm to our broader world where the impact of actions can be seen and felt by others with striking force in real time.

Sailing a tall ship cannot be done alone. It can't be done with half a dozen people. It requires many, a critical mass. And once that critical mass is reached, we cannot escape the necessity for interdependence. Being a crew member aboard a tall ship requires that one rely on people and elements outside of themselves to accomplish the goal. It has often been remarked that if we, as shipboard facilitators of learning, did nothing else other than to allow the students to live their tall ship experience, they would emerge from it fundamentally changed, having developed, to various degrees genuine skills needed for living in community. Yet we have always sought to bring more intentionality to the process. Living in community well requires skills that span across emotional, cognitive, and social domains. The lessons presented below have been developed with the objective of helping students improve awareness and understanding of their own emotional needs, and their responses of awe and potentially Reverence as they navigate their experiences aboard the ship and across oceans.

As one element in the model shifts so do others. Class Afloat shifts the sphere of environment for students quite dramatically, but we also bring intentionality to other elements of the concept—including the self and identity. Shane and Robyn both identified experiences with the natural world that they had themselves or that they wished to provide to children as influences on their current orientation and identity. The concept of identity is often explored in secondary curriculum, frequently linked to Career Education, exploration of power and privileged, or in a more relational way to the development of social relationships and skills.

Exploration of identity through the lens of the natural environment and early formative memories with the natural environment is one such way in which

students at Class Afloat work to build Reverence. Students are asked to draw on early memories and experiences that hold meaning for them, considering what their inner mental and emotional state was when having such an experience. They consider the ways in which such memories have orientated them in the modern world.

To help facilitate these processes we have developed a comprehensive lesson that outlines three activities and operationalizes environmental relationality as a pathway to Reverence within the context of Class Afloat. While this lesson with its attendant activities have been used extensively with Class Afloat students, it is not intended to be interpreted as a prescriptive norm but as an invitation to explore a pathway to knowing that might be revised or reimagined to any context of learning. Just as this lesson is an invitation for educators to explore and reimagine pathways to knowing, so it is presented as an invitation to students aboard Class Afloat. It is the iterative presentation of invitations, such as this, that provoke reimagining and restorying (Willis, 2011) that, if accepted by students, can act as a catalyst towards an understanding of relationality (Wilson, 2008).²

Lesson: Environmental Relationality as a Pathway to Reverence

Outcomes

1. Students will explore components of their identity through considering their personal histories and stories and their ecological relations.
2. Students will practice listening for understanding and gain experience in perspective taking in a low stake setting/context.
3. Students will make connections between literary themes and scientific concepts, particularly those related to the ocean environment.
4. Students will explore themes of awe, wonder, and Reverence through the lens of the Sea.
5. Students will demonstrate understanding of narrative elements and storytelling techniques.

Activity #1: Talking to Trees

This activity is inspired by the work of Wohlleben (2019), Cornell (1998), and Hubbe & Buehlmann (2010) where the consciousness of trees is contemplated, the potential for relationships with particular trees is explored, and a reverence for wood is embraced. In fact, Thuermer (2012) developed a program where students could build relationships with trees through cell phone conversations. Students on Class Afloat don't text a tree, instead they find a tree to talk to. In this activity, which is often conducted as part of the 2-week-long foundational instruction that occurs on land prior to student's boarding the ship, students are directed to simply find a tree (or a plant in nature) that draws them. Then, they talk to that tree. The facilitator gives the direction that students will be given 5 minutes to simply talk to the tree. It is suggested to just start talking and keep talking, observing whatever comes out. Students are challenged to just keep

talking for the full five minutes. After, we reflect (“What was it like, how did it feel, what did you learn, how might this change you in the future?”)

The intention of the activity is to give students a chance to experience sharing themselves (their thoughts/emotions) with a living object that is not a person. We reflect on how when we share ourselves with other people, we are always (consciously or subconsciously) aware of how they are receiving us. Are they judging what we are saying? We might shift or change how we present ourselves, especially when we are sharing vulnerably, based on how we perceive we are being received by the other.

Trees may have awareness (Wohlleben, 2019) and if we communicate with a tree, we will typically be ignorant of any judgement it may pass. Consequently we may feel that a tree can hold anything we offer it, and it will still offer us the same shade, the same cover, the same music of the wind through its leaves, etc.

As a human, to experience this perceived unconditional acceptance can potentially be transformational, for recognizing:

1. How we share ourselves with others (Are we sharing our authentic selves? How much more do we share when we are received unconditionally? What comes up and out of us in these spaces?)
2. How we receive others (How much do we invite/welcome another’s authentic self when they share with us?)
3. How we can experience a deep connection with nature, when we open ourselves up to it, how the natural world is full of living beings to interact with – it can hold us if we open ourselves up to it. And in doing so, we recognize more fully nature’s own aliveness. Students are encouraged to notice over the next days if they continue to notice a connection with “their” tree. I believe, and am in full agreement with Wilson (2008) and Celidwen & Keltner (2023) that we can transform our connection with nature on a systemic level (protecting our natural environment, prioritizing the natural world over the consumer world) through relational change with its living beings.

Adapted by Dr. Beth Wars of, from Wilderness Therapy programing, for use in Class Afloat.

Activity # 2: What’s Your Relationship With Water?

In this activity, students explore their personal connection to Earth’s wild water and reflect on its significance for them. Through listening to one another’s stories and considering further reflection prompted by follow up questions, students also practice perspective taking.

While this activity can be conducted anywhere, educators may consider bringing students to a natural setting that elicits sights, sounds, and sensations of water as it is found in the natural environment (as noted in Robyn’s section these places should be accessible and offer student’s an opportunity to reflect

on their relationship to the water of that space, and if contemplating the water-cycle, water globally).

1. Have students find a quiet space to themselves and reflect on the simple question: What's your water? Meaning:

- What is the water you first fell in love with?
- What is the water you long for?
- Who introduced you to the water?

The length of time for reflection can vary by student age/level, and the context within which the activity is being conducted. Educators may wish to provide students with paper, drawing, or art tools to capture some of their thoughts.

2. Have students pair up and share their response with a peer for 3 to 4 minutes. The person listening should only be listening. No interrupting, no questions. The instructor may want to remind students to resist any temptation that may arise to make a comparison to the story they are listening to. Once the sharing student is finished the listener can ask further questions about that experience, such as:

- Where were you?
- What did you see?
- What could you hear?
- Were you alone or with others?
- What did you like or not like?
- Did you learn anything new?
- How did you feel?
- What made this experience special?

The goal of the listener/questioner is building empathy through learning *more* about the student's experience and in turn prompt the student to consider more about the experience than they may have initially.

3. Allow students in pairs to reverse roles

4. Bring the class together and encourage anyone that would like to share their story of water with the larger group or (with their consent) have their partner share their story.

Activity #3: Ecological Autobiography/Photo journal

This assignment delves into our personal human-Earth relationships. Its purpose is to arrive at new understandings of self, the living world around us, and our

role within it. Students write their ecological autobiography by describing or sharing images of natural environments and ecological communities that they have encountered throughout their lifespans. The goal is to choose encounters with the natural world that students feel have influenced them *enough* that by describing the encounter, they are in some way describing and exploring elements of themselves.

On Class Afloat, we call this process *creating an ecological autobiography*. During this process, students tell the story of their personal experiences and relationship with nature over time. They consider the stages of their life thus far: early childhood, middle childhood, adolescence, and young adulthood. They further consider and share the distinct memories of experiences in nature from these different stages. The students are encouraged to focus on experiences and not necessarily facts. Each student identifies any recurrent themes, and tries to express any insights and perceptions about *the meaning* of those experiences. Autobiographies may also include a discussion of specific themes or patterns which surface through reflecting on one's story. Some appropriate prompts include:

- What experiences with nature do you remember most vividly?
- When you were younger, did you have a favourite place outdoors where you spent quite a bit of time? What do you remember about this place and what did you like about it. How did you feel and what did you do when you were in this place?
- What special lessons or insights have I gained through these experiences?
- In what ways has your school or schools put you in touch with the natural world? How do you feel about this?
- Have you ever had a special moment where you feel especially close to nature? Describe this moment and the feelings you had.
- Were there places you disliked or made you feel afraid?
- Did you have any experiences that made you feel especially aware of the beauty or power of nature?
- How have nature or ecological related experiences influenced any decisions you've made—possibly career decisions, consumer choices, decisions about where to live or where to vacation? What are the results of those decisions?
- How does your present relationship with nature compare to your relationship with nature at previous stages?
- Do you anticipate future changes and/or additional stages in your relationship with nature? How would you describe this?

This activity can be elemental in students beginning to recognise the intersectional relationships with natural spaces that have contributed to their development as human beings. Our expressed hope is that these activities, in whole or in part of a broader program such as Class Afloat, open a door to relationality that transforms each student's way of being.

Conclusion

As our narratives suggests, we have opportunities to explore and experience relationality, awe, and Reverence in our everyday lives. Through our relationships and lessons, we can inspire and promote Reverence. We should mindfully engage with these moments and spaces on a daily basis with the understanding that any separation between humans and the non-human world is a deceptive construction—a construction we need to actively challenge through our everyday choices. So, whether sailing the ocean on a tall-ship or wandering a local park's forested pathways, our most sincere hope that any readers of this article reflect on their relations to the more-than-human world and discover opportunities to perpetuate, through their teaching and being in the world, humility, environmental relationality, and Reverence. Further to this, we hope that educators choose the CREATIVE framework and adaptations of our lessons and relationships, as a lens through which to develop and revolutionise their teaching practices and share in the essential task of reclaiming our relationships. Because it is only through this relational environmental perspective, linked with action, that we can hope to facilitate a global shift towards environmental Reverence, initially, but universal Reverence ultimately.

Notes

- ¹ We have chosen to capitalize Reverence as a visual cue that this term is a component of the CREATIVE framework.
- ² While the authors did not acquire ethical clearance to communicate details about student experiences, readers are encouraged to visit the Class Afloat website under the “Alumni Say” tab to read firsthand accounts of student experiences and the transformations brought about by the programming implemented on land and at sea. <https://classafloat.com/>

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