Spring 2022

Somatic Learning and Eco-Anxiety in Environmental Education Teacher Preparation

Pippa Hemsley
Western Washington University, pippahemsley@gmail.com

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By

Pippa Hemsley

Accepted in Partial Completion
of the Requirements for the Degree
Master of Education

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May 31st 2022

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A Project
Presented to
The Faculty of
Western Washington University

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Abstract

This study investigated the potential for somatic pedagogies to address eco-anxiety among prospective environmental educators. Although it can also have positive effects, eco-anxiety often becomes an overwhelming experience that contributes to high levels of burnout and inaction. Somatic pedagogies are those that purposefully include a sensory-reflective component. A short curricular intervention was implemented in an environmental education curriculum class of 19 undergraduate students to explore how using somatic pedagogies to reflect on eco-emotions impacted readiness to address eco-anxiety in their future teaching, and in what ways somatic pedagogies might support environmental education teacher preparation. Using grounded theory methodology to analyze participant responses revealed significant growth in ability to address eco-anxiety from the use of somatic pedagogies. This paper gives rich description of three overarching themes that emerged in participants' experiences.

Keywords: eco-anxiety, somatics, embodied learning, curriculum, environmental education, teacher preparation

Introduction

I designed, taught, and evaluated a four session curriculum for students enrolled in an environmental education curriculum class at Western Washington University. This demonstration curriculum combined an introduction to somatic teaching and learning strategies woven together with an investigation of experiences of eco-anxiety as it relates to teaching for eco-social justice.

Because the term "eco-anxiety" counterintuitively encompasses emotions other than anxiety, I have often preferred to use the non-standard term "eco-emotions" in my teaching and my writing to more clearly indicate the broad range of feelings at play. I continue to use the term "eco-anxiety" to reference existing research in my literature review, to discuss participant statements that also used the term "eco-anxiety," or when the emphasis is on primarily anxiety-related feelings, which were common among the participants in this research. In other cases I use "eco-emotions."

The following document includes my review of the literature, the methods used for this study, results and discussion, and a few ideas for applying this research in other educational contexts. The appendices contain lesson plans, study instruments, IRB approval, and an example somatic activity with suggestions for implementation.

Literature Review

Eco-anxiety encompasses not just environment-related anxiety but also a wide range of possible emotional experiences, such as anger, grief, apathy, and guilt. Its most distinguishing features are a sense of overwhelm, powerlessness, and existential challenge (Pihkala, 2020b; Marks et al., 2021). It can manifest with varied severity and presentation, ranging from such experiences as concern and worry, to clinical depression, to denial. When individuals have

sufficient emotional literacy and community support, eco-anxiety can become an adaptive, motivating force, but otherwise can contribute to burnout and inaction (Pihkala, 2020b). For educators, developing competence with eco-anxiety could help avoid the risk of having no effect or even a negative effect on learners' ability to move from knowledge to action due to the sense of "doom" that usually accompanies discourse about the environment (Kelsey, 2020). Because eco-anxiety is an emotional "bodymind" experience, embodied pedagogies---methods of teaching and learning that involve noticing and using the body---are a promising method for addressing this need (Pihkala, 2020b, p. 23). I reviewed the literature on eco-anxiety and embodied pedagogies in Environmental Education (EE) to answer the question: how might embodied pedagogies be applied in EE teacher training to prepare teachers to engage with eco-anxiety? First I explore what is known about eco-anxiety and its implications for environmental education. Then I survey research on embodied and somatic learning within the field of Environmental Education. Because there is only limited research that has been published in this scope so far, I have finished with a closer look at two case studies that demonstrate potential uses of embodied pedagogies toward engaging with eco-anxiety, and closed with implications for further work and research.

Eco-Anxiety

Eco-anxiety is an umbrella term beginning to be used to refer to a complex collective of emotional experiences related to the environment, including climate anxiety, solastalgia, climate grief, environmental despair, eco-guilt, eco-anger, and climate distress. Eco-anxiety has been written about most extensively by Panu Pihkala, who studies spiritual and psychological dimensions of environmental change, while other researchers have explored more deeply into the component experiences of eco-anxiety. I have also drawn heavily from Maria Ojala, whose

research has centered around emotional experiences of youth in relation to environmental challenges.

It may be easiest to think of eco-anxiety as inclusive of any difficult emotional experience related to the environment. Eco-anxiety has strong ties to complicated (unresolvable) grief and mourning, traumatic stress, guilt, and anger, but also hope, excitement and enthusiasm about environmental work. These many presentations and offshoots of eco-anxiety are inextricably connected to social factors that change how it is experienced and talked about, or not talked about (Pihkala, 2020b). Furthermore, each of these facets may either serve to help or hinder environmental action depending on how it interacts with each individual's unique set of prior experiences, emotional skills, and social support or social stressors (Marks et al. 2021; Pihkala, 2020b; Ojala, 2016). Rather than being an individual pathology, eco-anxiety is a socially-mediated, collective experience with diverse individual manifestations that can't be neatly categorized into "good" and "bad."

Eco-anxiety has a broad reach. Almost anyone has the potential to experience eco-anxiety because it can occur even after just hearing about the possibility of environmental damage (Clayton, 2020). While it may affect anyone, risk factors for experiencing strong forms of eco-anxiety include living with close ties to the land, directly experiencing environmental crises, having intersecting socio-economic risk factors, engaging in environmental work, and being in the midst of life transitions such as choosing a career or starting a family (Clayton 2020; Cunsolo & Ellis 2018; Pihkala, 2020b; Marks et al. 2021). Environmental researchers often develop symptoms of peritraumatic stress and burnout from indirect exposure to environmental disasters (Pihkala, 2020a).

In addition to the widespread potential for eco-anxiety across populations, it would be especially relevant for environmental education teachers to develop competency around eco-anxiety because younger people self-report high rates of eco-anxiety and because reckoning with the global environmental situation constitutes a "developmental crisis" for children and youth (Pihkala, 2020b, p. 10). Like other distressing childhood experiences, eco-anxiety experienced at a young age is likely to have long lasting mental health effects (Clayton, 2020; Marks et al. 2021). High rates of self-reported eco-anxiety can be explained in part by the fact that children are still reliant on adults, amplifying the feeling of powerlessness to address environmental changes. In a survey of 10,000 16 to 25 year-olds in a varied set of countries spanning the global North and South, widespread awareness of the effects of climate change appeared to be compounded with an added sense of betrayal by adults and governments who have failed to act or take young people's feelings seriously (Marks et al. 2021). Teachers hold one of the positions of power in which the work of righting this wrong can be begun. While environmental educators are validating young people's concerns to some extent simply by virtue of their line of work, I suggest that directly addressing eco-anxiety together with learners is another important piece of the puzzle which demonstrates direct attention to the emotional impacts of eco-social threats, as well as the possibilities that may emerge from undertaking such an emotional reckoning: eco-anxiety's transformative potentials.

Eco-anxiety can be an important, adaptive response. Although high levels of eco-anxiety can contribute to clinically significant mental health conditions, eco-anxiety overall is not a pathological state to be avoided or manipulated away. In the field of political psychology, worry and anxiety have been found to motivate people to pause what they are doing, think critically, reflect, and seek out more information (Ojala, 2016). For this reason, eco-anxiety deserves

consideration as a "moral emotion" that may serve an important role in addressing environmental crises (Pihkala, 2020a, p. 14.). Issues arise when eco-anxiety goes beyond an individual's ability to cope and becomes paralyzing (Ojala, 2016). This level of overwhelm can lead to major life impacts like insomnia, depression, and disengagement (Pihkala, 2020b). While these clinical level impacts of eco-emotions are not an appropriate focus for most teaching situations, awareness of their existence can help provide context for both teachers and students when exploring the role of eco-emotions in environmental work.

Eco-Anxiety's relationship to Hope

Because remaining focused primarily on negative outcomes and risks tends to foil sustained action (Kelsey, 2020), hope is usually discussed in tandem with eco-anxiety and its subset experiences. Maria Ojala has done extensive work studying anxiety and hope in environmental education, and compares the challenges of environmental and climate change education to similar challenges encountered in transformative, transgressive learning. Hope is a necessary component of this type of learning because it addresses humans' persistent psychological need to defend against identity-threatening information, such as the knowledge that climate change is a threat to human existence (Ojala 2016). Hope can act as the catalyst that tips eco-anxiety toward the side of "action" rather than "inaction."

However, it is very easy to miscommunicate about hope because it can be mistaken for blind optimism. In the face of overwhelming, continuous disaster and loss, optimism is not appropriate because it presupposes that a positive outcome is likely (Pihkala, 2020c) and could even dissuade people from taking action. Overemphasizing positive feelings ends up being an exclusionary practice that normalizes banishment of "negative" emotions and the people who experience them (Ojala, 2016). Further, strict categorization of emotions as positive and negative

obscures the complex reality that difficult emotions are often necessary precursors to constructive actions and change, and that easy, enjoyable emotions can preclude those same actions.

Efforts to give a more precise name to the type of hope called for have produced terms like critical hope, constructive hope, authentic hope, active hope, tragic hope, radical hope, or have departed from the language of hope altogether and opted to focus on courage or meaningfulness instead (Ojala 2016, Pihkala, 2020b). Ojala suggests a form of hope involving the positive feeling that provides strength to face deep-seated problems, combined with concrete action creating paths toward "preferable" futures (2016, p.52). Whatever form or name it takes, an appropriate hope would likely need to meet people's needs for building resilience to existential threats and showing courage to continue finding meaning and taking action in the face of uncertain futures (Kelsey, 2020; Pihkala, 2020b).

Eco-Anxiety and Hope in Teaching and Learning

Pihkala, summarizing expert recommendations, lists themes from the literature that could be incorporated into environmental education: building immediate crisis coping skills, long-term emotional skills, skills for maintaining a sense of meaning in life, engaging in collective action, building community, and strengthening nature connections (2020b, p.15)

Ojala identifies two potential "styles" of using hope for environmental action. The first is a process of consciously bringing hope to worry, and worry to hope, striking a balancing act that moves between present problems and future potentials. The second is building trust: in one's own agency to make change, in others who are working toward the same vision, and in humanity as a whole (Ojala 2016, p. 50).

Researchers point out important considerations for teachers bringing eco-anxiety into the curriculum. First is to build awareness of how power structures and psychosocial dynamics impact emotions and emotional expression (Pihkala, 2020b). Second, is the consideration to carefully distinguish between building emotional skills and enacting an emotional regime. Ojala cautions against inadvertently teaching learners how to adapt to harmful circumstances without challenging them, reifying structural inequity (2016).

Furthermore, to engage eco-anxiety more effectively in teaching, environmental educators would benefit from developing enough knowledge and skill to reckon with their own eco-anxiety (Pihkala, 2020b), which forms part of a larger reckoning with basic beliefs necessary for bringing about "eco-social-cultural change" (Blenkinsop & Fettes, 2021). Teachers inherently serve as role models for how to engage with and share emotions. Sharing their own experiences of eco-anxiety normalizes for students that eco-anxiety is a common phenomenon, even though it may have diverse sub-forms that differ from person to person (Ojala 2016; Pihkala, 2020b). In a survey of environmental educators in eastern Australia, Verlie et al. (2021) found that in response to students' experiences of ecological distress, teachers are currently "encouraging students to engage with their emotions, validating those emotions, supporting students to navigate and respond to those emotions, and empowering them to take climate action" (p.2). The same teachers reported a high level of challenge in carrying out these strategies, citing difficulty with such things as "being an authority on hope," dealing with their own eco-anxiety, and balancing emotion-related content with other course content (p.10-11).

Finding and maintaining a sense of meaningfulness seems to be a key feature of moving through disabling side of eco-anxiety, but cynicism and distrust are becoming more common as a response to anxiety about the future and lack of constructive responses on the part of government

authorities (Kelsey, 2019). Teachers can help meet this challenge by concretely demonstrating that different futures are possible, that forgone conclusions and norms can be challenged, and that real people exist who are doing the types of work needed to address complex problems like climate change (Ojala, 2016). For further addressing the need for meaningfulness, Pulkki et al. recommend contemplative pedagogies as a way to re-link knowledge and action (2016). Mihaly Csikszentmihalyi's work on flow theory provides a more detailed description of meaningfulness in practice. A flow state is characterized by total absorption in an activity for its own sake. It can be achieved when the goals of an activity are clear, when the activity inherently provides immediate feedback, and when challenge level is well matched to an individual's skill level (1997). The challenge, then, would seem to be to reconceptualize nebulous global problems as being made up of small, individual human-sized "minigames" that have clear and immediate goals and feedback.

Another promising hope-related practice teachers can draw from to support this process is appreciative inquiry. Appreciative inquiry uses focused attention to expand the aspects of a system that are leading to positive change. Being more complex than just "focusing on the positive," appreciative inquiry includes room for difficult emotions to arise in response to challenging situations and be reconnected to longed-for outcomes through searching the gap between what is, and what could be or what is desired (Bushe, 2007). Cynthia Chambers reflects on finding meaning through a "path with heart" in research, one which follows desire even when that desire leads into realms of hardship (2004). Longtime activist and social justice facilitator adrienne maree brown writes on the importance of connecting to a felt-sense of desire in activism work (2019), and Sarah Jaquette Ray relies often on brown's writings in *A Field Guide to Climate Anxiety* (2020). Altogether, these works addressing the need for meaningfulness seem

to point toward a gap of missing links across levels of experience: how is the physical spiritual and the spiritual physical? How do desires become actions? When we are thrown into a hollow of grief or fill up with the heat of anger, does it matter?

In the next section of this review, I will look more closely at the use of embodied and somatic pedagogies in the Environmental Education realm to see in what ways the more physical side of this gap is already being worked with.

Embodied & Somatic Pedagogies

Embodied pedagogies are methods of teaching and learning that incorporate direct experience and action, centering the body as a site of learning (Freiler, 2008; Payne, 1997) and uniting body and mind "in a physical and mental act of knowledge construction" (Nguyen & Larson, 2015, p. 332). In other words, bodily experiences of emotion, sensation and movement make up part of the inquiry process and part of what is learned. Sometimes the term "embodied" can be applied quite imprecisely, as technically all learning incorporates direct experience and action. A more precise category, somatic learning is the subset of embodied learning that specifically involves paying attention to sensory information coming from the body (Freiler, 2008). For example, an activity involving dance could be considered embodied learning, while attending to how the body feels or moves during the dance would also be somatic learning. In this work I will use "somatic" to refer to activities that overtly involve this sensory reflective component, and default to the more common "embodied" terminology to refer to activities that do not overtly include sensory reflection.

Embodied pedagogies are increasingly being used in mainstream education to facilitate learning that challenges colonial modes of knowledge production (Wagner & Shajahan, 2015) and to take into account the body's direct effect on social experience, sensing, perception,

thought, and action (Nguyen & Larson, 2015). In the field of Environmental Education, embodied learning has been used to support students' growth in "being for the environment," able to take environmental action in relationship with complex human and non-human/more-than-human communities. Payne (1997) argues that embodiment is a necessary component of learning to "be" for the environment, and describes how specific questions were used in an undergraduate course to consider the body as a starting point for qualitative inquiry into environmental problems. Grange (2004) calls out for the need for attention to racial embodiment in EE. Lane (2012) explored embodiment as a way of relating to the environment via methods emerging out of theater pedagogies and Indigenous Knowledges. Pulkki et al. (2017) construct a justification for contemplative pedagogies by summarizing the environmental consequences of bodily alienation and address the difference between students merely having physical experiences in nature, yet alienated from the body, versus skillfully attending to nature in mind and body.

An embodied approach is one important part of fully addressing the challenges that prevent people from taking environmental action. Surveying environmental education research, Blenkinsop & Fettes found that "to educate to live within the earth's carrying capacity...we must come not only to an intellectual but also an embodied way of felt knowing that reveals the world and self as co-relational" (2021, p. 43). Emotions are intricately linked up with the body and with the sense of selfhood that people use to navigate the world (Ojala, 2016). Widespread alexithymia, the inability to identify and name emotions, prevents many people from recognizing and processing feelings, so embodied and creative methods are highly recommended for learning to move through the energy of complicated emotional experiences like eco-anxiety (Pihkala, 2020b).

Scope of embodied pedagogies in this literature review

The term "embodied pedagogies" has only become useful because it contrasts with existing pedagogies that do not make intentional connection to the body. Mind-body dualism, or treating the mind and thought as separate from and superior to the body and the senses, remains the dominant orientation in academia and eurocentric science (Wagner & Shahjahan, 2015). To these contexts, embodied learning may seem like a novel approach, but Indigenous understandings of the world have not made the same separation between mind and body (Aluli-Meyer, 2013). As a result, my review of embodied pedagogies as they've been discussed in the context of research articles published in the western academy, having only emerged within the last century, will be limited and incomplete for the fact that this recent starting point is disconnected from Indigenous Knowledges that have been tested and endured over time. Interest in Indigenous Knowledge is building and many Indigenous scholars are finding new and exciting ways to share their work appropriately, such as Marie Battiste and James Sake'j Youngblood Henderson who discuss the possibility of appropriately incorporating Indigenous Knowledge within the Canadian education system (2009). This field is right at the edge of academia - but as was stated earlier it is an ancient and cultural practice that needs to be acknowledged because of its near erasure due to colonization.

In this review, I have sought to focus as much as possible on embodied pedagogies that directly engage with the body's experiences of movement, emotion, and proprioception (internal sensations and spatial awareness). These embodied experiences have received only occasional attention so far, yet form the core of the life-threat challenge posed by eco-anxiety. Across the social sciences, embodiment has so far often been explored from a passive lens, where the body is recipient to forces of socialization and control, but not often as an active, agential, and material

entity (Borovica, 2020). I have chosen to focus on sensory experience and physical action because of the agential possibilities attached to it. Although each person may experience embodiment differently, have different physical abilities, and have different socially-mediated relationships to physicality allowing for greater or lesser ease, sensory experience is the one learning environment that remains accessible to all so long as there is consciousness, and which in many ways cannot be escaped.

To give an example of how this scope affected my research process, theater pedagogies and writing pedagogies are often mentioned in the literature and are considered embodied pedagogies, but were peripheral to my scope unless they also included direct examination of movement, sensation, or emotion. This scope could be described more specifically as centering on "somatic pedagogies," and to some extent "contemplative pedagogies." However, I encountered no instances of the word "somatic" in any Environmental Education literature that I surveyed, and only a handful of brief mentions in broader Education literature. Overall, even brief examinations of the body's role in learning for the environment were scarce in environmental education literature.

Use of somatic and embodied pedagogies in EE and EE teacher Education

In environmental education, some research has considered embodiment in EE in general. Payne (1997) relates mind-body dualism to theory-practice dualism and calls for embodied learning to address the need for learning for the environment, while Grange (2004) responds, going further than Payne to say that it is necessary both for learning for the environment as well as critical social praxis (unity of theory and action). Pulkki et al (2017) also identify mind-body dualism as a driver of alienation from the environment and environmental concern, and suggest that contemplative pedagogies, those involving sensory awareness and meditative techniques,

can reduce alienation through increasing awareness of the blurry distinction between self and other. Dunlop (2002) explores the potentials of writing and telling stories to invoke embodied emotional experiences and engender deep, loving connections between people and places, self and other. The wide array of teaching methods and approaches used in EE may emphasize embodiment to a greater or lesser degree, with examples including transformative learning (Sipos et al., 2008), or role-play (Lane, 2012).

For a focus on somatic learning in particular, the closest match I discovered was the piece by Pulkki et al. (2017), who argue that part of the process of reversing the alienation of people's attention from their ecological surroundings is reversing the alienation of the mind from the body. They explain that contemplative pedagogies that sensitize learners to the life in the body concurrently support growth in caring and ethical consideration of life outside the body. They note along with other researchers that it is difficult to take care of something without feeling a sense of love and connection for it. Enhanced awareness of the body and its experiences that can't be separated from the surrounding world becomes a catalyst for action (Pulkki et. al. 2016). Payne (1997) also explores the body as a starting point for environmental inquiry in an undergraduate course, but does not seem to explicitly direct students to attend to the felt sensations of the body. Nevertheless, in their reflective discussion and creative writing during the course, students did end up discussing emotions and physical sensations. This peripheral engagement with sensory experiencing seems to be a pattern in arts- and writing- based curricular experiences.

Despite this attention given to the body's role in learning in Environmental Education in general, there is scant literature attempting to directly examine embodied pedagogies in Environmental Education teacher training. Evans and Ferreira (2020) catalogue a list of

sustainability pedagogies found in their review of Education-for-Sustainability (EfS) teacher training research, which includes many place-based and active learning pedagogies. In their review they found 17 articles addressing pedagogies used in EfS teacher preparation. They coded the articles according to Sipos, Battisti, and Grimm's (2008) "Head, Hands, and Heart" Transformative Sustainability Learning model. In that model, the examples related to "hands" included activities like "painting a fence" (p. 75). Of the 17 articles reviewed, Evans & Ferreira found 11 which included "hands" pedagogies, but they note that "very few of the publications go beyond a descriptive mention or naming of pedagogy/ies applied" (2020, p. 34). A separate study on conference workshop participants found that walking activities had a transformative effect on trainee teachers' perceptions of what pedagogies were possible in their future work to support ESE (Walshe & Tait, 2019), yet the walking itself was not discussed. Overall, it seems that the body receives little direct attention as a site of learning in EE teacher training, instead remaining on the periphery of more thought-oriented methods. Even when emotion is also considered, it does not seem to often be contextualized as a bodily experience. This certainly could be happening much more in actual EE teacher training practice, but for the most part has not made its way into published research.

Two case studies went further and studied applied somatic pedagogies in the context of Environmental Education. The second even at times engaged purposefully with eco-anxiety.

Case 1: Somatic pedagogies scaffolding relationships with the more-than-human

The first study was conducted by Stapleton and Lynch (2021). Over a period of 3 years, they studied elementary students' growth in relationships to more-than-human communities facilitated by activities categorized as "Movement," or active learning and discussion; "embodied awareness," or practicing sensory and observational skills; and "Stillness," or

listening, "interacting with more-than-human," and engaging in other meditative activities (p.283). They found this approach effective when scaffolded over time and noticed that students learned to focus more easily while outdoors, taking enjoyment from simply listening to and observing their surroundings. They also found that students deepened their concern for more-than-human communities.

Case 2: Dance pedagogies, climate emotions, and ecologically just communities

The second study was a thesis project by Nella Turkki (2020) investigating dance pedagogies as a medium for encountering climate emotions and fostering ecologically just communities. Working with a group of adults of varying ages, Turkki's project used an EcoJustice framework to construct dance activities for the learning themes of Diversity, Connection, and Belonging, and concludes with Turkki's "Pedagogy of (Be)longing" designed as a culmination of what was learned from the process. Core parts of the Pedagogy of (Be)longing are developing awareness of one's own body, working autobiographically, exploring through intuitive embodied movement what can't be rationally known or deduced, dialoguing without interrupting others' emotional processing, and having the instructor take the role of facilitator who learns and teaches as much as students learn and teach.

Implications

While embodied and somatic pedagogies show promise for addressing eco-anxiety, there are not many examples showcasing ways teachers can be prepared to incorporate this approach into their curricula across varied teaching and learning settings. Synthesizing the recommendations about teaching eco-anxiety with the recommendations about teaching through embodied methods paints a picture of an approach that involves:

- developing critical understandings of the role of eco-emotions in both upholding and challenging social inequities

- practicing basic emotional literacy and sensory awareness

- making space for students to learn by inquiring into their own experiences

Research Questions

Primary research questions

- How does using somatic pedagogies to reflect on eco-emotions impact students' readiness to address eco-anxiety in their future teaching?

- In what ways can somatic pedagogies support Environmental Education teacher preparation?

Subquestions tied to the study instruments

- How did students make connections between the class experience and their personal development as teachers?

- How did students' thinking change over the course of the experience?

- To what extent were students able to envision teaching about eco-emotions using embodied and somatic methods?

- What was students' lived experience of the curriculum like?

- How did students' perceptions of embodied and somatic learning, eco-emotions, and their own teaching change?

- How do students imagine using what they've learned in the future?

Limitations

Scope of this Research

I worked with one group of 19 students, allowing for just one case to study. Outcomes of the learning activities would likely vary in different situations, so being unable to compare across multiple instances means some aspects of my analysis will be very particular to this single instance.

The teaching portion of this project took place during a short period of time, roughly two weeks in February, 2022. Therefore, my research is more representative of a short, intensive learning experience than a long-term intervention. As I did not follow up with participants longitudinally, I did not draw inferences about long-term impacts or delayed impacts of the curriculum, except to informally mention students' comments made later in the academic term.

On top of the types of privilege I mention in my positionality statement below, I held a position of power relative to participants because of my role as a researcher, my seniority as a graduate student, and my role in guest-teaching a portion of a course students are enrolled in which demonstrated that I had close ties to the professor of their course. Although some of this power was softened by my student role and the precautions taken in designing the research in compliance with IRB guidelines, power dynamics still shaped my interactions with participants and likely altered the types of thoughts participants were willing to share. They may also have chosen to withhold some critical feedback.

Effects of the COVID-19 Pandemic

The need for masks during the COVID-19 pandemic hampered verbal and nonverbal communication in some situations. Although this did not seem to pose a great barrier to carrying out the learning activities, I do think it had some impact on how activities were experienced.

I purposefully selected learning activities that allowed people to maintain distance from each other rather than come in close contact. Normally I would have chosen a mix of both.

The context of the pandemic has led to overall low morale among students and may have shaped this learning experience either in the direction of less energy, because of the low overall morale, or maybe more energy, because of a return to having in-person interactions.

Positionality Statement

I am a white settler living and studying on the unceded territories of the L'haqtemish and Noxws'áʔaq peoples, whose care and stewardship of this land has continued since time immemorial. My research is intended to support developing capacity for the work of fully restoring sovereignty of the lands and waters of Turtle Island to its original inhabitants, and for the work of decentering whiteness in the movement toward intersectional eco-social justice. I have chosen the body in learning as a focus because my experience has been that mind-body dualism is one of the features of my culture of whiteness that contributes to holding other features in place.

I experience intermittent physical disability that disrupts my motor control and prevents me from using my legs, but I still live the majority of my life without facing major barriers related to physical disability. While my experience of disability informs this project and has helped me imagine ways to build adaptations into a curriculum centered around movement and sensing, there may still be gaps I have not accounted for.

I am also a queer, cisgendered, nonbinary person who moves through the world and holds privilege as a woman. Although being male-identifying in most situations would confer greater privilege and credibility, I think that at least in the context of this project, presenting as a woman

ends up being at least partly an advantage because it is more expected for women to discourse about topics related to emotions, and may be able to do so with more credibility in the context of teaching in a higher education class where the majority of students also present as women.

The ultimate source of the somatic learning lens in this project has been my experience training in Aikido. I am indebted to my first teacher, Bert Bennett-sensei, and his teacher, Rev. Koichi Barrish-sensei, for the skills, lessons, and understandings passed down from Aikido's founder Morihei Ueshiba O-sensei that have become central to my experience of life. I am also grateful to have been able to continue my training since then with my teachers Rob Staveland-sensei, Spencer Anthony-Cahill-sensei, and the many other practitioners I've had the opportunity to learn from up to now who have each left a unique mark on me. I began training in 2014, and having built up six years of consistent practice, I am still a novice in this art, which Ueshiba O-Sensei and successors have shared around the world for the purpose of fostering peace. Therefore, my Aikido background gives my research a bias toward optimism about the potential for most people to learn how to interrelate with greater understanding given opportunity and time.

Because I hold privilege as a white cisgendered settler woman and U.S.-Canadian citizen, I also acknowledge that uncritically aligning myself with ideals of peace would be an act of violence. I know that stated ideals of peace and nonviolence have been used, particularly by white women, both as a flight to innocence from confronting the truth about our own ongoing complicity in systems of oppression, and to demonize the use of force by people of color to survive and to change these systems. In this work I try to emphasize that survival actions, sense experiences, and emotions cannot be reckoned with in a binary of good/bad, and that they also can't be separated from the social contexts in which they occur.

Methods

This research used a qualitative method based in teacher education case study methodology to investigate the effects of introducing eco-anxiety alongside somatic teaching & learning strategies to undergraduate students in an environmental education curriculum class. Data was analyzed using a grounded theory approach.

Case Study Methodology

This case study examines one implementation of an intensive curricular intervention. As a guest teacher, I took over teaching during four class sessions. To answer the <u>research questions</u> and provide rich description missing from the existing literature, I interpreted themes emerging from participant-generated documents (reflective writing, reflective drawing, and a written lesson plan), my written reflections after teaching each class, and a focus group discussion transcript.

Assessment

Between September 2021 and January 2022 I analyzed the needs surrounding eco-anxiety and somatic education in Environmental Education using a variety of methods. I conducted a <u>literature review</u>. I interviewed Dr. Panu Pihkala and Dr. Elin Kelsey, both researchers studying eco-emotions with experience teaching and giving talks to the public on these subjects. I also interviewed two of Dr. Pihkala's current students pursuing similar topics. I joined an undergraduate/graduate level hybrid class taught by Dr. Kelsey and Joy Beauchamp MA titled "Ecology and Hope in the Salish Sea" to gain firsthand experience with a similar curriculum involving somatic methods.

I drew from my own experiences reflecting on my teaching, on navigating emotions related to eco-social justice, and on encountering somatic learning through Aikido and other

embodied methods such as role-play and Augusto Boal's "Theater of the Oppressed." I piloted two somatic learning activities tied to eco-anxiety with my graduate student peers and asked for their perspectives on the experience. I also visited the class I would be taking over to become familiar with the students and the context.

Design & Development

From October 2021 through January 2022, I collaborated with the primary course instructor, my advisor dr. nick stanger, to determine parameters for the curricular intervention and focus group that would fit into the overall course design and be timed conveniently for students. I drafted assignments and lesson plans (Appendix A), determined study instruments (Appendix B), went through the IRB research approval process (Appendix C), and selected readings to accompany each lesson.

Implementation

Project implementation, involving the informed consent process, lessons, and the focus group, occurred between January and February 2022.

Consent Process.

I posted a Canvas announcement introducing the research project and inviting students to participate. I also visited during an online class session to do an introduction and formal informed consent process.

Lessons.

Participants and other members of the course were invited to engage in activities that involve focused sensory awareness of external objects using all senses, as well as their own movement, bodily alignment, temperature, and other internal sensory cues. Some activities involved comparison between experiences of thinking and sensing, and some involved applying

sensory awareness to a physical challenge, such as dodging a swung pool noodle or trying to maintain equidistance to classmates while in motion. These somatic learning activities were supported by more familiar methods including large and small group discussion, reflective writing, lesson planning practice and silent reflection time.

#	Title	Mode
1	**The Body in Teaching & Learning** Introduces somatic methods, sensory awareness, and rationale for including these methods in teaching.	In-Person
2	**Eco-Anxiety and Emotions in Teaching** Investigates eco-anxiety and complexifies understanding of emotions in teaching.	Online
3	**Hope & Organization** Uses movement to investigate hope and other emotions related to persistence in environmental work. Students design practice interstitial lesson plans.	In-Person
4	**Open-Space Discussions** Students synthesize, evaluate, and extend learning by independently generating topics to lead discussion on and moving freely between ongoing discussions.	In-Person

Learning Objectives.

The curriculum was designed to support these primary learning objectives:

- Learners can design curriculum that takes into account the body's role in knowledge construction, including role of senses, movement, and emotions.

- Learners can reflect on physical movement, sensory experience, teaching choices, and eco-social-justice action using the "push/pull/attend" heuristic or a modified heuristic that aligns with their own understanding.

- Learners can describe ways to facilitate learning experiences that engage with eco-emotions.

Focus Group.

I led the focus group discussion using open-ended questions and an appreciative inquiry approach (Bushe, 2007), seeking to elicit participants' experiences of the intervention with a focus on what they found most meaningful, useful, and enjoyable about the learning experience, and how they imagine making use of it in their future teaching.

Context & Population

The teaching took place during February 2022 in ENVS 492 "Curriculum in Environmental Education" class at Western Washington University, located in Bellingham, Washington, USA. 21 students enrolled in the class, most of whom were majoring in Environmental Education. Personal demographic data was not solicited for this study, but during the prior year students in the Environmental Education major were listed as 96% female, 23% first generation college students, 31% Pell Grant Eligible (based on having "exceptional financial need"), 96% Washington state residents, and 27% students of color (Western Washington University, 2021). Based on their enrollment in an upper-level university course, it is safe to assume that the students in this research were relatively privileged overall in race, class, and language.

Students who did not decide to join this research were still welcome to attend and participate, so the class was a mix of study participants (contributing data) and non-participants. The intervention took place over 4 class sessions. 3 sessions were facilitated in-person. 1 session

was facilitated online using Zoom Meeting. Class sessions were 110 minutes twice a week, and included a 5-10 minute break. The focus group occurred after the final class session for participants who opted-in, and due to unforeseen time constraints was just over 15 minutes long instead of a planned 50 minutes.

Evaluation and Analysis

Evaluation occurred between February and May 2022. I used a grounded theory approach to iteratively code and interpret data gathered (n. stanger, personal communication, January 13, 2022). To support the quality of the resulting grounded theory, I kept notes about my analysis process, including rationale for major decisions about categories and themes.

Data Collection

I collected reflective writing & drawing assignments, interstitial lesson plan assignments, the focus group audio recording, and written notes of my own reflections after each class session.

Focus Group Transcription

I transcribed the focus group audio recording, including notes to indicate pauses, nonverbal utterances, emphasis and other information that helped me better analyze the experiences students expressed during the conversation. Recognizing that all transcriptions are a selective interpretation, I approached this transcription with a main focus on accurately representing the words that participants speak, and a secondary focus on denoting speakers' audible cues that could indicate mood such as laughter or sighing. If something inaudible but significant happened during the discussion, such as a person standing up and using their whole body to illustrate a point, I had planned to try to describe that action from memory in the transcript, but there were no such instances to record. To reduce memory inaccuracy, I transcribed the recording shortly after the focus group was over. I retained words like "um" and

"like" in the transcription because I felt they were important for accurately indicating when participants were struggling to articulate feelings and complex ideas, and because I have a preference for preserving speech patterns without editing for socially constructed rules of style.

De-Identification

I scanned and uploaded each item to the secure online account storage provided with my WWU universal account, redacting identifying information.

Analysis Process

1. I created paper copies of the data.

2. I read through the data, first by instrument and then by student, taking notes about my initial observations and thoughts.

3. I coded the data using an open coding method.

4. I cut the data into small sections in order to make them easily moveable for coding.

5. On a flat surface, I rearranged the coded pieces into emerging themes, considering common threads, unique occurrences, and what seemed to be "missing."

6. I photographed different data configurations as I built them.

7. I used the generated themes to theorize about the curriculum, its outcomes for students, and the potential role of somatic methods in Environmental Education for addressing eco-anxiety.

Data Coding Scheme

I included the codes I used for items of data to make it easy to understand how early or late in the experience different statements occurred, and to allow interested readers to note when statements were made by one participant or multiple participants.

Participants were numbered 01 through 12. Codes for study instruments included Reflections 1-3 (R1-R3), Interstitial lesson plans (LP), and Body Maps (M). When multiple pages were present, the page number was added after the study instrument code (R1-2). Statements made in the study instruments were numbered ("5") and grouped if sequential statements were closely related ("5a," "5b," etc.).To give an example, "#05.R1-1.2b" means "Participant 05, Reflection 1, page 1, statement 2b."

The focus group transcript was coded differently. Speakers were assigned a letter "A" through "I". Each data element was coded with the number of the question that had recently been asked (Q1, Q2…), the letter indicating the speaker, and a number counting each statement that speaker had made. To give an example, "#Q8.H7" means "Response to question 8, speaker H's 7th utterance during the focus group."

Significance to Degree

This project is significant to my Environmental Education degree because education for the environment relies on building capacity for responsive and appropriate action in the face of a high level of challenge posed by what often appear to be insurmountable challenges of environmental change, disasters, and social conflict at the macro and micro level. While learners commonly become familiar with each of these challenges on both a theoretical and experiential level, and may practice various skills for addressing them using active learning and project-based learning methods, they may still struggle to make full use of their learning and remain engaged due to the various manifestations of eco-anxiety which can be *disabling*, *disheartening*, or more subtly just *distracting* by pulling attention away from where it is most needed. Because eco-anxiety consists of emotional experiences, and emotions are a "bodymind" phenomenon, incorporating this investigation of embodied and somatic teaching methods supports and

complements the other portions of my degree, making it likely that I can have a greater impact as a teacher by being able to support learning across these multiple domains simultaneously, each a component part of human action.

Importance and Applications of this Project

My project is significant to the field because there are few examples of somatic learning in environmental education literature and those I could find had little detail about the methods being used. While somatic learning is likely happening to some degree in actual practice, what I hope I have been able to contribute with this project is a case study example for others to reference and build off of to expand the use of somatic methods in Environmental Education teacher training, and to encourage further research into this promising practice. Although the project as a whole is tailored to the specific context I was working in, many of the activities within my curriculum can be adapted to different learning situations and different age groups.

Project Budget

The budget for this project was $38 USD. Eight foam pool noodles to share in group activities cost $32 USD. Copies and printouts for paper assignment prompts and the data analysis process cost roughly $6 USD.

Results & Discussion

Participation

Nineteen students participated in the lessons. Twelve agreed to participate in the research. Not all participants submitted all assignments that were used as study instruments. Twelve submitted Reflection 1, six submitted Reflection 2, and four submitted Reflection 3. Nine submitted the Body Mapping assignment, eleven submitted the Interstitial Lesson Plan assignment, and eight opted to join the focus group from which a transcript was made. In total, 43 documents were used for this research. The varying numbers of submissions across the different instruments were closely related to how much in-class time was provided for each component.

Most participants were in their early twenties, working and attending university at the same time, and had been completing classes almost entirely online for the previous two years in the context of the COVID-19 pandemic. This research happened during the first term that allowed a return to mostly in-person classes.

Description of Lessons

Lessons were carried out according to the schedule laid out in Lessons and the plans laid out in Appendix A. Minor adjustments were made for time, or to make activities possible for students who were participating online through Zoom.

Session 1

This was a hybrid session with most students participating in-person, and a few students participating through Zoom. I gave an overview of the different parts of this curriculum and explained the options for participating according to comfort level. I also reviewed counseling and other support resources available. We discussed the assigned readings and past learning

experiences in pairs. As many had not done the readings, discussions focused mostly on past experiences. We proceeded to do the first sensory awareness activity comparing tacit and explicit knowledge, a thought experiment about responding to a hostile dragon as an imaginary existential threat, and the introduction to the push/pull/attend reflective heuristic. We practiced noticing the feeling of these physical movements in relation to a pool noodle as an inanimate object that could be pushed against, pulled away from, or attended to. Most people carried out a seated version of the activity with the pool noodles; despite our efforts to reorganize desks, the classroom remained small and crowded, allowing minimal space for standing and moving. We then used time in class for writing Reflection #1, and finished by sharing takeaways in a circle at the end of the session. The level of engagement was high; students were expressive with each other, with me, and with the whole group. Students discussed how the activities related to their lives and their teaching.

Session 2

This was an online-only lesson using Zoom. Energy and willingness to speak during this online class was markedly lower than Session 1. We used an online jamboard to reflect on the reading for this day. More students were prepared to discuss the reading than last session. People brought up examples and feelings about experiencing eco-anxiety in their own educations, and reflected on implications for their teaching. I then did a short presentation about eco-anxiety and emotions in teaching before introducing the Body Mapping activity. Because we were online, it was difficult for me to tell during the session how students received the activity; few people were willing to share their thoughts and reactions. After that I led the TRIZ activity, which was poorly received. Students found it difficult and discouraging. To try to repair the situation, I acknowledged that I had made a mistake in my planning by choosing an activity that began with

critiquing negative past experiences and explained the thought process that had led me to choose it.

Session 3

This was a hybrid session: all students except one attended in-person; one student was still using Zoom. At the beginning of this session I took a few minutes to directly address some questions and ideas students had brought up in previous sessions. Then we continued with the activities as planned. First we practiced moving between states of physical organization and disorganization—readiness to carry out a given action, or unreadiness—mediated by things like alignment, posture, and line of sight. Then we combined that practice with the previous push/pull/attend learning to take on the Pool Noodle Challenge activity. I demonstrated with a volunteer, who found it very difficult to swing the pool noodle directly at me even though I had proven how harmless it is even when swung with full force. I demonstrated what each push/pull/attend type of choice might look like in relation to the oncoming pool noodle, and also that the same set of choices continues to be available even after experiencing the "failure" of being hit by the pool noodle.

At this point we went outside to do the Pool Noodle Challenge activity. Outside, students attempted the activity in their small groups, switching roles as they tried it. I noticed that the difficulty level was high, as I had expected, and in response students formed themselves into larger clusters than their original groups of 3. I went around to each group, asking what they were noticing and offering clarifications, additional observations, and extension questions. After about 10 minutes, activity had mostly died out and everyone was watching the specific cluster of students I was interacting with.

Because there was only one student online using Zoom and the activity couldn't be modified to work online, I asked my advisor to partner up with them to do the alternative activity I'd designed based on Augusto Boal's Theater of the Oppressed.

During the second half of this session, we all returned inside for the Triangulation activity, demonstrating what an interstitial lesson can look like, before students started writing their own. I began consulting one-on-one with students about their ideas but did not reach everyone before the end of the session.

Session 4

This was a hybrid session: all students except one attended in-person; one student was still using Zoom. After introducing Open Space Technology style discussions and giving example topics, I asked students to generate discussion topics/questions related to our inquiries about somatic learning and eco-anxiety and write them on sticky notes. In keeping with the spirit of Open Space, I did not filter topics or suggest changes to students' topics, but I did propose combining related topics. These are the topics that were generated:

- Place-based education

- Is sitting necessary for learning? + Social Media

- How can we prepare kids for the future?

- How can educators process their own eco-emotions

- To what extent to introduce to young kids things like climate change that inspire big eco-emotions

- How can educators facilitate creating space for more taboo eco-emotions like rage or grief?

- Discovering Dharma + Power of changing your mind

- Nomadic Lifestyles

I sorted the resulting topics so that each of four locations would have one discussion focus during the first half of class and one during the second half of class. Students moved freely between discussions. I functioned as the "legs" of the laptop computer for the student who was joining us online through Zoom. I participated alongside them in the discussions they chose to go to. The goal at the end of the discussions was to have notes generated in each location, but only a few discussion hosts remembered to take notes, so our understanding of what happened at other discussions remained incomplete.

Overview of Research Themes

I used a grounded theory approach to analyze the data. I iteratively gathered the patterns I found into themes and sub-themes, resulting in three overarching themes to tell the story of what happened during this curricular experience. Each theme includes participants' own voices, and my reflections about what happened. I gave numbers to each theme, subtheme, and cluster of evidence to be able to illustrate links between related ideas. Throughout the text I have included these links for easy reference (such as "1.3"). Note that theme links do *not* begin with a number sign (#) or include letters, in contrast to the participants' coded evidence which *always* begins with a number sign and does include letters (such as #08.R1.2). The three main themes included (1) participants' desire not to repeat the behavior of some of their past environmental educators (2) imagining different degrees of control over emotions and learning, versus imagining facilitation, and (3) movement along a continuum of overwhelm and enjoyment.

I relate the story of what happened below, but to give a preview I will say that my experience teaching this curriculum was often different from what I expected. I was most surprised by the fact that even though we sometimes struggled to understand each other and participants tended to respond to the activities in very different ways than I could have imagined, even to the point where I was concerned about how things were going, they still found those activities meaningful and experienced a shift in their opinions and abilities regarding emotions in teaching. I found it useful to imagine the curriculum as being like a boat that could make traversing the waters of eco-emotions a little easier than just trying to swim. It felt a little like I had built this boat and set it beside a river expectantly, but instead of getting in and paddling, many of the students I worked with hoisted up the boat, portaged it through the woods, and said

"that was a great trip, boats are awesome. See how it kept the rain off us while we walked? Let's all build boats!" as if they had no prior experience with boats or familiarity with the fact that boats can float. At least, this often seemed to be the case at the beginning. As time went on, more participants made movements toward the water.

Theme 1: Desire not to repeat behavior of past environmental educators

An undercurrent influencing the entire experience was participants' desire to differentiate themselves from some of their past teachers and professors, combined with anxiety about not accidentally having the same anxiety-exacerbating effects on students that they felt their own teachers and professors had on them. Positive experiences were sometimes mentioned too, but during almost every discussion, participants shared stories of past experiences with environmental learning where they felt their educators' choices had ranged from questionable to intentionally harmful. This desire to learn how to teach differently seems to have been a strong part of their motivation for participating in the activities and in this research, since they talked about how it presented a distinctly different approach than they'd encountered before.

The surprising amount of storytelling that participants did, unbidden, reminded me of Dunlop (2002) discussing storytelling as a way to engender deep and loving connections between people and places, self and other. Having the opportunity to share stories like these is part of what led to the heightened level of social connection that emerged during this curricular experience, discussed further in section 3.2.1, and which supported an increased sense of meaningfulness, discussed further in section 3.3.

1.1: Defining identity against past educators

Participants provided many examples of how they wanted to teach differently or fill gaps that they felt had been left in their own educations.

1.1.1: Wishing to provide better tools for future students

Often participants worked to imagine how their teaching could provide students a way to learn without being paralyzed by overwhelming feelings. Across three reflective writing entries, one person describes tells the story of their first experiences dealing with eco-emotions and how it has influenced their desire to include attention to emotions in teaching:

> *In high school, when I really started to comprehend the climate crisis, I was so overwhelmed. I then took on too much individualized action and was overwhelmed. Then I turned to protesting and was overwhelmed. The cycle of action met with apathy occurred over and over…I think that paralysis is all too common a response. It was mine at least. (#02.R2.2)*

> *My focus right now is how I can convey both ideas around the climate and eco-emotion so that my students have better tools than I did. (#02.R2.3)*

> *I want my students to be able to work with feeling in an educational setting. And while that will look different for everyone, I think that just knowing it's allowed and available is more than I ever got. (#02.R3.2)*

This participant's early education had included information about climate change, but not the skills necessary to make use of that information.

1.1.2: Desire to avoid forcing own difficult emotions onto students

There were also stories of receiving the message that everyone was going to die and that nothing they could do at this point mattered. In class, one participant mentioned an educator so overcome by their own eco-emotions that they shouted at students. Participants were concerned

that they too would end up echoing that message, or losing control of themselves while teaching. One writes:

> *This is what happened to me when I was in high school. I had an environmental science teacher who basically told a bunch of 16-year-olds that we were going to die in a fiery ball of climate change and it was the fault of our individual actions. When I came to college I was repeatedly told that the damage was already irreversible and we were all going to die because of corporate actions that we have no control over. It got to the point where I couldn't understand why it was worth even trying anymore and was super close to just giving up. (#07.R2.3b)*

Later during Reflection 3, they refer back to the some of the teaching described in this story as "scare tactics":

> *The reason I decided to be a teacher was because I had an environmental science teacher in high school that scared the absolute life out of me with really aggressive climate scare tactics. I want to teach young people about the same things without causing an existential crisis that continues into their 20s. (07.R3.1)*

Just as in 1.1.1, this participant is also seeking to find a teaching approach that contrasts with these difficult past experiences and avoid being a catalyst for a long-lasting "existential crisis."

1.1.3: Expressing anger about professors ignoring emotional impact of courses

Participant statements expressed a combination of feeling trapped, frightened, and angry in their classes. They referenced being "stuck in desks" multiple times, and vented about the discouraging format of typical classes:

> *...a lot of what we do is like getting stuck in desks like these, and then you're just left there. And that doesn't – that's not really helpful to anyone. And I think that movement in any capacity would be sort of an improvement within education. (#Q6.H5)*

> *Being an ENVS [Environmental Studies] major, I'm constantly surrounded by folks who are doing their best to fight for the world. Yet I know that I'm not alone in feeling hopeless about it. We attend class day in and day out where we sit for hours learning about how the world is dying and how we're responsible[….] (#12.R1-1.3b)*

Frustration about "scare tactics" was echoed further in the focus group, where several participants began discussing a class they were currently taking and felt angry about.

> *D: ...you're in the class with me--like, it's a lot of like, "doomsday", like "the government's not working," [….] When in that situation, we're not given any ways to alleviate that eco-anxiety. So then that's kind of put on to me to do it myself." (#Q2.D2)*

This statement, like those in 1.1.1 and 1.1.2, portrays past environmental learning experiences as ones where students were scared and then abandoned. The discussion about a

disconnect between professors' and students' awareness of the emotional impacts of course content continued with dramatic emphasis. Participants shared that learning more about eco-anxiety made them start to look at their classes through a "different lens," and gave them a way to more easily identify and talk about what they were feeling.

E: Yes. I agree. I think the label [eco-anxiety] helps. I think beforehand, I was like [speaking words with sharp emphasis] "this class makes me angry, and I do not know why." And now I'm like, "huh [comedic, halfway between a sigh and a surprised laugh], thaat's whyy [drawn out for emphasis].

B: Yeah, you're in that class, too?

Several: Yeah! Yes! Uh-huh. [Laughter]

B: That class also makes me angry.

Several: YES!

(#Q2.E1,B2,B3)

There was also the implication that professors were avoiding responsibility for the emotional impact of their courses by assigning blame to other more general causes, such as the COVID-19 pandemic or the idea that it is now normal for college students to feel depressed:

H: I think that a lot of the times with my classes, a lot of the teachers are, like, they'll address mental health, but it'll be like, generalized anxiety, and not the anxiety and like eco-anxiety, that their class specifically is causing me. They're like: "you may have mental health issues, but it's probably not from this." Like,"but it is."

B: Like it's just like a "being in college" thing. Like, "Oh, you're in college. You're probably depressed." Not because you're an environmental studies or science major.

Several: Yeah, yeah, yes.

I: [Speaking hesitantly] I've noticed that too. Like, I feel like, um...especially since...the pandemic, like professors have been more...aware of their students' mental health. But also it's like not about eco-anxiety, like it's just general things. (#Q2.H1, #Q3.H2,B3,I1)

Although it's likely that they spoke more about their negative experiences than their positive ones, and that their teachers and professors would offer a different explanation of what was happening, participants were relatively uniform in their reactions to these past learning situations. It doesn't seem that it could be accidental that they feel similarly – some shared factors must be shaping their responses. Their pronouncements are reminiscent of the findings by Marks et al. (2020) where survey respondents ages 16-24 described their feelings about climate change as being ignored or dismissed. In light of these patterns, it seems reasonable that there are both generational and situation-specific disconnections at work. I think here it's important for me to note that at the time of this research I was 31 years old, and feel connected to but not part of the same generational experiences as participants – I can relate, but I am an outsider. Although growing up my experiences learning about the environment were not as intense as they describe, by the time I reached college, I too felt similarly trapped, abandoned, and filled with rage.

The examples participants gave differ slightly from the Marks et al. findings in that the "dismissal" is perceived to be coming directly from participants' own professional role models rather than from governments. It is not surprising that they expressed strong anxiety about repeating that betrayal when they enter into their own careers as environmental educators. One manifestation of this anxiety came in the form of participants' unexpected responses to the Pool Noodle Challenge activity during session 3.

1.1.4: Identifying with the role of the "aggressor"

The Pool Noodle Challenge activity was originally set up to simulate an "existential threat" and explore what kinds of responses are possible when faced with that kind of threatening experience. But participants' discussion centered more on what it was like to be wielding the threat than facing it. One participant wondered aloud if their way of teaching was like hitting people on the head. Others echoed this, reflecting about whether or not their teaching style is aggressive. Even when I asked questions related more to the threat-receiving side of the equation, participants usually returned the discussion to the threat-wielding side.

Together, participants painted the picture that many of their past environmental educators have been emotionally unaware people who "induce" overwhelming feelings of eco-anxiety in their students either through negligence or intentional cruelty, and that consequently for them, becoming environmental educators is morally fraught. They also sometimes spoke about eco-anxiety as if it were a weapon that educators wielded like the pool noodles were in our activity [see also section 2.2 for continued discussion of perceiving eco-anxiety as a weapon].

1.2: Establishing self-awareness as a core value

To avoid repeating the same patterns they experienced, participants stated desires to increase self-awareness and use different teaching strategies than those they had usually observed. They noticed that their intentions and their impact might not match, and expressed a need to be on guard about this possibility.

What are things I do subconsciously & how do they affect the way I teach and interact with others? How can I be more aware and present with my emotions to be successful? (#05.R1-1.1)

I think also as an educator, I want to be more aware and present with myself and my

emotions and consider how that can translate or project when working with or

leading others. (#05.R1-1.2b)

How can I implement awareness and discussion about our emotions as a developing

teacher? How can I increase my own awareness about my emotions and therefore

facilitate others to think of theirs? (#03.R1.1)

Reading Pihkala's Eco-Anxiety and Environmental Education piece really drove

home that I need to work on my eco-anxiety and emotions first before I can be useful

to aiding others to do the same. (#03.R2.2a)

The question that I am bringing with me is how do I avoid becoming complacent? I

think that sometimes educators get stuck and I don't want to do that. (#02.R3.3)

While in many situations, participants' attention was focused externally—such as in
critiques of other classes above in 1.1, or their imagining emotions as objects in 2.2—they still
identified internal self-awareness as something important to develop in themselves and support
future students with.

1.3 Aligning with holistic approaches

Most reflections included statements about values and growing identity as teachers.
Several made connections to teaching approaches that they'd recently been introduced to and
which they felt stood in contrast to the past learning experiences they did not want to emulate. In
particular, they referred to Social Emotional Learning (SEL) and Holistic learning, two terms
which were not part of our work together but which recurred throughout class discussions. SEL
incorporates emotions and equity, and holistic learning was described as including "mind"
"body" and "spirit" or similar.

When teaching is only focused on explicit knowledge, it completely excludes the ways

of knowing that guide our life experience, and it seems wrong and incomplete to do

so. A more holistic approach could help connect classroom learning to other parts of

life and help bridge the gap between academia and the "real world." (#09.R1.4)

SEL standards I've seen often discuss with students the skills and goals they will be

working on throughout a lesson. I think that emotional skills, as well as movement

and stillness, social skills, and skills that come with being in the environment should

be a part of these goals. (#06.R3.2)

...so much of learning just happens up here in your mind and not necessarily how

you're feeling physically. Maybe what you're learning is making you feel different

sensations and emotions in your body more, and I feel like that's a more holistic and

full way of learning something versus just thinking about it. (#Q6.D2)

In addition to these examples, section 3.2.1 includes participants' thoughts on connections between holistic approaches and environmental social justice, and section 3.3 has more of their thoughts about somatic activities and movement in learning. Overall, there was a great deal of agreement about the value of bringing emotions and the body more into education. Their alignment with holistic approaches echoed my own synthesis of writings about meaningfulness in the literature review (under the heading Eco-Anxiety and Hope in Teaching and Learning). Perhaps I was influencing participants in this direction more than I was aware of, or perhaps we just fell into the same conclusion as a result of considering the same ideas. I think that that the inclusion of feeling and movement provided a counter-experience to being trapped,

scared, and angry, and that it was meaningful because it made room to traverse different feeling states instead of only staying caught in one loop.

Theme 2: Imagining control and facilitation

In this research, several tensions were present in participants' experiences. The tension between having an internal versus external focus (1.1.4, 1.2), the tension between desires to control student outcomes versus facilitate learning without fixed outcomes (2.2.1, 2.3), and the tension between wanting to control emotions versus experience a full range of emotions (2.2.2, 2.2.3, 2.4). Some of this apparent tension can be explained by a lack of vocabulary.

2.1 Language insufficiency & differences of understanding

The complexity and relative novelty of emotional and somatic topics left us largely with insufficient language to communicate about the nuances of what we were doing. I think that because of this language insufficiency, my communication with participants was hampered. It was sometimes the case that I would try to introduce a concept and participants would believe I was talking about something they had more previous experience with. For example, I find the concepts/paradigms of "mindfulness" and "processing emotions" to be somewhat obfuscating and unhelpful. I specifically was trying not to operate within these paradigms or use this language, but many participants interpreted our activities through these terms that were already familiar to them. Indeed, it is hard to come up with very good constructions in English to describe any kind of attention to feeling, so it makes sense that they defaulted to these common words and phrases. Participants could also be finding those lenses to be much more helpful for their learning right now than I do, or, it may just underscore how important tacit learning experiences are for working around language limitations.

To give an example of how complicated it was to find language to describe sensing and feeling, look at how this participant talks about hope using words that have many contrasting implications:

The feeling that motivates me is hope. Personally, I think I used to act on climate change out of fear, but this has been debilitating. Hope for a better future and that I can make a difference is what keeps me going. I hope that I can make change by giving students their hope, especially with the current "world is ending" narrative of the environmental crisis in media and environmental curriculum. We can only have hope if we process our eco-emotions, and sometimes hope might be how we combat those emotions. My focus as I grow as a teacher is how I can share and exemplify a healthy way of processing eco-emotions. I hope to connect this to EJ and climate change topics and give students hope. (#06.R3.3)

In the span of just a few sentences, hope is spoken about like a gift that can be given from a teacher to a student, like an energy-source, like something that can't be gained until other emotions are under control, and like a defense against other emotions. It seems to simultaneously be internal and external, personal and shared, coexisting with and mutually exclusive to other emotions.

I had expected a fair amount of communication difficulty while I was writing the curriculum, which is part of the reason I chose to introduce tacit and explicit knowledge in session 1, and to purposefully establish shared language for reflection using the "push/pull/attend" heuristic. This seems to have helped. In discussions, participants often used the language of "push/pull/attend" and felt mutually understood among each other when they

did. In this example, a participant, who is speaking with many hesitations while trying to describe the importance of being aware of the meaningfulness of different emotions, says that this awareness is part of what it takes to "attend" a situation:

I think when you're able to like...acknowledge and understand your emotions in a situation, like with eco-anxiety, you can use that...feeling and emotion that you have to---in different ways--- like you can use frustration in different ways. You can use like sadness in different ways. Um, and if you're able to like, pinpoint what that emotion is, or emotions are, you can know how to use them going forward and like, "attend" with the situation. (#Q7.I3)

In our heuristic, "attending" was directly opposite to controlling, and we explored what "attending" looks like in different situations, also touching on subtleties like the fact that it is possible to approach or withdraw while also attending, which we contrasted to pushing and pulling respectively. "Pushing" was the word we used most often to indicate direct control, but "pulling" is also a form of trying to maintain control through avoidance.

2.2 Imagining control

Feeling unmoored by the difficult eco-emotions in their lives, participants spoke in ways that imagined gaining a greater sense of control over future students' feelings and their own feelings.

2.2.1: Ability to determine students' feelings and experiences

I believe that many participants were in the process of questioning how much direct influence their teaching choices could have over students and attempting to synthesize this

inquiry with our push/pull/attend activities. A common thread they spoke about was of instilling positivity – finding ways to make sure that students end up feeling hopeful.

> *How can a teacher motivate their students to become and remain hopeful and positive? Is that even possible? (#04.R1.1)*

Another common thread linked to positivity was the idea of making sure students process emotions (see also 2.1).

> *I know that young students deal with anxiety and guilt when learning about climate change and I am interested in learning about an effective and positive way to teach this while also ensuring students process the emotions and concerns it brings up. (#06.R1.1)*

One participant's lesson plan was seemingly designed to try to inoculate students against onslaughts of overwhelming information, and the same person expressed concern about the internet as an out-of-control vehicle for this information:

> *When it comes to eco-anxiety, we often find it overwhelming due to the constant narrative and information that is forced upon us. It's okay to question what we are told or come up with our own interpretation of our knowledge. (#07.LP)*

Question: How does social media play into these anxieties? Kids now have unfiltered access to the internet at an age that I personally think is far too young[....]There's no way they aren't exposed to other people's climate anxieties on the internet. I just want to know how or even if educators can do anything to guide and soften these feelings of fear and anxiety. It might not even be our place because it's the parents choice when their kid gets access to the internet. (#07.R3.4)

These types of statements resonated with my own experiences growing as a teacher. Early in my teaching experience, I felt responsible for determining all my students' outcomes, so I would have had similar concerns and taken any measure I could think of to make sure that students would all feel something positive at the end of an activity, lesson, or unit. My understanding now is different in that I think teachers have the ability to influence by way of creating helpful or unhelpful learning conditions, but that we don't have the ability to actually determine what students think and feel. Rather, trying too hard to ensure a specific outcome seems to backfire. This is why the contrast between control- and outcome-oriented language and facilitation-oriented language stood out to me as relevant when reviewing the data.

2.2.2 Emotions imagined as outside objects as opposed to inside experiences

The idea that, as teachers, they could have direct control over students' emotions seemed to also be reflected in participants' sense of lack of control in relation to their own emotions experienced as students. This came up when they talked about educators who "inflicted," "forced," "induced" and "caused" their eco-anxiety. I am not trying to say that participants shouldn't have let the experiences they had bother them, or to minimize the role their past educators played in shaping these experiences. My point is that sometimes participants were thinking about eco-emotions as something outside, separate, and objective, as opposed to inside

and subjective. That emotions are imagined sometimes as objects stands out as important because objects are thought of as relatively easy to control and manipulate, while emotions seem less so. Here, eco-anxiety is described like a substance that can be doled out to students in specific measurements:

> *"What is a reasonable amount of eco-anxiety to present to a class full of students?"*
> *(#10.R1.1)*

Although this participant was likely imagining the act of presenting information about environmental threats to students and anticipating that they would feel eco-anxiety in response, the fact that they chose to describe the informational content and teaching itself as "eco-anxiety" is interesting because it is as if this participant sees information and eco-anxiety as the same thing, as if they are inseparable. I think the fear that sharing true information would be the same as cruelly inflicting pain was common among participants, so the idea that there might be life-giving ways to share true information remained elusive. I return to this idea again in 3.1 where we see evidence of shifting comfort levels and opinions about addressing eco-anxiety with students.

I found it difficult to understand this participant's perspective, so for the sake of analysis I played with a thought experiment where I pretended eco-anxiety really was a quantifiable material like food. This thought experiment mimics the participant's initial understanding of teaching as being primarily about content delivery and doesn't take into account the reality that there is much more to it than that. With those qualifications out of the way, suppose there was a world where teachers were primarily responsible for providing food for students, or withholding food, and choosing what kind of food they receive, and of either encouraging or coercing them to

eat it. Then, in this imaginal world where eco-anxiety is experienced as a quantifiable material object, it might be akin to a permanent menu of cheese in a class where most students are lactose intolerant. In such a situation, there's very little separation between the food and the stomachache, and it is clearly the teacher's responsibility to provide different food. And if this participant's past experiences felt like being given nothing but cheese over and over again and having stomachaches, then *of course* serving cheese would seem the same as causing stomachaches. *Of course* teaching about ecological crises would be the same as causing eco-anxiety. Then their question "what is a reasonable amount of eco-anxiety to present to a class full of students?" might be reimagined as "how much cheese can I serve before it compromises my students' health?" – the tension between the perceived obligation to "serve cheese" (provide information about difficult topics) and yet also do no harm is intense and it is impossible to achieve both at once. Bringing this thought experiment back to the real world, the differences are that (1) students might indeed start out being "eco-anxiety intolerant" but it is not necessarily a permanent condition (2) a greater variety of ideas can be "served" and prepared in different ways when teachers believe that it is both possible and desirable to do so (3) that "serving" information is not necessarily a core component of teaching in the first place and (4) rather than causation between information and feeling, there is only correlation. But these differences are probably not obvious to young, prospective environmental educators whose backgrounds are similar to those of the participants in this research (outlined in Context & Population and Participation).

2.2.3 Perceiving eco-anxiety as a type of weapon

After the Pool Noodle Challenge activity (described in 1.1.4), participants repeatedly spoke about "hitting students over the head" with eco-anxiety. Like the person who conceived of eco-anxiety as something that could be measured out and presented to students, this expression again equates the feeling of eco-anxiety with the action of teaching and portrays it as an outside object used for violence instead of an inside response. I am not sure if participants were so drawn to this imagery because it made a useful shortcut for expressing the chain of connections between potentially traumatic experiences, overwhelming feelings, and the propensity to re-enact traumatic experiences like they mentioned some of their past educators had done, or if they were truly equating the feeling with the experience and action and truly comparing eco-anxiety itself to a weapon. I expect it may have been a mixture of both. Certainly the activity I led was not neutral – it *was* simulating the challenge of being faced by a weapon. But I was so accustomed to paying attention to the internal, subjective experience of responding to this challenge that I was taken aback by these reactions that were more externally and objectively focused. They noticed the internal experience too, but had an easier time working with what was outside than what was inside.

Maybe speaking about emotions like objects is how participants were attempting to make connections between thinking and feeling in a situation where sometimes they had described feeling numb before. Or, how they were bringing something that felt out of their control into an imagined shape that they could move according to their will and make clearer choices with than they could with an ethereal feeling. In the imagination of eco-anxiety as being an object like a weapon, then it has weight, temperature, texture, and causes pain if it is turned against someone.

Or, although participants did not speak of it this way, it could also be used to protect or reshape, or repurposed as a tool for constructing something new.

2.3 Imagining facilitation

Facilitation-oriented language was commonly interspersed with control-oriented language both within one person's own reflections and within conversations had by multiple people, demonstrating that this was a point of active growth for participants. I think that facilitation as a teaching strategy was less familiar to participants, since their first teaching practice experiences involved a lot of prompting learners to guess the right answer. But these statements show that they were also in the process of imagining how to use a facilitative approach, and identifying that it is appropriate for environmental education.

"I don't know how this would work in a school environment but like, emotions always exist in like, pairs....any emotion can be transformed if you're allowed to work through it....I live with someone who does, like grief workshops though. And I know that process of just allowing people to come together and like, actively grieve in a supported environment can help them like come out of it feeling, um, uh, much lighter." (#Q8.G3)

It is hard for me to imagine teaching about the environment without displaying some kind of emotional or physical response to the degradation imposed on it. I am not sure how my response affects students listening to me and what they may feel witnessing this. I think it is natural to feel upset about some parts of what we will teach and experience, and allow students to make up their own minds about their perspective on the content being presented. (#10.R1.2)

As I continue to grow as a teacher, I want to focus on understanding and allowing

space for students to bring their own experiences and desires for self-study.

(#08.R3.3)

These participants envisioned creating conditions that "allow" learners to have their own experiences. I believe the third example could be specifically calling back to either the open-ended nature of the reflective inquiry prompts or the, Open Space discussions we did during Session 4, both distinctively "low control" examples of teaching that I modeled. I believe the increasing emphasis on allowing and facilitating was linked to our use of the push/pull/attend heuristic.

2.4 Push/Pull/Attend Heuristic mediating self-awareness and agency

Participants made frequent use of the push/pull/attend heuristic and reported that it was useful for learning to adapt to challenges. They animatedly referred back to the memory of physically exploring push/pull/attend movements and how important that was to them, not just the abstract framework of ideas. The focus group discussion revealed a high level of appreciation for how it impacted their learning:

H: [Using the push/pull/attend framework for relating experiences to different types

of movement] felt like bringing awareness, no matter what sort of the response was

push/pull/attend. But like, they all required, awareness sort of of what is... like

coming at you in terms of somebody teaching you about like the climate and that

inducing eco-anxiety. Does that makes sense? Kind of? (#Q4.H3)

Several: Mhmm, yeah, uh-huh.

[....]

I: The framework like allowed me to assess any situation really-- that I'm in, whether it's like an--like a situation that causes eco-anxiety or not. Like just realize..how I deal with problems when they're coming at me, which I'd never really been given a framework before. So I didn't know if I was...dealing with the problem if that makes sense? I don't know. (#Q4.I2)

A: Yeah, that was pretty much what I was going to say too. Like it really helped me learn a little more about myself and how I...do respond in like any situation not just like problems, but how I respond in that way. Um, it was good to bring awareness to that. (#Q4.A3)

These speakers described the push/pull/attend framework as having supported their agency to make choices both in difficult situations and in "any situation not just like problems," as speaker A emphasized. Participants were also able to apply the heuristic across a variety of specific situations, noticing and describing how they were oriented toward their teaching & learning processes, their eco-emotions, and their choices about how to be in community:

I was surprised how I could pinpoint and identify what I felt after the "pulling away" movement or leaving behind the pool noodle and how that applies to real life situations. When I disengage from something, be that a person or a situation, I always wonder and am curious about how they are, or how the situation played out, and it was similar with the pool noodle. I wondered what it would do and if it would hit anything. (#03.R1.3)

I think this [body map] represented an attend experience because I was interacting with my feelings and letting my emotions and thoughts surface. I often tend to pull away from these emotions and don't let myself feel eco-anxiety. (#06.M.2)

[This experience was] definitely a combination of pushing, pulling, and attending: pulling away from anxiety but pulling towards at the same time to be in situations and act. Attending in community situations. (#08.M.3)

My inquiry feels like attending: I want to sit with emotions that myself and students have, reflect on them, and use movement to engage and release them. My second part may be more of pushing or pulling, as I would be questioning how to engage further and inviting more participation, pressing into discomfort. (#08.R2.4)

These represent the types of reflections I hoped would be possible after the push/pull/attend heuristic and the somatic activities we tried. These statements all create links between sensory information, emotional experiences, and agentic choices about how to interact with oneself or with other people. The concrete physical information is linked up with the un-pin-downable emotional information, and with the sense that there exists a self who has some amount of choice and ability to imagine what to do next. My experience has been that these links make action possible when positive outcomes appear impossible, and provide the opportunity to find or create language when there wasn't any available before.

Theme 3: Overwhelm-Enjoyment Continuum

In addition to generating a wide range of imaginings about emotions and teaching, the curriculum I presented also appears to have created a back-and-forth movement between overwhelm and enjoyment, relief, or ease. I observed participants feeling low-energy, hesitant, and uncomfortable, moving into high energy, enthusiasm, and an increased sense of connection. This seemed to match with Maria Ojala's description of the necessary balancing act of bringing worry to hope, and hope to worry (2016, p.50). Sometimes the increased sense of ease and enjoyment made it possible for participants to tackle a new level of challenge and purposefully enter discomfort again. Although the broader patterns seemed to be a pattern of back-and-forth movement between these two realms on a continuum, there were also situations that engendered a simultaneous juxtaposition of overwhelm and enjoyment.

3.1: Changes in willingness to explicitly discuss a full range of eco-emotions

Overall strong hesitancy about addressing difficult eco-emotions in a classroom setting gradually lessened over the course of the learning experience and afterwards. This seems to have changed because of how I built many choices about participation into the experience, and because participants and other class members had multiple planned and unplanned opportunities to discuss these hesitancies and share insights with each other without me being present.

3.1.1 Concern about working with young students

Although from the start participants strongly desired to bring attention to emotion into their teaching work, many nevertheless expressed resistance about directly addressing eco-emotions with their future students. Although there was never a point where I exactly said: "You should bring up the topic of difficult eco-emotions with your future students," I was heavily implying it by content and by example. Participants pushed back against this implicit message,

especially early on because they felt it was inappropriate and morally wrong to confront young students with potentially distressing information like they had received in their own educations.

What is a reasonable amount of eco-anxiety to present to a class full of students? (#10.R1.1)

How can I as an educator teach about complex and stigmatized issues without causing my students to have existential crises? (#07.R2.3a)

Their questions hearken back to [section 2.2.2](#) where I mentioned how participants didn't seem to be able to imagine that there could be life-giving ways to share true information. Participants' questions represented by these examples indicated the very beginning of a search for what such teaching might look like. In the meantime, they mostly imagined taking an indirect approach, skirting around potentially difficult truths in hopes that by the time students found out about them, they would have been bolstered by having learned foundational emotional skills, like the interstitial lesson plans indicate in [3.1.3](#). Participants' questions represented by these examples indicated the very beginning of a search for what such teaching might look like.

3.1.2 Expressing the need to avoid emotions and vulnerability

In early reflections, participants wrote often about their own discomfort and avoidance of emotions, in classroom and personal settings.

"...it sounds as if this deep sensory work can sometimes uncover feelings, and doing that within a group setting can sometimes feel comforting in that you're not alone, but it also feels like it has the potential to be vulnerable, and I'm not super comfy with that." (#12.R1-2.6)

"I think that my inquiry brings up a lot of the feelings that I have had over the years

surrounding the environment and its related social justice movements. It has been so

overwhelming and I think that I am not alone in having to ignore emotions that

would squish me if I tried to fully deal with them." (#02.R1.2)

Inspired by our reading excerpt from adrienne maree brown's book *Pleasure Activism*, one participant even brought up the topic of personal trauma:

"I've always been really interested in the body's somatic response to trauma...but

haven't actually explored it that much (probs because of a subconscious physical

urge to repress some personal trauma, LOL)." (#11.R1-1.1a)

Using humorous and casual language ("super comfy," "squish," "LOL") probably helped make these daunting topics feel accessible to write about safely – another example of the overwhelm-enjoyment continuum in action.

Given the felt need for avoidance that was expressed in these early statements, the depth and constancy of participants' engagement in our activities and reflections surpassed my expectations. I created many "safety valves" for participants to fall back on during each session: at any time, they could choose to watch instead of participate, to step away for a while, or to completely leave for the day if they wanted to. I created a "Takin' a Break" kit containing treats, bubbles, and sensory toys which sat next to the door for anyone to bring with them if they wanted to "take a break" for a while. However, no one chose to use any of these safety valve options at any time except those who observed during the Pool Noodle Challenge activity (which in this case was a role specifically built in as part of the activity). I would have thought that someone would have preferred to step out or leave at some point, given that there was no

incentive for participating, but the fact that they didn't suggests to me that we were successfully balancing overwhelm and enjoyment. Even learners who did not agree to be part of the research itself still chose to participate very actively and vulnerably, another welcome surprise.

3.1.3 Session 3 Interstitial lesson plans reflect preference to avoid difficult eco-emotions in teaching

In hindsight, I think the interstitial lesson plans presented a very complex task because participants were new to lesson planning, and I was asking them to synthesize brand new learning about eco-emotions and somatic pedagogies in the form of a roughly 15 minute activity. Despite these challenges, participants succeeded in imagining plans that took into account emotion and sensory awareness or movement, and many also added a layer of intentional community building. However, direct or explicit attention to eco-emotions was rare in these plans. Of the 11 interstitial lesson plans participants created, five primarily focused on building socio-emotional skills in general, three primarily focused on supporting students' sense of connection to nature, one primarily focused on supporting students' critical thinking about environmental narratives, and just two primarily focused on supporting students' ability to explore difficult eco-emotions. The same participant who was concerned about emotional vulnerability above (3.1.2) explained their choice to focus on emotional skill-building and connection with nature instead of eco-emotions:

"Not only is this an activity where students can learn to center/ground themselves,

but I also feel that with younger kids specifically inspiring a love and respect for

every part of the nature around them will come to help them with big eco-emotions

later on. I don't think we should be preaching the downfall of the world via climate

change to small children, but we definitely can inspire wonder in them for the nature

around them. Ideally that wonder and that curiosity will foster a want to protect and

fight for the world that may be struggling. This is kind of a roundabout way to

connect it, but for an idea that is so big and complex, it's not going to be as

accessible for students of all ages." (#12.LP)

I interpret this values statement as being motivated by at least two factors: the preference to

continue avoiding difficult eco-emotions for lack of sufficient experience, support, and safety,

and the desire to be a responsible teacher who does not risk crushing students' sense of

wellbeing, as was illustrated in 1.1. At this point in the experience (Session 3), I think

participants were still in a state of overwhelm with the relative novelty of what we were learning

and hadn't yet gained much increased confidence in their facility with eco-emotions. However,

the later reflections indicated increasing confidence that had accumulated after having more time

to digest the learning experience as a whole.

3.1.4 Later reflections show shifts in comfort level due to increased nuance

In later reflections, people who previously expressed strong discomfort about working

with young students around difficult eco-emotions reported a partial shift in their opinion and

comfort levels. As a result of the open space discussions, one participant came to a more nuanced

vision of what their future teaching could look like if they were addressing heavy topics:

"I actually had a really constructive talk with someone about when if it's even

appropriate to teach younger students about bigger issues like climate change. It

really helped me with my approach to the extent that I wanted to keep it in my NSEA

curriculum. I decided it's important to include but not make it a central part of the

discussion. I think it's a good idea to talk about it with younger people but approach

it in a way that doesn't create a sense of individual blame, grief, and guilt."
(#07.R3.3)

They moved from being very anxious and unwilling to bring up climate change with young students, to wanting to include it with great care, and did so in one of their class projects, the "NSEA curriculum." This stood out as a dramatic change because this participant initially reported a fear that they were too caught up in their own feelings about climate change and environmental injustice to be able to teach responsibly about these topics at all.

Continuing the theme of increased nuance, another participant's final written reflection imagined both direct and indirect ways of making space for eco-emotions in their future teaching:

"It is important for students to actively think about their emotions and feel in their

body. Explicitly setting goals during lessons could be a good way to do this in

addition to lessons or activities that focus solely on eco-emotions. Youth voice,

agency and power, relationships with the environment, play/exploration etc. can all

help with processing eco-emotions as well, even if not explicitly." (#06.R3.2)

Weeks after the experience was over, participants continued to talk about it among each other and in their end-of-term reflections. In end-of-term reflections, they were identifying ideas and experiences that had stuck with them from the whole term and which they wanted to take with them into the future. They spoke more about discussing environmental issues with young students, using a solutions-orientation in their teaching and curriculum writing, coming to realize how important somatic awareness and emotions can be, and about the process of coming into a better relationship with their own emotions so that it would be possible to address vulnerable topics with students in an appropriate and authentic way.

3.2 Connections between somatics and Environmental Social Justice

Participants spent a lot of time and energy immersed in questions about wielding power as teachers, wrestling with their past experiences and trying to look at whether they were becoming the types of educators who would strike fear into the hearts of students, or whether they could find ways to grow beyond the common examples of environmental educators that stood out negatively in their lives (as in sections 1, 2, and 3.1).

Because their primary focus landed on their power as teachers and the fear of inflicting harm as teachers, they were consumed with trying to find ways not to unintentionally perpetuate oppression. Despite this near-constant focus on power dynamics and the insights they came to about what choices they wanted to make as teachers, environmental social justice was not talked about explicitly nearly as much as I expected, so I think I did not bring attention to it frequently enough during our sessions. I think people's focus was turned so much inward and there was already so much new learning happening there that outwardly-focused questions fell to the wayside. Quite often, participants used language that to me indicated they were thinking about justice without using the word justice, almost as if saying the word "justice" itself was difficult.

However, justice still featured explicitly in several participants' reflective inquiries. They expressed a high level of anxiety:

> *At the start of the global panini [COVID-19 pandemic] I decided that I shouldn't be an educator[....] I don't think I could be a stable resource. I have way too much anxiety about social injustices and issues like climate change that I don't think I could teach those topics without causing similar feelings. (#07.R2.2)*
> *"I think that my inquiry brings up a lot of the feelings that I have had over the years surrounding the environment and its related social justice movements. It has been so overwhelming and I think that I am not alone in having to ignore emotions that would squish me if I tried to fully deal with them." (#02.R1.2)*

While they were imagining these as hypothetical undesirable consequences of trying to face their feelings about environmental social justice head on, I have inhabited both of the outcomes they imagine—teaching in ways that worsen students' experiences of social injustices and being "squished" by my own emotions about it – so it is easy for me to relate to the sense of overwhelm they express. We seemed to share an agreement that a thought-oriented approach was insufficient.

3.2.1 Feeling resonances between holistic approaches and justice

From our first session, participants expressed resonance with ideas that somatic and "mind/body/spirit" approaches are important for environmental social justice work, first mentioned in section 1.3.

This unit made me realize the importance of different kinds of knowledge and experiencing things through the body. Adrienne Maree Brown's article was super insightful and radical. I hope to use her ideas about somatics and the integrated mind/body/spirit in my education approach. I think that a lot of teaching is only focused on the mind, but the body and spirit should be considered as well. (#06.R1.4)

Though I do not know a lot about it [somatic learning], I think it is something I would like to incorporate into my role as an educator in the future. The connection between mind, body, and soul is not something that is focused on at all in traditional schooling (at least not mine) and I think that it is a really important way of knowing oneself and examining how we interact with others, as a member of society, as an inhabitant of the earth. (#09.R1.4bc)

I am really interested in the relation between EJ and eco-emotions, as well as social-emotional learning. I talked about all three of these in my NSEA curriculum evaluation and found many connections between them. I think that processing eco-emotions and utilizing SEL must accompany teaching EJ as it is a very emotional and disheartening subject. I think that it is important for students to recognize the injustices or oppression they may face (which is important for target and agent skills as Nieto says) while also recognizing/processing the emotions that come with this. (#06.R3.1)

In the "Claim your calling and scale your action" paper and open [space]

discussion, there were a lot of good points that could be applicable to my inquiry.

There were great practicalities to dealing with eco-emotions, like understanding that

it isn't always practical to expect evidence of impact, the importance of patience and

personal resilience, slow thinking and slow hope, and the collective. As a teacher, I

can imagine using these ideas to engage with movement/embodied learning. I can see

how I could connect how imagination is connected to power, how action and thought

are related, and how the collective gives permission to rest and build confidence.

(#08.R3.2)

The readings we brought in featured strongly in these participants' reflections, but because we spent only a minimal amount of time discussing the readings and the majority of class members did not do the readings, many were not exposed to these ideas much if at all. I had prioritized making enough in-class time for somatic activities and student voice, but it ended up being at the cost of these connections. Having taught this curriculum once, I would now rework the balance by shortening time allotted for the sensory activity in the first lesson, removing the TRIZ activity in the second session, and replacing both with more extended discussions of the readings.

3.3 enjoyment and meaningfulness in somatic activities

Laughter was a frequent sound and participants were animated and talkative during our activities that involved movemen and sensory awareness. They made adjustments, discussed among each other, and enjoyed playing with the activities.

3.3.1 Unexpected social connection

One of the things I found most surprising was the transition from online Zoom learning that participants had been doing, to mostly in-person learning that began during the first session of this curriculum. Participants had been doing their classes over Zoom for the past 2 years, and some of them had never had an in-person class at the college level. On Zoom, I observed that class sessions were quiet, low-energy, and students were mostly uncomfortable interacting in the whole group. Although in my experience this is commonly the case for Zoom classes compared to in-person classes, the increase in comfort levels after we started our unit was still very dramatic. One participant cited the somatic and movement-based nature of our first session push/pull/attend activity as part of the reason they felt comfortable interacting more:

> *I really liked the physical exercise. I noticed I was more relaxed and felt less awkward when I could engage with my peers in such a casual way.* (#07.R1.1)

This same sentiment was echoed by others in their end-of-term reflections: that the style of our activities (somatic, playful, freedom to choose) made social interaction with peers much easier despite challenges of shyness and the potentially vulnerable nature of our subject matter.

3.3.2 Enjoyment of somatic learning activities

Participants enjoyed the somatic learning activities and explained that they found them meaningful because they were able to make connections between what we talked about and what we did, in contrast with what it might have been like if we had only talked about eco-emotions and somatic learning but not put it into action, or if we had done activities that were only tangentially related to the other content. They found it easier to learn because of the alignment between ideas and action.

B: I think the activities were really fun, and like, physically doing, and moving things and thinking about, like, what we were doing and feeling as we were doing them -- I really enjoyed that aspect. (#Q1.B1)

C: It felt nice to have a visual and physical example [push/pull/attend activities involving pool noodles] to go along with like the larger ideas that you were explaining and having us read about that. That I found to be very helpful. To like, see it right in front of me and like, do it.

H: Yeah, and I think, when you're like, actually in the action of like, "attending" a situation or "pulling away" or "pushing against" it, like, you can think back to the situation where you were physically doing that thing with the pool noodle and remember and like, draw parallels between how it made you feel and I think it's easier to like connect something that you did physically with your body, where you remember what you were feeling in that moment, than just something that you read. (#Q5.C2,H4)

The focus group made it clear that they had continued to explore their learning outside of our class sessions. They had been discussing it with roommates, friends, and each other.

E: [Speaking emphatically] Genuinely hitting each other with pool noodles was like a really great visualization.

?: Mmmhmm.

E: [Speaking quickly, excitedly] And like it sounded really silly but like I'd be

explaining it to people and the fact that we had hit each other with pool noodles

helped me explain what I was doing in class a lot better than if we hadn't done it at

all.

[Group laughs]

Researcher: [laughs] That's great.

G: I agree.

B: Yeah I super think that, and also the first exercise we did with the pool noodles

with like practicing pushing and pulling and attending that really helped me like

grasp the concept of it and think about those emotions and those things.

(#Q9.E2-3,G4,B6)

Speaker E's comment that "genuinely hitting each other with pool noodles" was a great visualization and helped explain the concepts to people suggests to me that the fact that it was such an unconventional activity is part of what made it exciting to share with others. It created a rich and surprising memory to tell stories about. The surprise that showed up across somatic activities is discussed further in section 3.4.

3.3.3 Appreciation of movement in general

Even without the added layer of attention that defines somatic learning, participants seemed thrilled and relieved to simply get the chance to move and imagine movement as a component of future teaching:

I have always used movement to help me with brain stuff. I have ADHD among other

things so moving is one of the only ways to get some peace. (#02.R1.3a)

It would be awesome to see body movement incorporated into all curriculum – not just environmentally related. For example, math class could be outside, counting physical trees or objects and moving around. (#04.R1.3e)

I want the kids I work with to have access to movement [...], whatever form works for them, whatever works for their body. But like sitting--a lot of what we do is like getting stuck in desks like these, and then you're just left there. And that doesn't – that's not really helpful to anyone. And I think that movement in any capacity would be sort of an improvement within education. (#Q6.H5)

Their examples situate movement as being important not only in environmental education but across subjects. These comments also suggest that well-adapted movement activities could be one step toward better access for students whose learning needs aren't being met well by traditional methods.

3.4 Surprise: Where overwhelm and enjoyment meet?

I have already used the word "overwhelm" quite a lot to help define eco-anxiety in my literature review and because it figured largely in participants' descriptions of where they were starting from. What did *not* emerge in my literature review but frequently came up in response this research was surprise. I think surprise was the most common response to somatic activities, and rarely was it a wholly pleasant or unpleasant surprise: it was often a combination of something easy and something difficult.

### *3.4.1 Emotions described in complex combinations*

Especially after Session 2 where we did an overview of eco-emotions and completed the Body Mapping activity, participants began to express awareness of multiple emotions occurring simultaneously. I was not expecting this level of expression about emotional complexity because I hypothesized that in the context of thinking about eco-emotions, participants would identify strongly with one or two emotions that were most familiar for them. In actuality, it was more common for participants to describe an intermingling of many feelings:

Usually we aren't just experiencing one single emotion, we are experiencing a lot. I think that's what may overwhelm me when trying to figure out how or what I'm feeling. I try to search for one word when that's not possible! Acknowledging that I can feel a multitude of feelings at once, and so can others, would be to my benefit. (#03.M.4b)

It is difficult for me to discern regular emotions from eco-anxiety, especially in terms of how my body is feeling those emotions. My best verbalization is that eco-anxiety/eco-emotions, for me, is a combination of heaviness, anxiety, tightness, numbness, grief, despair but also hope and community. (#08.R2.3)

While many found the Body Mapping activity to be challenging and emotionally activating, almost all expressed mixed experiences of positive-valence and negative-valence emotions and somatic sensory information happening at the same time. For example, here are some combinations:
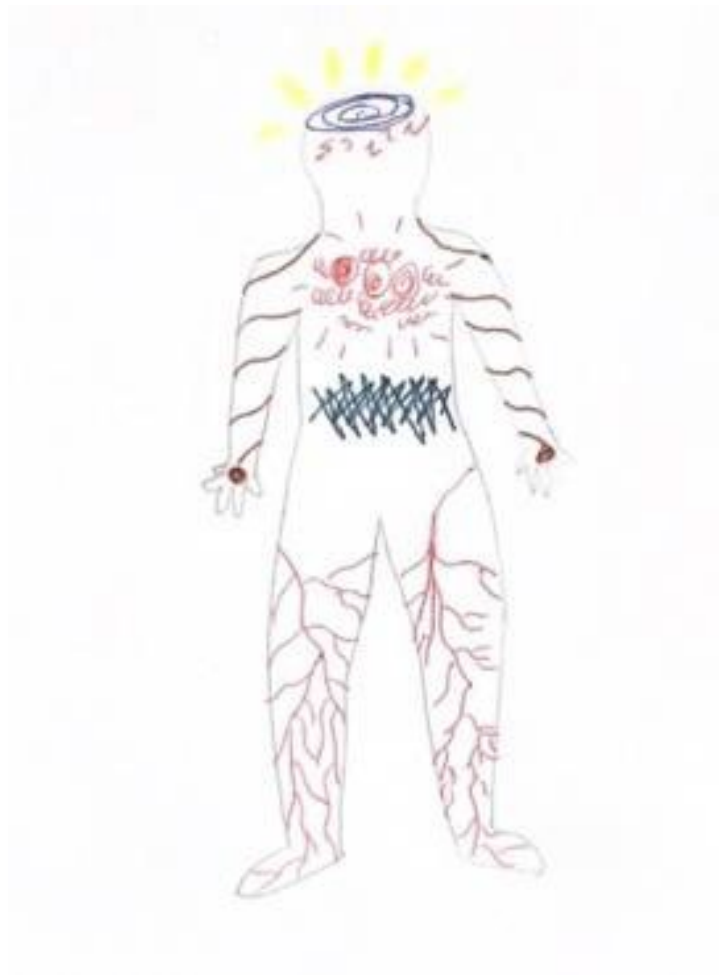
(#06.M)

…The red zig zags are my anger causing a burning fire in my chest. The yellow represents

the fact that I also felt hope and determination from these feelings…(#06.M.1)
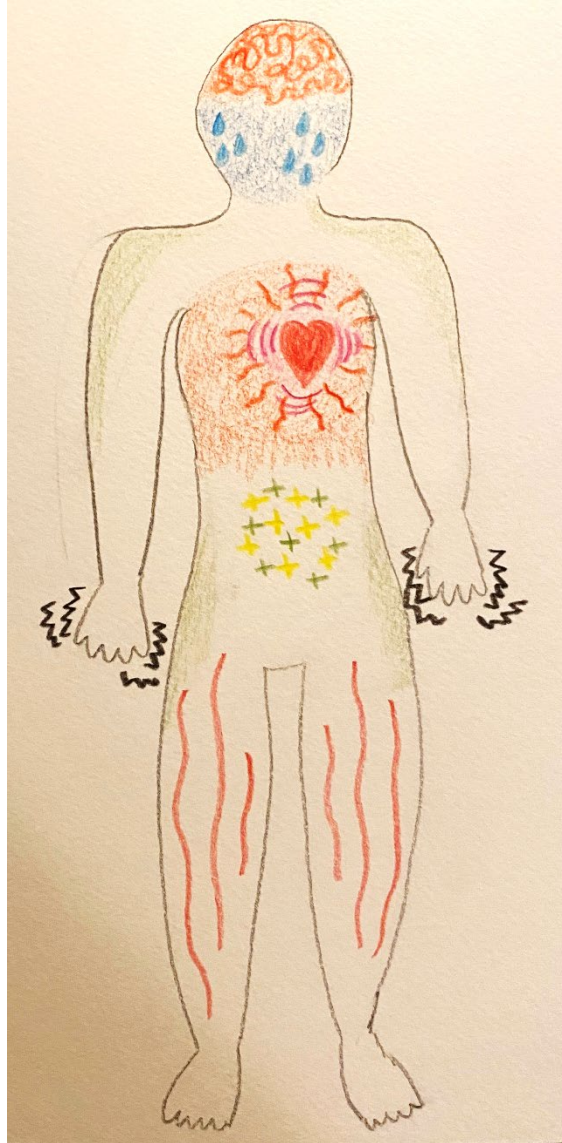
(#09.M)

My stomach was also feeling the intensity of these emotions [gratitude, fulfillment, sadness] which I represented with little plus signs that are supposed to be a sort of excited, overwhelmed feeling. I think my hands may have been trembling a bit so I noted that as well. (#09.M.1)

Push/pull/attend terminology also provided words for talking about the nuances of the way forward in situations with big, paralyzing emotions, helping to compensate for the language insufficiency described in 2.1. Specifically here, "attend" was used as shared terminology and emphasized as part of the explanation for how difficult emotions could lead to solutions.

> *I: I think when you're able to like...acknowledge and understand your emotions in a situation, like with eco-anxiety, you can use that...feeling and emotion that you have to---in different ways--- like you can use frustration in different ways. You can use like sadness in different ways. Um, and if you're able to like, pinpoint what that emotion is, or emotions are, you can know how to use them going forward and like, "attend" with the situation.*
>
> *A: Yeah, I think that's especially important as like, currently I feel like with a lot of people, especially young people, it's like this paralysis of not knowing or not being able to do anything, but like having words to describe how you're feeling and how to um like, how that can be like used for good like anxiety or dealing with frustration can lead to creating solutions is really good to like step out of that paralysis. (#Q7.I3,A3)*

At this point after the four sessions were over, participants had started to find their own ways to describe having agency with emotions. Earlier, the most common words other than push/pull/attend were "release" and "process," but now we see Speaker A using the movement-related language of "stepping out of" paralysis.

3.4.2 Surprise in somatic activities

The somatic activities we did prompted experiences and insights that participants were not expecting. In addition to insights about emotional complexity (3.1), power dynamics (1.1.4, 2.3), self-knowledge (2.4), and environmental social justice (3.2), they expressed surprise about their own ability to notice and express sensory information. The prompts I wrote did not ask about surprise, yet surprise came up often.

> I was surprised how I could pinpoint and identify what I felt after the "pulling away" movement or leaving behind the pool noodle and how that applies to real life situations. When I disengage from something, be that a person or a situation, I always wonder and am curious about how they are, or how the situation played out, and it was similar with the pool noodle. I wondered what it would do and if it would hit anything. (#03.R1.3)

> I really liked the body mapping assignment. I was surprised at how I was able to remember how my body felt at the time I was experiencing eco-anxiety, especially because I don't think I noticed it at the time. I always think that I experience everything in my head, but this made me realize how it is a whole-body experience. Going forward, I want to pay more attention to how my body feels, not just my thoughts. I wonder what my body map would look like if I was recalling a positive experience. I think it would be more energetic, abstract, free, and would have lighter colors. I was also surprised that my physical sensations were so easy to put into shapes and colors. (#06.R2.1)

-Surprised at how much I do know about my body and where I feel things

-Surprised at how specific things have specific shapes & colors

- I do not exist in a vacuum

-Talking/thinking about anxiety makes my breathing issues start lol

(#08.M.5-8)

It occurred to me that in the situations where participants expressed surprise, there was a combination of enjoyment and overwhelm happening at the same time. Is this just another way of describing the Zone of Proximal Development? Or flow states? However it could best be described, my sense was that these surprises were very meaningful parts of what happened because that is what participants continued to talk about for weeks and even months after this experience was over.

Summary & Synthesis

My primary research questions for this study were: "How does using somatic pedagogies to reflect on eco-emotions impact participants' readiness to address eco-anxiety in their future teaching?" and "In what ways can somatic pedagogies support Environmental Education teacher preparation?" In this study, using somatic pedagogies to reflect on eco-emotions significantly impacted participants' readiness to address eco-anxiety in their future teaching by way of increased sense of emotional complexity, personal hardiness, meaningfulness, willingness to engage with difficult topics and interrogating relationships to power and control in teaching.

We saw participants recognizing a greater sense of complexity and nuance to emotional experiences while simultaneously finding them easier to express (2.4, 3.4.1). Participants generalized from this experience to imagine the diversity of emotions future students might be carrying with them. They also showed increased hardiness for taking on challenging tasks and

topics (3.1-3.4), as well as greater feelings of hope and meaningfulness about their teaching for the environment (3.3, 3.4).

The activities involving somatic awareness brought together new experiences of ease, enjoyment and relief side by side with past and present experiences of overwhelm (1.1, 3.3), allowing participants to find greater willingness and capacity for engaging with eco-anxiety in themselves and in future teaching. Participants enthusiastically valued the impact of somatic pedagogies (3) and were able to imagine using them to support students' growth in social-emotional skills in general, though during the two weeks of the curricular intervention, most did not yet feel ready or willing to address difficult eco-emotions or potentially distressing topics straightforwardly with future students, especially younger ones (3.1). Somatic pedagogies in this experience also led participants to *viscerally* question their relationships to power and control in teaching (1, 2, 3.2) and to find an increased sense of being able to make choices in difficult situations (2.4, 3.4).

Many participants either demonstrated or imagined using the teaching capacities that were identified in my literature review as being of key importance for eco-anxiety: addressing hope and meaningfulness in teaching, recognizing emotions as not inherently good or bad (p. 5), acknowledging that different people will feel differently (p.7), supporting emotional skills, supporting community, strengthening nature connections. They also overwhelmingly took up somatic pedagogies, bringing sensory awareness and movement into their lesson plans and imaginings about future teaching experiences. Some discomfort was present, particularly with the Body Mapping activity, but if there were members of the class who found somatic methods unhelpful or undesirable overall, I was not able to detect evidence of that. Somatic pedagogies

challenged participants' views of what teaching can look like, and they embraced that challenge. They were surprised at their own abilities.

What happened during this study suggests that somatic pedagogies may be able to support Environmental Education teacher preparation by:

1. Strengthening sense of community connection, even in adverse circumstances (3.3.1)

2. Providing a relatively accessible way to bring attention to emotions into a class setting (3)

3. Making course content feel meaningful and valuable to engage with (3.3)

4. Strengthening sense of meaningfulness overall (3.3)

5. Beginning to meet the needs of students who feel educators are ignoring the emotional impact of environmental course content (1.1.3)

6. Providing an outlet for some of the emotional energy of difficult topics, especially through movement (3.3)

7. Complementing and facilitating learning about power, privilege, and environmental justice action (1.1.4, 1.2, 3.2)

Each of these changes are interrelated, and among them meaningfulness seems to stand out most of all. Participants decried the sense of meaning-*less*-ness they experienced in past classes, and contrasted it with what they felt during this curricular experience. In situations where prospective environmental educators are experiencing a similar amount of discouragement and lack of meaningfulness, maybe somatic pedagogies could have a similar energizing effect, increasing the number of possibilities available.

Upon sharing with my advisor my musing that this curriculum had been like a boat that students flipped over and carried away into the woods, he pointed out that the meaning of the "whelm" in "overwhelm," was a likely used to refer to the idea of a boat being overturned. I confirmed this etymology and found that "whelm" is also connected to earlier words meaning "to turn, bend" and "cover over" (Harper, D., n.d.). In section 3.4 I noted how surprise was a common response to our activities, and I found that I was probably surprised as often as everyone else. In my planning, I felt as though I had done enough to clarify the purposes I envisioned for each activity: I thought that what I did, said, and demonstrated clearly indicated that we were using somatic methods to encounter difficult feelings about and orientations to environmental challenges and eco-social-justice and bring that into teaching. I thought participants would all recognize that the "boat" I had built is well-suited for floating on deep waters, and my previous work with college students led me to believe that I would have to watch myself closely to make sure that *I* wasn't the limiting factor in this exploration. However, participants often found different purposes of their own, and I restrained myself from reining them back toward my vision of what should happen, instead choosing to stay focused on modeling a facilitative approach in the style of Turkki (2021). About half the time, participants took my plans in directions that baffled me, but even so they still seemed to have learned something important about themselves and the relationship between somatic pedagogies and eco-emotions, between the boat and the water. If what happened for them was "eco-emotions 101," maybe what I was expecting would happen is more of an "eco-emotions 201" experience. I think participants avoided addressing bigger questions because they were busy trying to sort out what was happening inside themselves first. As prospective environmental educators, they were

needing to find a way to encounter and contextualize their feelings about entering into a profession that they associated with violence.

My takeaway from this experience is that it seems setting people loose with somatic activities is likely to lead to meaningful learning no matter where they take it. What I don't know is how that compares to if I had insisted we do it a certain way. I have asked myself what might have happened if I had taken a more outcome-oriented approach and interfered with their choices of what to investigate or how to talk about their experiences. My instinct is to say I don't think it would have gone even as well as it did. I think if I had intervened more and cut off the paths of inquiry they were going down, it would have just increased their sense of alienation with my idea of what is "on topic" being too far away from their starting point to connect to and leading to another reiteration of their experiences of disconnect. Having completed the experience, it would be interesting to have the opportunity go back and explain what I had imagined would happen to see how they would respond to that information. Would more of them then be ready to take the boat out onto the water?

My choice not to intervene and "correct" participants' responses to our various activities was influenced by several factors. First, there is the orientation towards more facilitation-based teaching I arrived at after past experiences where I did try to exert more direct control over my students' outcomes around social justice competencies. Because that control necessarily came with the assumption that I knew what was best, I ended up alienating people and being unable to repair those relationships. Since then, I have tried to have more humility and not assume that I know how every learner should learn, where they should end up, and on what schedule they should arrive there. Second, there is my background in Aikido. My first teacher's teacher's often repeated guidance was "Don't cut ki!" – one meaning of which is roughly "don't stop the flow of

what's happening" – guidance that I have experienced the value of in my training. I did not want to get in the way of the energy and connection and learning that was already happening, I wanted to help it continue to expand further. Third, I was influenced by the Transformative Inquiry approach that has formed the basis of my own recent learning as a teacher and which "develops teacher capacity by relying heavily on the transfer of control from instructor to learner," trusting learners' inquiries to unfold (Tanaka et al., 2014, p.472). I have always found that what unfolds matters.

Upon sharing with my advisor my musing that this curriculum had been like a boat that students turned upside-down and carried away into the woods, he pointed out that the meaning of the word "whelm" in "overwhelm," was once used to refer to the idea of a boat being overturned. I confirmed this etymology and found that "whelm" is also connected to an earlier word meaning "cover over" (Harper, D., n.d.). The overwhelm was such a longstanding component of participants' experience that it had covered over many realities about feeling and they had never seen a right-side-up boat before. But in the surprises where overwhelm and enjoyment met, that boat flipped back over onto the water and we had some great learning happen.

Recommendations for Using this Research

The following recommendations are my ideas about how this research could be applied meaningfully in other educational contexts.

Incorporate somatic activities with an emphasis on movement

There is a need for most if not all classes to include a purposeful somatic learning component, preferably with movement. Ideally it would be possible to integrate somatic activities with the core purpose of each and every class, but if limitations make that impossible, then at least including them as semi-regular transition activities could still provide many of the benefits. Some participants talked about past classes that have included meditation. Although meditation is usually a somatic practice, I think that doing only meditation without an active movement component would be a disservice in an education setting because there is currently such an imbalance between stillness and movement. Based on participant statements, I believe needing to remain still and seated most of the time is connected to feelings of helplessness.

Build from personal experiences

I think my curriculum led to successful shifts in students' abilities and perceptions because I made the somatic activities ones that I had past experience with. I drew from my own strengths, which made it easy for me to illustrate why each activity was meaningful in the context we were working in. It was meaningful to me, so it was easy for me to make that meaning evident in my teaching. I think instructors wishing to incorporate somatic methods should also look to their strengths and past experiences for inspiration, whether that be sport, music, or anything else. This might involve building an intentional somatic awareness component into skills or activities that were previously just embodied. Or, if instructors have little prior experience, then beginning to explore and experiment with a range of different

activities side-by-side with students could help to build this background. It could be a very good idea to tap students' expertise.

Provide opportunities to emotionally integrate new learning

In this study, there seemed to be a need for students to emotionally integrate new learning in order to act on it. It seemed that although participants had encountered new ideas and more hopeful perspectives from their recent classes, it was still being drowned out by the intensity of what they had encountered before and what they were continuing to encounter outside of the bubble of their current environmental classes. They needed to reconcile new learning with contradictory past learning. Accomplishing this would mean not only countering doom narratives and adopting a stronger solutions-focus in classes, but also giving students opportunities to emotionally integrate that new perspective with their past experiences which may have been overwhelmingly the opposite.

- Include learning about eco-emotions in the plan of study. Provide shared language to make it okay and normal to talk about.

- Provide somatic "eco-emotion checkpoint" activities at some point during the middle of each course. Nothing big, or high stakes. Not a reflection project, not asking students to spill their deepest feelings, just a simple activity that creates a natural pause and invites students to incorporate the course into their own emotional storyline and connect lightly with classmates about it. Such an activity might include:

  1. Nonverbally representing feelings about the learning through movement, art, music, etc.

2. Noticing what it feels like somatically (identifying concrete physical sensations that go with the feeling)

3. Giving the feeling experience a provisional name (which they can keep to themselves)

4. Connecting feeling to action by deciding what they want to do next in response to that feeling. This probably works best when it happens on two levels – first on the level of the nonverbal medium and then translated to the level of life/learning choices.

In Appendix D I provide an example of this type of activity side-by-side with further recommendations for putting it into practice.

Come to a shared understanding of the existential purposes of courses

In this study, there was a disconnect between students' and professors' understandings of the relevance of course content, which resulted in students feeling that some of what they were being taught in their major was meaningless because it was not helping them act, only showing how futile action had been in the past. One potential way to remedy this would be to discuss together the existentially-relevant purposes of courses. How is this course existentially meaningful right now? How does it help inform action in the present moment? This kind of conversation wouldn't necessarily have to happen all the time, but often enough and early enough that students and instructors have greater awareness of each other's perceptions of course purposes and impacts. If a class by necessity has to be heavily theoretical and students aren't able to use it for anything meaningful unless they gain access to a certain career or context, then explicitly acknowledging that it falls short in that way might still help.

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Lesson 1 - Embodiment & Learning

Objectives

- Learners can identify examples of explicit and tacit knowledge in learning and teaching.
- Learners can reflect on physical movement, sensory experience, and social interaction using the "push/pull/attend" heuristic or a modified heuristic that aligns with their own understanding.

Setting

Classroom or outdoor area that meets accessibility needs, has writing surfaces

Materials & Equipment

- One box containing assorted natural objects, one box containing pieces of paper with the names of the objects
- 6-10 Pool Noodles (1 per 2 or 3 students)
- Google Jamboard for Dragon Thought Experiment
  - https://jamboard.google.com/d/1PIUEZ51sFgre5CworT38Pon8pghiJOUMAL9F8FNFOVU/edit?usp=sharing
- Copies of reflective writing prompt #1 handouts; extra paper
- Spare pens & pencils

Accessibility & Adaptations

- Be ready to explain "peace out" options and using the "peace" hand sign to set a boundary during class activities
- Be ready to adapt movement activity for low movement needs
- Offer paper and digital copies of "Activities" section below to serve as notes
- Remind of counseling and crisis resources, support options

Readings

- adrienne maree brown – "What Your Body Has to Do with Social Change" excerpt from "Pleasure Activism" (Content: briefly refers to sexual feelings in descriptive ways. Alternative: skim Turkki "Woven into the air– Dance as a practice towards ecologically and socially just communities")
- Jakubowska Ch. 1: *Embodied knowledge and the limits of its verbalization*

Timing & Activities

Introduction/What to Expect
 	
5 mins (5)
	What to Expect
	
	Overview of 4 sessions + focus group time
	Same Brave Spaces expectations as when dr. stanger is teaching
	
	"Peace out" options – if I haven't adapted something in a way that is accessible for you and you don't feel good about telling me about it in the moment, you're free to "peace out" at any time in a way that is best for you. Using the peace hand signal would be really cool since it helps me know what's happening. You can also use it during normal activities to keep me away from you if I'm hovering like a vampire or interrupting a great discussion.
	    A) Peace out of participating but keep watching – totally welcome to do this.
	    B) Step away temporarily and come back in when ready
	    C) Step away for the whole session
	
	Meeting with me
	
	Counseling & crisis resources

Key Idea 1
10 mins (15)
	Pair Discussions
	● Your initial responses to the readings: Were the ideas about somatics and social justice, and explicit and tacit knowledge, familiar or new?
	    ○ Try to reexplain explicit and tacit knowledge in your own words.
	● What is the least "embodied" learning experience you can remember or imagine?
	    ○ What role was the body still playing in this experience?
	● When have you intentionally used your body and senses while learning? What was that like?
	
	Key Ideas: Sensory Awareness in learning, Tacit & Explicit Knowledge

Practice 1
20 mins (35)
	Activity: Map vs Territory, Tacit–Explicit Knowledge spectrum
	1. Form into groups of 3 and receive a piece of paper with the name of a natural object
	2. Imagine it, remember it, describe it to each other in as much detail as possible. This is your explicit "map" of the object.
	    a.
	3. Then, compare to the real object using all senses (except taste, I guess?)
	    a. Appearance, smell, weight, texture, temperature, sound, emotional response, sense-memories
	    b. This is your tacit experience of the real "territory" of the object
	
	4. Was your description close to the real thing? Why or why not?
	5. How do you think your past experiences and cultural background shaped the way you mapped the object? What about the way you experienced it in reality?

	-We can use words to narrow down more closely to what the real experience might be like or not like, but we can never actually describe it -Same is true whether we're thinking abo**ut topics like Argentina, Salmon hatcheries, or Amazon warehouse working conditions**. If you're not there, it's hard to fully understand it, and it's even possible to miss that understanding if you're not paying close attention – the original mental map you've built can overwrite reality and erase details. So a question to take with you is…what are the implications of teaching using only explicit knowledge?
BREAK 5 mins (35)	**BREAK**
Key Idea 2: Survival Responses & Movement Styles 15 mins (50)	**Generate ideas together on google jamboard: Dragon Thought Experiment** ● Thought experiment: In what ways do you react to threats to survival? ○ How might you respond if you were hiking one day, came over the crest of a hill, and came across a snake? ○ In a twist of fate, the snake transforms into a 100 foot tall dragon. How would your response change? ○ What might you do if the dragon actually had you cornered, with no route of escape? ○ What if the dragon said he wouldn't eat you as long as you sing karaoke in front of an audience of his friends while they throw tomatoes at you? ● Compare whiteboard ideas to list of stress responses: ○ Array of possible responses that are appropriate in different situations (This list has been simplified for our purposes) ■ Observe ● Stay still, watch carefully while taking in information about what's happening ● Heightened sensory awareness ● "Freeze #1" ■ Flight ● Move away from the threat and/or towards help ■ Fight ● Use aggression or intimidation to stop the threat ■ Freeze ● "Tonic immobility" response ● Petrified ● "Freeze #2" also called "Fright" ■ Appease ● Try to please ● Pseudo-social – pretending to be socially engaged but not actually connecting ● "Hi Mr. Dragon, it's amazing how shiny your teeth are! Here let me brush them for you. Aren't I helpful and not worth eating?" ■ Collapse/"Play Dead" ● Give up and go numb, limp

	"Possum" response - Conserve energy - Exiting threat response mode to return to being socially engaged, curious - Finding ways that make it possible to authentically engage with the threat - Hi, Mr. Dragon! I have no intention of being eaten, so I have proactively covered myself in poison, but I know you need to eat and I'd still like to get to know you. I brought you some tofu kebabs. - Usually our bodies decide between responses in a split second – we don't often have control over this response without a lot of practice. - We react to perceived or imagined threats as much as real, immediate threats. - Example: there isn't any wildfire smoke around us right now. But it was here last summer and we expect it will be here again, and it's possible for that memory and expectation to activate our stress responses to some degree. - The response and the strength of the response will differ from person to person and situation to situation.
Demonstration 5 mins (55)	**PPA Framework Introduction/Demonstration with Pool Noodle** - During this module we're going to experiment with thinking about teaching and learning choices through the lens of movement. - Whenever we move, we have different options about how to move, and the way I've learned how to think about those options from my Aikido experience is in three categories of "pushing against" things, "pulling away" from things, and "attending to" things. - Your experience might suggest different categories, and I'd encourage you to share if you think about movement differently! What is "pushing against"? [Demo: punch the pool noodle, wrangle the pool noodle] - Using power or force "Messing with" something - Fighting something - Getting "in the way" of something - Compromising the integrity of something What is "pulling away"? [Demo: Drop the pool noodle and leave] - Running away - Turning away - Disengaging - Ignoring / Pretending What is "attending?" [Demo: Dance or play with the pool noodle, see what emerges, note out loud if the movement changes to pushing or pulling at some point] "Moving with" - Moving without using either of the other two options, staying engaged - Responding fluidly to what is happening in the moment - So movement, the actual way we orient ourselves physically according to our unique abilities, can have a lot to do with how we are in relationship to the world

	around us. I think that looking closely at experiences of movement and sensing can offer insights that transfer to our teaching.
Practice 15 mins (70)	**Activity: PPA Practice w/Inanimate Object** Goal: Notice what each type of movement feels like, learn to recognize in practice. Instructions - In small groups, take turns using the three different styles of movement to relate dramatically to an inanimate object (e.g. pool noodles, desks, chairs, walls, toys, paper) - While one person is moving, the others watches closely, looking to see more details of the movement. Describe to each other what you see happening. - Discuss: Which type of movement feels most familiar and least familiar to you? Is the same true for social situations? - TWIST: Choose a new object in the room to relate to, big or small. What is the same? What is different? **Low movement adaptation** – can do this activity using one hand or any movable body part, or even just facial expressions (emphasizing social aspect of movement styles).
Reflective Writing 15 mins (95)	**Reflective writing prompt #1** Distribute/display prompt, provide quiet time for writing, opportunity to chat or ask questions 1-on-1
Wrap Up 5 mins (100 –10 minutes flex)	Note: need to hand out paper copies of body map activity **For Next Time** *Finish reflective writing prompt if not finished* *Read Pihkala "Eco-Anxiety and Environmental Education"* for next time. Deep dive into pp. 20-26 and skim the rest, focusing on parts that are most meaningful to you. Be prepared to share what stood out to you. *Online via Zoom next time* Basic art supplies would be helpful but you can still do the activity with just a pen or pencil, or a digital art program if it's something you can use quickly and easily.

Lesson 2 - Eco-Anxiety and Emotions in Teaching

Objectives

- Learners can reflect on physical movement, sensory experience, teaching choices, and eco-social-justice action using the "push/pull/attend" heuristic or a modified heuristic that aligns with their own understanding.
- Learners can describe ways to facilitate learning experiences that engage with eco-emotions.

Setting

Zoom Pro online meeting

Materials & Equipment

- Slideset
- Google Jamboard 1: Reading reflection
- Google Jamboard 2: Modified TRIZ activity
- Reflective Writing Prompt #2
- Body Mapping assignment and sample maps

Accessibility & Adaptations

- Offer digital copies of "Activities" section and Google Slides to serve as notes
- Be prepared to make adjustments to and debrief the TRIZ activity if it generates overwhelm in step 2

Readings

Pihkala – Eco-Anxiety & Environmental Education

Timing & Activities

Introduction 10 mins (10)	**Administrivia and Reading Reflections (Jamboard #1)** In jamboard document, add responses to Pihkala's "Eco-Anxiety and Environmental Education" (Impacted me… Made me wonder… Reminded me of…) Then take time to read other people's notes and add responses.
Key Idea 1 10 mins (20)	**Mini-Lecture: Eco-Anxiety** 🟨 Presentation: Eco-Anxiety & Emotions ● Prevalence

	- Definition & Manifestations - Why it matters - Impact of power on emotions - Role of positive experiences - Role of sensory awareness

Practice 1
30 mins (50)
	Activity: Body Mapping
	
	- Developing clearer awareness of feeling experiences opens up more possibilities for shifting between feeling states and action states. Not all feeling states can be clearly defined by a single emotion word, and assuming we all experience emotions in exactly the same way is not a safe assumption. So how do we start to make sense of complex feelings without being able to rely too much on words?
	- This is a basic exercise for practicing in-depth sensory awareness. For some people it can be very difficult - if it feels too intense to focus on feelings related to eco-anxiety, you can choose something less intense. Just try not to choose something so intense or so boring that it would be hard to reflect on.
	- Although this activity asks you to pay attention to what you're sensing, there's no need to spend time thinking about any pain you might be experiencing.
	
	Instructions:
	
	1. Start by making an outline that represents your body. You can use one of the outlines provided or draw your own version any way you want.
	2. Use color, shapes, patterns or symbols to represent what your internal physical sensations felt like when you interacted with the object you chose.
	
	You might notice sensations like warm/cold, tight/loose, empty/full, comfortable/uncomfortable, tingly/numb, high energy/low energy.
	
	Tips
	- You don't have to stay within the lines, you can use the entire page as long as you're also representing internal physical sensations inside the outline.
	- You can't do this wrong -- if you are struggling to identify any physical sensations, or if what you identify doesn't seem to make sense, that's completely fine. Represent that.
	- If these instructions are confusing, try taking a look at the two examples I made, but don't feel like your drawing needs to look similar to mine.
	
	3. Give your drawing some kind of name. What would you title this feeling experience?
	4. Write a 1-2 paragraph description of your drawing.
	   a. What do the colors/shapes/patterns/etc that you chose represent for you?
	   b. Do you think the feeling experience you represented is a "push," "pull," or "attend" experience, or is it a combination, or none? Please explain.

	Return to group – share any part of the activity and reflection that you're okay talking about Was there anything about doing this activity that surprised you?
BREAK 5 min (55)	**BREAK**
10 mins (65)	**Mini-Lecture: Emotional care in teaching** 🟨 Presentation: Eco-Anxiety & Emotions ● Some Strategies from the Eco-Anxiety Literature ● Giving & Receiving Care ● Care ideas across different levels of experience
Practice 25 mins (90)	**Modified TRIZ with Bright Spots Activity** Based on: https://www.liberatingstructures.com/6-making-space-with-triz/ 1. Introduce idea of TRIZ: a process to make space for new practices by getting very clear about what's not working 2. (Wearing sunglasses and doing an impression of a villain) Starter question: What could we do in our work as environmental educators to MAKE SURE that EVERYONE feels completely doomed and never tries to make a difference? [Example: Trapping everyone in a small windowless room and showing videos about catastrophes (MUA HA HA HA HA)] 3. **First, start making a list individually** for 2 minutes. No limits on the types of things you can put on the list, have fun with it!) 4. **List 1 Defining "Negative Space":** Next divide into groups of 4. Choose a timekeeper, a notetaker, a discussion leader, and a reporter to share highlights at the end., share lists and keep going to generate a big list of ways we could ensure the worst happens when it comes to environmental education. 5. **List 2: Coloring in "Negative Space":** Is there anything that we are currently doing, or that is common in your teaching and learning experiences, that in any way, shape, or form resembles this item?' Make a second list of everything happening in your individual and collective experience that resembles the first list. 6. **List 3: Reversing the optical illusion – Bright Spots & Renovations:** We've created a negative space outline of what we don't want to be doing around something unidentified that we do want to be doing. What are some "bright spots" – really amazing examples or experiences you've had that could help move from lists 1 & 2 into what you would rather do instead? And, can any of the "negative space" examples be renovated – was there a seed of something great in them that didn't quite grow? Share highlights as a whole group Silent somatic check in: Pause for a minute to see what this activity feels like internally. See if you can notice if you're feeling a push against, pull away, or attend type of feeling right now. It's okay if you're not sure.

Reflective Writing, Opportunity to chat or ask questions 1 on 1 15 mins (105)	**Reflective Writing Prompt #2** Distribute prompt, provide time to start writing
Wrap Up 5 mins (110)	*Reminder:* Please turn in Body Mapping reflection and Reflective Writing #1 & 2 via canvas before next class *Next Readings* Sumitra Rajkumar's "Somatic Centering" practice if this is accessible for you. How does Rajkumar make connections between sensory experiences and everyday life in this practice? Also skim Stapleton & Lynch or Turkki, your choice

L2 Sample Body Maps

Title: Tentativeness

Description:
This is a body map of a time when I was hanging out with my cat Maze.

I was feeling cold and "low energy" in my belly and on my neck and shoulders, but warm on my back and part of my arms and legs.
The green was where I felt "alive" and "interested," mostly in my hands and feet. I used light colors in most places because I wasn't feeling very strong sensations.

I also colored in my cat with different colors imagining what she might feel like in cat feelings.

Push/Pull/Attend?
I think this was mostly an "attend" experience because I wasn't trying to change anything about my cat or about me. I was just taking some time to pay attention to her.

Title: "What do I do?"

Description:
This is a body map showing how I felt when I was doing a practice teaching experience once. I had prepared, but I got so nervous about making a mistake that I wanted to run away, but felt trapped.

The orange fiery lines are the feeling of so much energy that I needed to do something immediately – the impulse to move jolting through my body. The yellow lightning bolt shapes are where I was shaking or trembling. The blue and black are where my body felt heavy and empty, stopping me from moving. The black bars are where I felt like I couldn't tell what was happening: confusion, unawareness, lack of direction. The question marks are where I wasn't really aware of what I was doing or feeling.

Push/Pull/Attend?
I think this was mostly a "pull" experience because I was wanting to get out of the situation and not let people see me make a mistake in my teaching. But there was also some "push" happening because I was pushing against myself, trying to stop myself from running
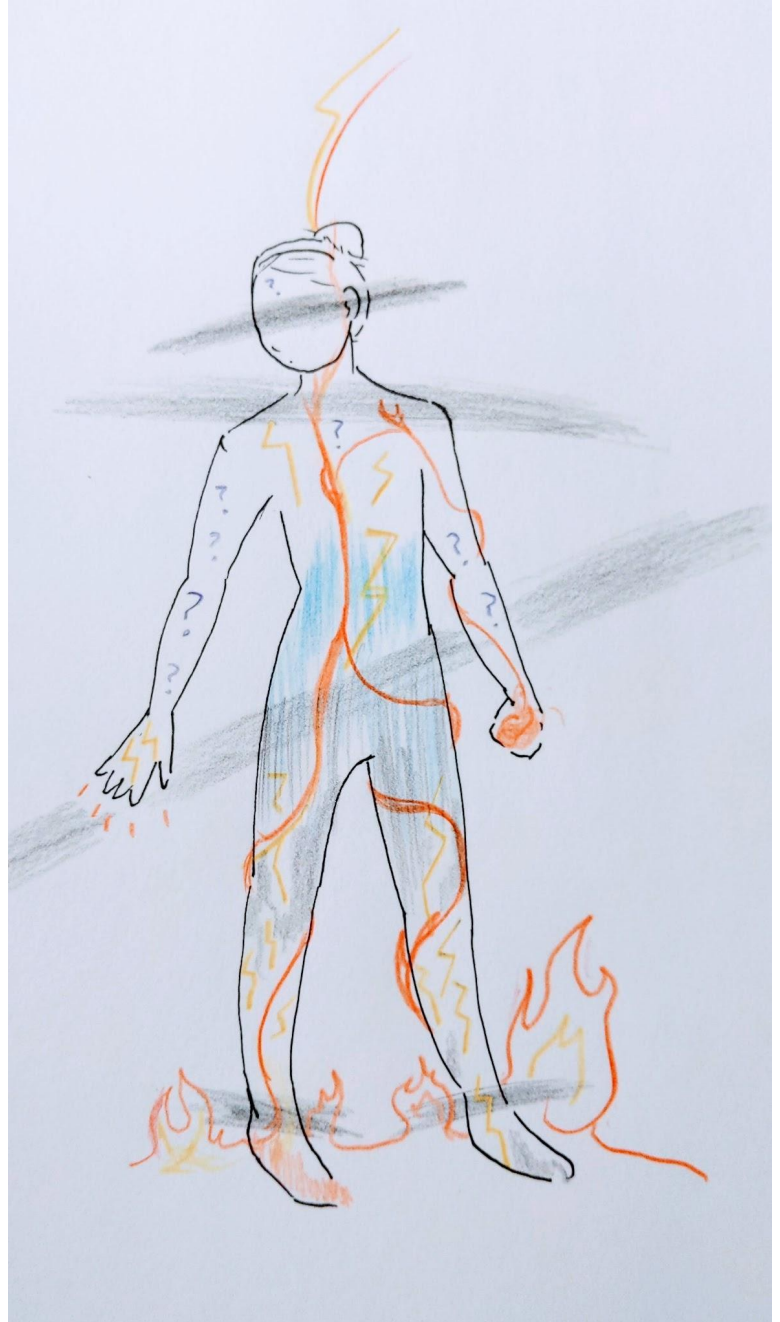
Lesson 3 - Hope & Organization

Objectives

- Learners can design curriculum that takes into account the body's role in knowledge construction, including role of senses, movement, and emotions.
- Learners can reflect on physical movement, sensory experience, teaching choices, and eco-social-justice action using the "push/pull/attend" heuristic or a modified heuristic that aligns with their own understanding.
- Learners can describe ways to facilitate learning experiences that engage with eco-emotions.

Setting

Classroom or outdoor area that meets accessibility needs, has writing surfaces

Materials & Equipment

- 6-10 Pool Noodles (1 per 2 or 3 students)
- Koosh ball or other throwable discussion facilitation item
- Triangulation activity handouts
- Interstitial lesson plan assignment

Accessibility & Adaptations

- Demonstrate low movement adaptations for all 3 activities
- Reminder about "peace out" options and handsign introduced in first lesson

Readings

Sumitra Rajkumar's "Somatic Centering" practice. How does Rajkumar make connections between sensory experiences and everyday life in this practice?

Skim Stapleton & Lynch "Fostering relationships between elementary students and the more-than-human world using movement and stillness" **or** Turkki "Woven into the air– Dance as a practice towards ecologically and socially just communities"

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Timing & Activities

Introduction	*Get ready to go outside – don't unpack.*
5 mins (5)	**Introduce today's theme** Using embodied experiences to explore feelings of persistence such as hope and courage.

	You may have noticed in the somatic centering practice that Rajkumar describes things like feeling spaciousness in multiple directions, which is connected to what we'll look at today.

	Organization & Hope Part 1: Moving between organization & disorganization
	● Ask a volunteer to manage the Zoom laptop to make sure the camera is capturing the full movement scene
	● Organization and disorganization are ways of describing if we're in a strong position that makes us ready to carry out a certain action.
	   ○ Example 1: Baseball player ready to swing at a ball
	      ■ Organized: "wound up," posture stable and ready to make a powerful swing
	      ■ Disorganized: Looking away, bat not raised, maybe leaning to one side
	● Ask for two volunteers who are willing to move dramatically into a variety of shapes – one person standing, one person seated
	   ○ Example 2: Embodying *an* experience of eco-anxiety
	      ■ [Demonstrate a shape that matches one possible feeling of eco-anxiety such as head and torso bowed over, point out advantages and disadvantages of that shape: e.g. attention focused inward or on small details; not paying attention to what's outside self, clearly signals that I might need support, won't see danger coming]
	      ■ Demonstrate moving back to a state of attending; posture, eyesight, alignment, center of gravity
	      ■ Demonstrate low movement adaptation using arm and hand only
	● **Whole Group practice**
	   ○ Warm up: shake it out!
	   ○ Remaining seated for now, move the upper half of your body or an arm into a shape where you're not organized to act. What does that feel like?
	   ○ Move slowly into a shape that feels healthy and ready for action to you

Skill Demonstration and Advanced Practice
 	
30 mins (45)
	Organization & Hope Part 2: The Pool Noodle Challenge – An Existential Threat
	1. Acknowledgement to my Aikido teacher Bert Bennet who taught me this activity.
	2. A little more background for it to make sense – explain Aikido
	3. Context: What kinds of "threats" can this pool noodle represent? (Climate change, social change, our own sense of overwhelm, anything we don't control)
	   a. Ask for a volunteer to swing down at me with a pool noodle
	      i. Illustrate boundary in which I am "trapped" – make connection to the dragon thought experiment from lesson 1
	      ii. Ask volunteer to strike down to my forehead with the pool noodle
	      iii. Show "push" movement response, notice change in alignment
	      iv. Show "pull" movement response, notice change in alignment
	      v. Show "attend" movement response, notice keeping alignment, notice helping the energy of the pool noodle go where it wants to go
	      vi. Demonstrate getting hit by the pool noodle; moving forward from failure – (from this new place, where is my next move towards "attending"?)
	   b. Seated, arms-only version: use "piercing" movement instead of "cutting movement" guiding the pool noodle past without using force
	   c. Nuance: it's not that running away or grappling the pool noodle is never the right choice – it's possible to run away and attend at the same time, it's possible to grapple and attend at the same time – which is different than

what I demonstrated because I was trying to make the push/pull/attend distinctions really obvious.

    d. *[→Share my story of trying this activity]*

4. Acknowledge high difficulty level of this activity – totally normal if you don't find it possible to do yet. Only goal is to practice and see what happens. Reminder: at any time, you get to choose whether you want to participate or just observe.
5. Raise hands if you want to actively participate – please form groups of 3 where at least 2 people want to participate.

Move outside – roughly 15 minutes to play

Outside Small Group practice with Pool Noodles
Reminder: you get to choose to participate, observe and discuss, or just observe.

1. Divide into groups of 2-3 where at least two people want to try the challenge. Each group take a pool noodle.
2. One person swings the pool noodle, one person responds to the pool noodle, and one person observes the type of movement that is happening and provides descriptive feedback.
3. Switch roles whenever ready.

Activity for online zoom group – Exploring Theater of the Oppressed

1. **View two videos about Augusto Boal's "Theater of the Oppressed" being used in educational settings:** 🔴 **Theater of the Oppressed** 🔴 **statues of oppression**
   - Theater of the Oppressed create opportunities for people to practice encountering oppressive situations and imagining paths to desirable outcomes
   - Physically acting it out brings up unexpected complexities and solutions
   - Working together, combine the ideas of these videos with our alignment activity and push/pull/attend concepts to explore moving between different feeling states.
2. Rotating, each person takes a turn acting out a feeling shape.
   - You can use your whole body, upper body, or just a hand or arm with facial expressions to dramatically express the shape of an emotion you want to work with.
     - For this activity you need to start with a feeling that is either neutral (like boredom) or difficult (like grief).
     - Example starting feeling – Grief.
       - When I feel grief, my head turns downward, my face scrunches up, my spine makes a "C" shape, my mouth opens a little bit, and I build tension in my torso
   - As a group, notice any other details about the shape or how it feels to make

	○ After making the shape of the first feeling, explore using movement until you reach a shape that feels aligned and powerful
	      ○ Rotate, taking turns to try out various starting feelings.
	   3. When ready, try acting out the feelings of a more complex situation you care about, like "Explaining colonization to students," or "conveying responsibility and hope about the environment" and go through the same process as before, moving from the more difficult starting feeling to how you'd ideally like to be in that situation
	
	Debrief
	Debrief both activities in a circle, Koosh-ball discussion.
	● Online group report to rest of class about Theater of the Oppressed
	● What were these activities like for you?
	● Did this activity generate any meaning or questions for you about the way you teach or engage in environmental work?
	● Is there an aspect of your experience of eco-emotions that you would like to share or seek input about?

BREAK 5 mins (50)	BREAK

Key Idea &
Demonstration
15 mins
 	
(75 mins)
	What is an interstitial lesson plan? Demo Experience
	● Handout sample Interstitial Lesson Plan – Triangulation Activity written by dr. stanger and then try the activity together
	● Adaptations:
	    ○ Low movement adaptation: use hands to "measure" relative distance of the two chosen people
	    ○ Include somatic check-in after "random act of nature"

Work Time (30 mins)	**In-class time to work on interstitial lesson plan assignments** ● Acknowledge this assignment could be challenging – don't feel that it needs to be perfect ● Okay to bounce ideas off each other freely, but each person creates their own ● Wanting to use ideas from this module? It's normal to copy activities you've experienced, but you'll need to make it suited to your unique abilities, audience, and/or area of focus ● Divide into two groups: people who want to work on alone, and people who want to talk to each other while working ● Time for 1-on-1 questions
Wrap Up (5 mins)	Next session is open-space discussions, which are led by all of you and which you'll be free to move between freely according to your interests. The idea of this session is to let you take this module in the directions that matter most to you and extend it, adapt it, and challenge it together. Be thinking of topics we haven't covered or haven't covered in-depth enough that you would like to bring up. After the open space discussions, we will wrap up with the final reflective writing entry.

Lesson 4 - Open Space Discussions

Objectives

- Learners can apply push/pull/attend heuristic (or similar) to make somatically-informed decisions about discussion participation.
- Learners can collaboratively evaluate, extend, and adapt understanding of eco-emotions and embodied teaching & learning.

Setting

Classroom or outdoor space that meets accessibility needs, has writing surfaces, allows for multiple extended discussions and notetaking

Materials & Equipment

- Reflective writing #3 handouts
- Assorted sticky notes and pens
- Whiteboards or flipchart paper
- Whiteboard or flipchart paper showing "Named" locations where separate discussions will be held, divided into two time columns

Accessibility & Adaptations

- Open-space discussions allow participants to decide whether or not to speak or just listen

Readings

Jaquette Ray Ch. 3 – "Claim your calling and your scale of action"

Timing & Activities

Introduction 5 mins (5)	**Introduce Open Space Technology** ([Open Space Key Concepts Explained	OpenSpaceWorld.ORG](#)) Open Space Technology is a crowd-driven adaptive discussion method that makes it possible for each person to bring their expertise together to generate ways forward in highly complex situations. Discussion questions are generated by you. There will be two 40 minute sessions with multiple discussions going on at once which you can move between. **Four Principles** "Whoever comes are the right people, whatever happens is the only thing that could have, when it starts is the right time, when it's over it's over."

	Two Laws *The Law of Two Feet* If you find yourself in a situation where you are neither learning or contributing, move somewhere where you can. (Here is a chance to notice push/pull/attend feelings and use that to determine when you're ready to move.) *The Law of Pollination* Whenever you move to another place, you share the most enlivening ideas and perspectives from where you were before

Preparation Phase
 	
5 mins (10)
	Generate discussion topics
	● If you want to propose a question for a discussion, write it on a sticky note with your name.
	● Your responsibility will be to:
	    ○ Host that discussion (e.g. kickstart it by sharing why you're interested in the question)
	    ○ Make sure you or someone else is taking notes about key ideas that arise so that they can be shared with everyone later
	
	If you have a question you'd like to propose, please write it down with your name and add it to the whiteboard.
	
	When there are enough questions, we will separate out into our first discussion sessions.
	
	Theme: Eco-Emotions & Embodied Learning in Environmental Education
	
	Example Questions:
	● What does giving and receiving care look like in teaching?
	● How could embodied learning be made accessible and equitable for people with disabilities or who can't access outdoor learning?
	● What does having hope mean in the context of today's challenges?
	● What emotions are usually at play in settler-led environmentalism, and what are the responsibilities of settler educators on Indigenous lands?
	● How do the more "taboo" eco-emotions like anger and grief impact environmental education?
	● What experiences, feelings, abilities, and orientations provide strength to face existential dread?

Discussion 1 40 mins (50)	Begin first round of discussions. Set timer with 3 minute warning, float, and answer questions as needed.
BREAK 5 mins (55)	BREAK
Discussion 2 40 mins (95)	Begin second round of discussions. Set timer with 3 minute warning, float, and answer questions as needed.
Completion 5 (100)	Ask note-takers, or participants, to share some of the ideas that stood out most during the day. Collect notes from note takers to copy and share later.
Reflective Writing 3	Distribute Reflective Writing #3 prompts, provide time to get started if possible

~5 mins (105)	
Wrap Up ~5 mins (110)	Reminder: Please hand in reflection #3 and any other assignments via Canvas.

Study Instruments

Reflective Writing Entries

Initial Inquiry

What are you most curious about during this unit? Choose an overarching question or focus that will guide your inquiry as a developing teacher engaging with eco-emotions and embodied teaching & learning practices.

What is your starting inquiry question or focus?

Entry 1

Using your inquiry question or focus as a starting point, free-write for 1-2 paragraphs, exploring what your inquiry brings up for you.

Then, continue your inquiry by responding to one of these prompts, or create your own:
- As an educator, I see myself…
- At this point, my inquiry question or focus is…
- My feelings about…
- I am surprised…
- I am challenged…
- I am excited about…

What is your question or focus right now?

Entry 2

Building on your previous inquiry or allowing it to change, free write for 1-2 paragraphs. After your free-write, continue by responding to one of these prompts, or create your own:

- My inquiry feels like a [push/pull/attend] type of inquiry because...
- My experience with eco-emotions so far has been...
- As an educator, I see myself...
- Something difficult for me to put into words is…
- I have started noticing...

What is your question or focus right now?

Entry 3

Building on your previous inquiry or allowing it to change, free write for 1-2 paragraphs. After your free-write, continue by responding to one of these prompts, a previous prompt, or create your own:

- For me, embodied teaching and learning is...
- My inquiry has changed because…
- Now, I am imagining…
- Tensions that are embedded within my topic…
- The feeling that motivates me is…
- I am realizing that...

What question or focus are you bringing with you as you continue growing as a teacher?

Body Mapping

Instructions:

1. Start by making an outline that represents your body. You can use one of the sample outlines provided below, trace a photo, or freehand draw your own version any way you want.
2. Use color, shapes, patterns or symbols to represent what your internal physical sensations feel like when you remember the object, place, or experience you chose.

   You might notice sensations like warm/cold, tight/loose, empty/full, comfortable/uncomfortable, tingly/numb, high energy/low energy. You might notice many different sensations or very few.

   <div style="border:1px solid black">

   Tips
   - You don't have to stay within the lines, you can use the entire page as long as you're also representing internal physical sensations inside the outline.
   - You can't do this wrong -- if you are struggling to identify any physical sensations, or if what you identify doesn't seem to make sense, that's completely fine. Represent that.

   </div>

3. Give your drawing some kind of name. What would you title this feeling experience?
4. Write a 1-2 paragraph description of your drawing.
   a. What do the colors/shapes/patterns/etc that you chose represent for you?
   b. Do you think the feeling experience you represented is a "push," "pull," or "attend" experience, or is it a combination, or none? Please explain.
   c. How do you see this activity informing your teaching?
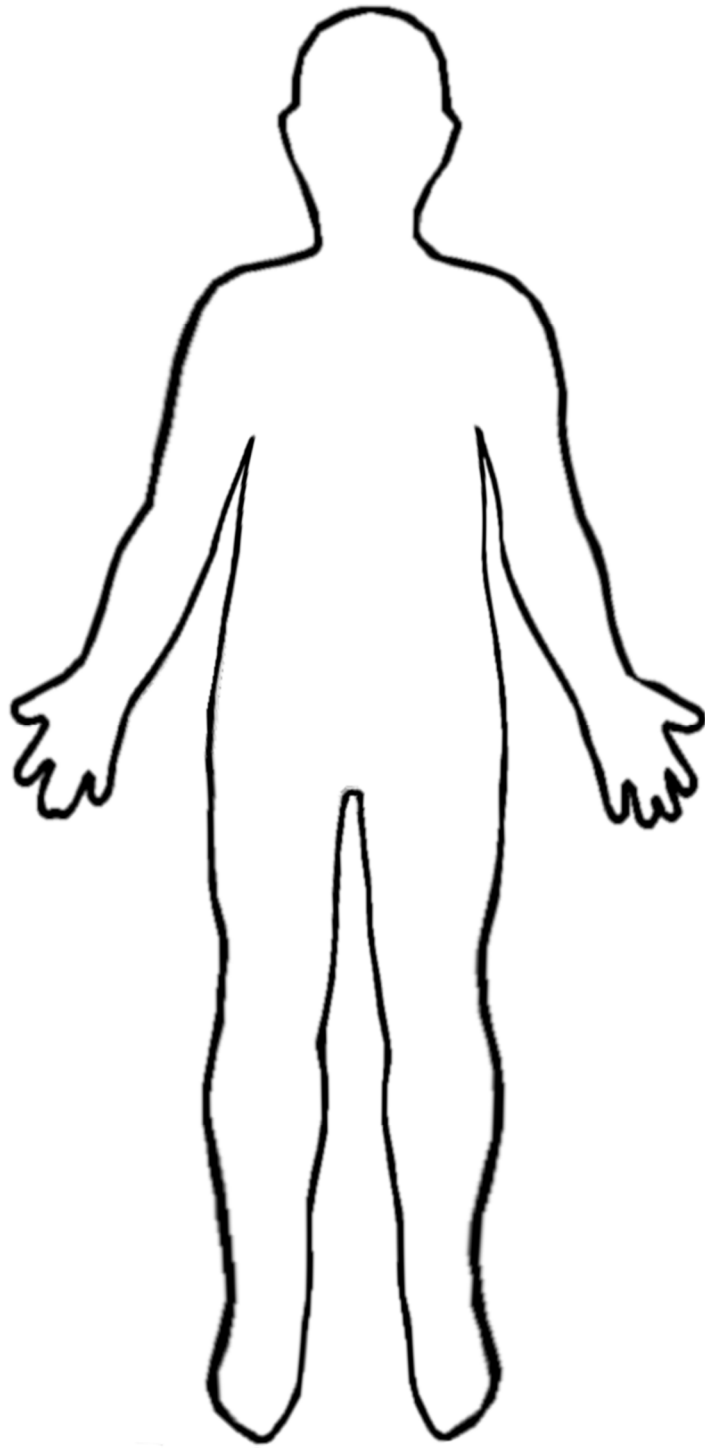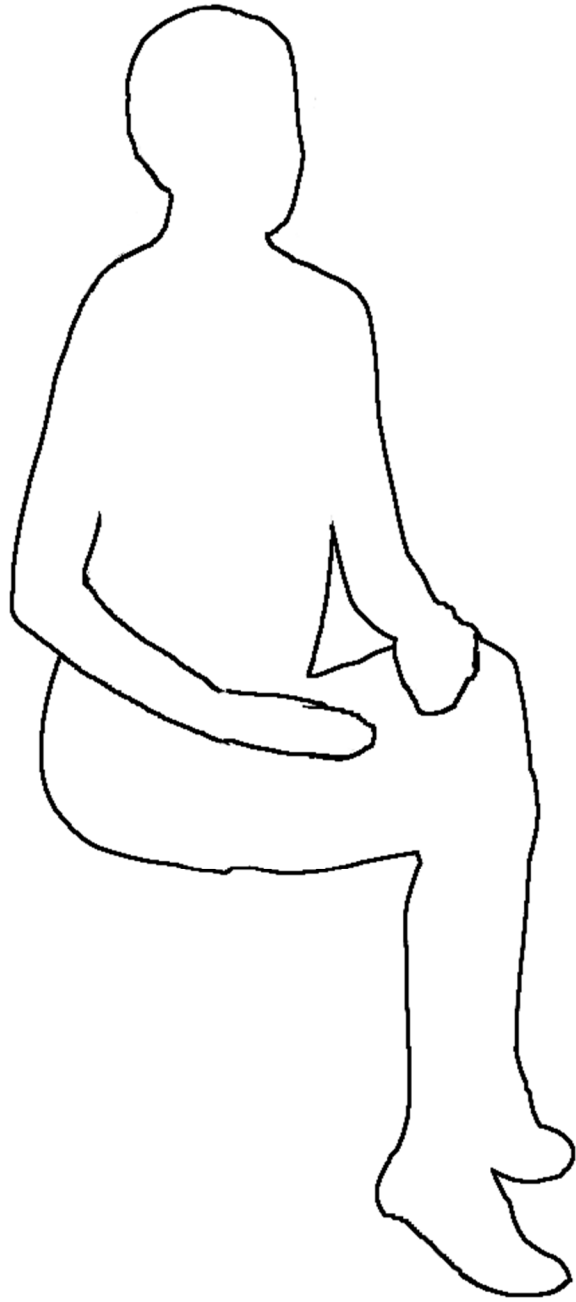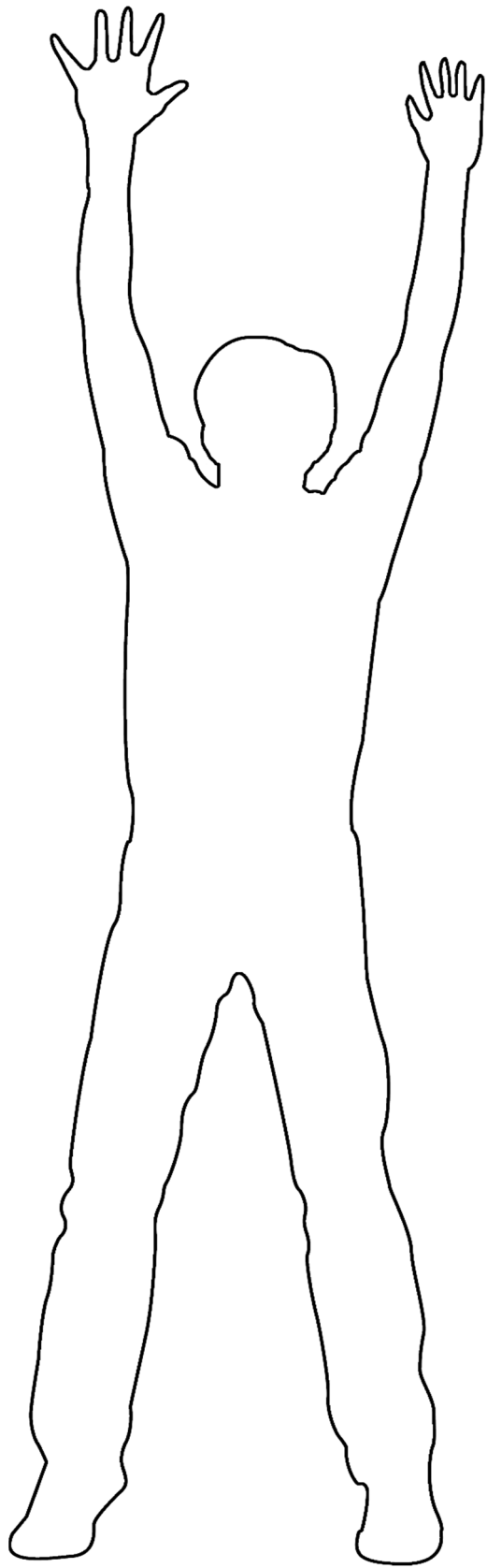
Interstitial Lesson Assignment

Write a short, 5-15 minute lesson plan that incorporates eco-emotions, movement, and sensory awareness and could be used to transition between other learning activities.

Twist: How would you adapt this lesson if your students had to remain seated, such as on a bus?

Explain the choices you made about this lesson and its adaptations. Who is the lesson for? What learning does it make possible?

Focus Group Interview Open-Ended Questions

1. How did you enjoy learning about embodied teaching and learning?
2. What was it like to reflect using the "push against, pull away, attend" framework to relate your experiences to different types of movement?
3. What about embodied teaching worked well for you?
4. How do you imagine using what we practiced in your own teaching?
5. Why is it important to learn about eco-emotions?
6. Are there specific activities or ideas we explored that you're planning to take with you into future teaching experiences?

To: Pippa Hemsley
From: Stephanie Richey
Subject: Human Subjects Application
Date: 12/21/2021
Action Taken: Exemption Granted
Principal Investigator: Pippa Hemsley
Faculty Advisor: Nick Stanger
Project Title: Embodied Learning for addressing Eco-Anxiety in Environmental Education Teacher Preparation
Protocol Number: 4522EX21
Funding: None

The Western Washington University (WWU) Institutional Review Board (IRB) designee determined that your project meets the requirements outlined in §45 CFR 46 and WWU institutional procedures to receive the following exemption determination:

Exempt Category 1

This determination means that your research is valid indefinitely, as long as the nature of the research activity remains the same. You may begin recruitment and data collection. After 6 years, according to the University's retention schedule, this exemption file will be deleted. After this point, you will no longer be able to make modifications to this protocol.

This exemption is given under the following conditions:

1. The research will be conducted only according to the protocol.

2. The research will be conducted in accordance with the ethical principles of Justice, Beneficence, and Respect for Persons, as described in the Belmont Report, as well as with federal regulations and University policy and procedure.

3. PIs, Faculty Advisors, PI Proxies, and any individual interacting or intervening with human subjects or their identifiable data must be appropriately trained in human research subject protections (CITI Basic Social/Behavioral Research – Basic/Refresher course), research methods, and responsible conduct of research **prior to** initiating research activity.

4. The Principal Investigator will retain documentation of all past and present personnel, including documentation of their training(s).

5. The Principal Investigator will ensure that all personnel training(s) remain(s) up to date.

6. IRB approval will be obtained **prior to making any modifications** that affect the research study's eligibility for this exemption category or fundamentally change the research. This includes changes to the Principal Investigator (PI), PI Proxy, or Faculty Advisor (if applicable), subject population, recruitment methods, compensation amounts or methods, consent procedures or documents, or changes in study materials that deviate from the approved scope.

    The following types of changes can be made without submitting a modification: Adding or removing research personnel other than the PI, PI Proxy, or Faculty Advisor (if applicable), edits in spelling, punctuation, and grammar on study materials (not including consent forms), minor wording changes to study materials (not including consent forms) that do not change the overall content and resulting comprehension, and adding or editing questions in questionnaires that are within the scope of the questions currently approved.

7. All research records (the application determination packet, correspondence with the IRB, any other IRB-related determinations, signed consent forms, and documentation of research personnel trainings in human research subject protections) will be maintained in accordance with WWU's guidelines for document retention.

8. The IRB will be promptly informed of any issues that arise during the conduct of the research, such as adverse events, unanticipated problems, protocol deviations, or any issue that may increase the risk to research participants.

Thank you for your attention to these details. If you have questions at any point, please review our website (www.wwu.edu/compliance) or contact a Research Compliance Officer.

Research Compliance Officer: Stephanie Richey
Exemption timestamp: 12/21/2021

1.i. the protocol approved by the IRB;

1.ii. the applicable terms of the grant, contract, or signed funding agreements; and

1.iii. applicable laws and regulations (the Belmont Report, Declaration of Helsinki, the Nuremberg Code, the Common Rule, and the policies and procedures of Western Washington University).

A.2. I certify that I (or my faculty advisor) is sufficiently qualified to assume responsibility for the proper conduct of this research.

B. Ensuring and Maintaining Compliance

B.1. I accept responsibility for ensuring that members of this research team are appropriately trained and supervised (human subjects protections, responsible conduct of research, conflict of interest).

B.2. I will ensure that informed consent is obtained as approved by the IRB and that a copy of the consent form is provided to participants, unless the IRB waives this requirement.

B.3. I will obtain IRB approval before beginning any research interaction or intervention or data collection with human subjects.

B.4. I will obtain prior approval for any modifications to this research. If the application is determined exempt, some minor modifications may be made without approval.

B.5. If my research is considered to be expedited or full board, I will promptly notify the IRB when all intervention and interaction with human subjects or their identifiable data is complete so that the application may be closed.

B.6. If my research is considered to be full board, I am responsible for requesting an extension of my research project prior to my study expiration date. I will submit a status report 6 weeks ahead of the expiration date to allow time for the IRB to review and renew the application.

B.7. I will promptly report any instances of noncompliance or unanticipated problems.

C. Investigator Records, Reports, and Documentation

C.1. I will maintain research records, all protocol materials (including signed consent forms), and any other documents associated with this research for at least 6 years after this research ends or for the length of time specified in applicable institutional or sponsor requirements, whichever is longer.

C.2. I will ensure safe and secure storage of research data according to the agreed upon security procedures.

Application Approval Signatures

Principal Investigator Agreement

I have read and agree to uphold the responsibilities of the Principal Investigator as outlined on previous page of this application. I attest that the materials provided in support of this application are an accurate reflection of the proposed research.

Philippa Hemsley
_____
Principal Investigator Name

11/29/2021

Philippa Hemsley
_____   _____
Principal Investigator Signature   Date

Faculty Advisor Agreement (If Required)

I have read and approve the attached application submitted for review. I agree to provide appropriate education and supervision to the student investigator and share the Principal Investigator responsibilities as stated above.

Nicholas Stanger
_____
Faculty Advisor Name

_____   December 1, 2020
Faculty Advisor Signature   Date

Department Chair Agreement

I certify that I have reviewed this research protocol and that I attest that facility, equipment, and personnel are adequately prepared to conduct the research.

Rebekah Paci- Green
_____
Department Chair Name

_____   Dec 1, 2021
Department Chair Signature   Date

Application: Human Subjects Research

IRB Use Only			
Protocol #: _____			
Review Status: ☐ Exempt Cat: _____			
☐ Expedited			
☐ Full			

Approval Period: _____ to _____

Reviewer 1: _____ Date: _____

Reviewer 2: _____ Date: _____   Notes: _____

1. Investigator Information

Principal Investigator WWU (One per application is allowed)

First Name:	Philippa (Pippa)	Last Name:	**Hemsley**
Degrees:	**B.A. English Literature - Secondary Education,** **M.Ed. Environmental Education in Progress**	Department:	**Environmental Studies**
Home Institution:	**Western Washington University**	Address/Mail stop:	**910 Harris Ave. Unit #206 Bellingham, WA 98225**
Phone:	970-581-5833	Email:	**hemslep@wwu.edu**
Status:	[ ] Faculty [ ] Staff [X] Graduate student [ ] Undergraduate Student		

Faculty Advisor (Required when Undergraduate & Graduate Students are listed as PIs)

First Name:	Nick	Last Name:	**Stanger**
Home Institution:		Department:	Environmental Studies
Position:	**Associate Professor**	Address/Mail stop:	MS**9085**
Phone:	(360) 650-2203	Email:	stangen@wwu.edu

PI Proxy (A researcher authorized for correspondence with the IRB instead of the Principal Investigator)

First Name:		Position:		Phone:	
Last Name:		Address/Mail stop:		Email:	

2. Study Information

2.1 Short Study Title: Embodied Learning for addressing Eco-Anxiety in Environmental Education Teacher Preparation

2.2. (Optional) Anticipated Determination:

Step 1. Complete our online application guidance tool.

Step 2. Select the level that was estimated (or anticipated) to apply to your application and, if applicable, the category(ies).

	Level		Category
a.	☒	Exempt	1 or 2
b.	☐	Expedited	
c.	☐	Full Board	

Limited Review? ☐ (Only required for some Exempt Cat 2 and 3 studies and Exempt Cat 7 and 8 studies. If selected, you must answer Question 8.3 below)

2.3. Funding: Is this research funded by a grant (external or internal) or contract?

☒ No
☐ Yes ➔ If yes:

Funding Agency:		Grant/Contract Title:	
Grant Number#		Grant Award Term:	

2.4. Other Universities: Does this study involve <u>collaboration with or study of</u> faculty, staff, or students at another university?

☒ No
☐ Yes ➔ Is the PI listed on this application the Lead PI between all collaborators?

    ☐ Yes ➔ Contact the other university's research compliance office then select an answer below based on what they determine. Then continue with this application.

        ☐ The other university will conduct a separate IRB review.

        ☐ The other university will rely on Western's IRB review.

    ☐ No ➔ Contact a Research Compliance Officer before continuing. The WWU IRB may be able to rely on the review and approval of the university where the Lead PI is affiliated.

2.5. Research Location: Please list the locations where the study tasks will be conducted. This can be as general or specific as needed for the study (a software platform, university, state, country, etc). *Examples: Online/Qualtrics, Western Washington University, another university, Washington State, Europe.* If additional lines are needed, please attach a separate table.

Location	Activity at this Location (Recruitment, data collection, etc.)
Western Washington University	Recruitment, data collection
Online/Canvas	Recruitment, data collection

3. Study Design

3.1. Purpose: What is your research question or hypothesis? Use lay language, avoid technical terms, and please spell out acronyms the first time they are used.

> Embodied movement and sensory awareness activities will prepare Environmental Education teachers to address eco-anxiety

3.2. (Expedited & Full Board Applications Only) Design: Describe how your study design is appropriate for examining your research question or hypothesis. If your study is based on similar studies in your field, please describe this background and provide literature citations.

>

3.3. Additional Application Instructions: If any of the following are applicable to your research, please check the box below and reference the instructions provided.

- ☒ **Research with Student Populations** → Read and follow our Student Populations Instructions
- ☐ **Use of Existing or Secondary Data** → Read and follow our Secondary Data Instructions
- ☐ **International Research** (occurring outside of the United States) → Complete the International Research Instructions
- ☐ **Use of radiation** (x-rays, DXA scan, etc) → Contact the WWU Environmental Health & Safety Office
- ☐ None of the above

4. Participants

4.1. Participants with special considerations: Check any of the following populations that you will be working with and complete any necessary supplements.

- ☐ **Non-English Speaking Populations** OR **Use of Non-English Materials** → Complete the Non-English Supplement
- ☐ **American Indian/Native Americans or indigenous peoples** → Complete the Indigenous Populations Supplement
- ☐ **Prisoners** → Complete the Prisoners Supplement
- ☐ **People with Impaired Decision Making** → Complete the Impaired Decision Making Supplement
- ☒ None of the above

4.2. Adults or Minors: Will you recruit subjects under 18 years old, over 18, or both?

- ☐ Under 18 → Read our guidelines on research with minors and complete the Minors in Research Supplement
- ☒ 18+ → Select a method (or methods) for ensuring that subjects are 18 years old or older:
  - ☒ **Population:** The nature of your population naturally excludes participants under 18 (Ex. senior citizens). This option is possible for WWU students for non-federally funded, non-FERPA regulated research as the IRB considers WWU students to be mature minors. If checked, please describe the nature of the population in question 4.3.
  - ☐ **Screening:** Participants will be asked for their age during screening. If checked, explain this process in your answer to question 5.2.
  - ☐ **Consent:** A statement is included in the consent form indicating that by signing the form the participant is confirming that they are at least 18 years old.
- ☐ Other age → If the age of majority to participate in research for your population is different

of consent   (which may be possible in some states and international research), please specify the age of majority in the box to the right. Then check one of the boxes above (<18 or 18+) as if you are answering for the age of majority for your research subjects. *For example, if your research is conducted on adults in Alabama, you would check "Other age of consent", type "19" in the box to the right, select the "18+" box, and check the appropriate box for your method for screening.*

4.3. Inclusion/Exclusion Criteria: Describe the participants you intend to recruit. Provide the criteria that would make a subject eligible and/or ineligible to participate. This could include age range (if more specific than minors vs adults), gender, enrolled at a university, or any other characteristic.

> Students enrolled in Dr. Stanger's environmental studies classes who consent to participate in the research

4.4. (Expedited & Full Board Applications Only) Number of Subjects: What is the maximum number of subjects (or subject groups, such as cases or controls) that will be enrolled? If you cannot estimate the number of subjects, tell us as much information as possible.

>
>

5. Recruitment & Screening

5.1. Recruitment Methods: Recruitment includes any activity where information is provided about the study to a <u>prospective</u> participant.

Describe how you will recruit your subjects. Include how you will identify subjects, and the method of outreach (phone, email, social media advertising, fliers, class announcements, research database, word of mouth, etc).

Recruitment text should be attached as a separate document in addition to the description of your process in this box. Do not insert the recruitment text in this box.

If your recruitment involves obtaining contact information from any part of a student's education record, including Canvas, other class rosters, and WWU Registrar's office, please refer to <u>our information on FERPA.</u>

> Class announcements provided in-person and online on Canvas; see attachment

5.2. Screening: Screening includes obtaining information from <u>prospective</u> participants before they have consented to participate in the study in order to determine their eligibility.

If you will be screening participants in any way, please describe this procedure. Include whether you plan to keep the data from screening as part of the study.

> n/a

6. Consent: Adults

Consent is a process. A consent form is documentation of the end of the process. For research with only minors write NA on the first line of 6.1.a and complete the <u>Minors in Research Supplement</u>.

6.1. Consent Type:
     Step 1. Read <u>Chapter 10 Sections A - D of this manual</u> for available consent methods and expectations for each method.
     Step 2. Use <u>our consent checklist</u> to write your consent form. Consent forms are required for all consent methods.
     Step 3. Check the option(s) below for the consent process(es) that will be used.
     Step 4. Attach your final consent form(s) to your application for submission.

Consent Type	**If you have multiple consent types checked**, indicate below what portion of the study each consent type will cover. *Ex. Electronic Consent – online survey; Written Consent – interview*	

a. ☒ Written consent
b. ☐ Verbal consent*
c. ☐ Electronic consent*
d. ☐ Implied consent*

➔ If 6.1.d is checked, what action will indicate consent?

e. ☐ No consent**
f. ☐ Broad consent***

*If you have checked 6.1.(b-d) AND your research is <u>not</u> exempt, you must submit a <u>Waivers Supplement</u>**.**
If you have checked 6.1.(e) you must submit a <u>Waivers Supplement</u>.**
***If checked, you must submit your broad consent form even if the application is eligible for exemption.

6.2. Consent Process:

a. When will the <u>consent form</u> be distributed prior to the consent process? *For many studies, the consent form is distributed right before participation, like with an online survey using electronic consent. For other studies it may be more appropriate to distribute the consent form ahead of time so that the participant has a longer amount of time to read and consider the form.*

At least one week before research begins

b. Please confirm that participants will be given the opportunity to ask questions about the research.   ☒ Confirmed.

c. Please confirm that participants will receive a copy of the consent form or are asked to print a copy from an electronic source.   ☒ Confirmed.

6.3. Influence & Coercion: Even if you don't pressure subjects to participate, would it be difficult based on your role or any other factor for subjects to opt out of participating? *For example: Professors conducting research in their classrooms may unintentionally cause students to feel pressured to participate.*

☐ No
☒ Yes   ➔ 6.3.b. If yes, describe what steps you will take to prevent against this:

Research participation has no effect on grading in the class. Participant names would be kept confidential from Dr. Stanger until after grades have been submitted for the quarter and there would be no points associated with any assignments collected for this research.

6.4. Incomplete Disclosure and/or Deception: Will you provide false information, withhold information, or delay disclosure of information about the nature of the research to any subjects during the consent process? For example, i*f you have a debriefing form where you finally tell subjects what you are studying specifically, your answer to this question should be "yes".*

☒ No
☐ Yes   ➔ 6.4.b. If yes, describe (1) the nature of the incomplete disclosure and/or deception, (2) the reasoning why it is important for this research study, and (3) whether participants will be debriefed after participation.

➔ 6.4.c. (Exempt Category 3 only) Please confirm that participants will <u>prospectively</u> agree through informed consent to being misled or unaware of the true nature or purpose of the study or task.   ☐ Confirmed.

➔ 6.4.d. (WWU Exempt Category A only) In your answer to question 6.4.b, provide a justification that the integrity of the research will be affected in a material, negative way by subjects prospectively agreeing to

being misled or unaware of the true nature or purpose of the study or task.

7. Procedures

7.1. Procedures: Using lay language, describe the study tasks that participants will be asked to complete. Include the:
- List of tasks involved or data that will be collected
- Overall sequence of the procedures (if applicable) – *for example, participants complete an online survey, followed by an interview, and then a focus group. If the sequence is variable you can explain that.*
- Time commitment – *for example, if the study is an online questionnaire, the length of time to complete the questionnaire. If the study involves two parts, the length of time for each part.*

As a normal part of class participation, students will be asked to:

- Tasks Involved

  ◦ Key Idea Activities

    ▪ Complete assigned readings before each class session

    ▪ Listen to brief lectures about eco-anxiety, sensory awareness in teaching and learning, emotional care strategies in teaching and learning, and evolutionary survival responses

  ◦ Sensory Awareness Activities

    ▪ Compare an imagined natural object with sensory awareness of the real natural object

    ▪ Draw a "body map" of internal physical sensations associated with a natural object, place, or experience

  ◦ Embodied Movement Activities

    ▪ Practice sensory awareness of movement choices: pushing against, pulling away from, or attending to an inanimate object such as a ball

    ▪ Practice sensory awareness of moving between states of bodily alignment and bodily misalignment

    ▪ Experience a sample interstitial lesson plan based on movement

    ▪ Choose to participate or watch as others practice responding to a physical challenge (Dodging a soft pool noodle as it is swung)

  ◦ Reflection & Synthesis Activities

    ▪ Participate in brief group discussions or silent reflections preceding and following learning activities

    ▪ Participate in an "open-space" discussion where topics are generated by participants

    ▪ Complete three short (roughly 2 paragraph) reflective writing entries tracking a personal inquiry focus

    ▪ Use understanding of eco-anxiety and embodied learning strategies to design a short (5-15 minute) interstitial lesson plan

- Data to be Collected

  ◦ Participant reflective writing & drawing

  ◦ Participant-created interstitial lesson plan

  ◦ Researcher observations and reflections on class sessions

Participation in the research involves the students allowing the data from the above activities to be included in the research. Additionally, research participants will have the option to complete a focus group.

- Time Commitment Asked For

  ◦ Participating in the research adds no additional time commitment unless participants opt into the focus group

interview, roughly 50 minutes

Research will take place during class sessions attended by participants and non-participants, plus the optional focus group interview session

8. Data Security Protections

8.1. Identifiers: Will you be collecting any of the following information at any point (including during recruitment)?
- Name and contact information (address, phone, email)
- Date of birth (does not include the year of birth or someone's exact age, unless the subject is over 89 years old)
- Western ID number, MTurk ID, social security number, medical record number, or other identifiable number
- IP address
- Audio, photographic image, or video *Audio is considered inherently identifiable, just like video*
- Any other characteristic that could uniquely identify the individual (does not include demographic information unless the subject pool is small enough that someone could be identified by that method)

☐   No

☒   Yes ➔ 8.1.b. If yes, list the identifiers you will be collecting.

> Name; audio recording of optional focus group

➔   8.1.c. If yes, describe how long identifiers will be kept. The IRB prefers deleting identifiers if practical and as soon as possible. If audio recordings are used, please specify how raw audio will be managed.

> Documents will be coded: identifier key will be retained until 2023. Raw audio will be deleted after de-identified transcription is complete.

8.2. Data Identifiability: Check the option(s) that apply to your data.

☐   Public   Subjects are identifiable when data is collected and published.

☐   Data is Never Linked   The researcher will never know, or have any possible way of knowing, the identity of the subjects **OR** there is never a link between the subject's data and their identifiable information.

☒   Data is Linked At Any Point   There is a link (at any point in the study) between the subject's data and their identifiable information, either directly or indirectly. The IRB understands that the link may be severed at some point.

➔ **If checked select an option below:**

☒   Directly: Subject's data will be labeled with or inherently contains their identifying information. *Example: Audio recordings; labeling a survey with a subject's name*

☐   Indirectly: Subjects will be assigned a code, which will be used to label the data. This code will link to the subject's contact information. The code cannot contain elements than could identify a participant.

8.3. (Non-Exempt or Limited Review Applications Only) Methods of Data Protection:
Step 1. Read our guidelines on research data and security protections.
Step 2. Identify what level of security is required for your data.
Step 3. Check all options that apply. By checking an option below **you are confirming that you are following the security procedures associated with that type of data.**

If multiple are checked, please specify what data is covered under each level. *For example, Level 2 – Online Survey, Level 3 – Medical records.*

☐   Level 1   [   ]

☐   Level 2   [   ]

☐	Level 3	
☐	Level 4	

8.4. Withdrawal: If a participant completes data collection and then withdraws, will you destroy their data?

☐ NA → Due to the nature of the study, the participant cannot withdraw after data collection. *For example, an online survey where data is never linked to identifying information.*

☐ No → If no, this information must be included in the consent form.

☒ Yes

9. Incentives

9.1. Incentives: Are you providing incentives of any kind for participation?

☒ No → Skip to Section 10

☐ Yes → Continue to Question 9.2.

9.2. Incentives Type & Amount
Step 1. Read our guidelines on providing research incentives.
Step 2. Describe:
- **The incentive type:** gift cards, cash, course credit, extra credit, MTurk payments, gifts, food, etc
- **The amount** (for course credit or extra credit you can provide an estimated range if the exact amount is unknown)
- **If payment will be pro-rated** for the completion of certain tasks
- **If they withdraw early** from the study, whether subjects will still receive compensation

9.3. If Course Credit or Extra Credit Incentives Are Used: You must provide a comparable alternative assignment worth equal amounts of credit for subjects who choose not to participate. Please provide a description of the alternative available.

9.4. If Requesting Cash or Physical Gift Cards AND Research is Funded: Amazon e-gift cards are the preferred monetary incentive method for research where funding is administered by or through Western. To use another method, describe how the integrity of the research will be affected in a material, negative way by using the preferred method.

10. Risks & Benefits

10.1. Anticipated Risks: Please describe any reasonably foreseeable risks. This can include a risk of emotional or physical discomfort or harm. Include how you will reduce the possibility of these risks. If applicable, you may state that there are no anticipated risks. **Do not** make a blanket statement that there are no risks.

- Risk of emotional discomfort, prevented by:
  - Discussing eco-anxiety and environmental hope together
  - Introducing emotional care strategies for self and others
  - Providing list of resources for emotional support, including counseling resources

- ◦ Activities that provide options for participants to choose what to focus on
- ◦ Audio-recorded focus group is optional

10.2. (Expedited & Full Board Applications Only) Benefits: Briefly describe the potential benefits of the proposed research (to the field, to the subjects).

Canvas Announcement

Hello ENVS 492!

My name is Pippa and I'm a graduate student in the Environmental Education program. In class this quarter I will be teaching a short series of lessons that I have designed as part of my culminating project. I'd like to invite you to participate in my research on the use of embodied learning strategies for preparing teachers to address eco-anxiety.

Everyone in the class will be doing the same learning activities, but if you opt into the research, I'll include your assignments and reflections as part of the research data (your name and identifying information would be removed from the data and replaced with a code number). You can also choose to join a separate focus group discussion, which is specific to the research and not part of class activities.

Attached please see a copy of the research consent form if you'd like to look over it ahead of time and decide whether or not you'd like to opt-in. I'll also introduce it in class and be there to answer any questions in person.

Looking forward to working with you!

Pippa (she/they)

Script for In-Class Announcement / Informed Consent Process

In class, I will be teaching a short series of lessons over the next few weeks that I have designed as part of my culminating project, researching the use of embodied learning strategies for preparing teachers to address eco-anxiety. Today I'm here to give you information so you can decide whether or not you'd like to contribute to the research project.

Eco-anxiety is the experience of difficult feelings related to the environment, such as grief, anger, or anxiety about environmental damage. Embodied learning strategies are ways of learning that ask you to pay attention to your body's movement, senses, and emotions. You'll be doing activities and reflections focused on how these two topics relate to your role as teachers.

Everyone in class will be doing the same learning activities, but if you opt into the research project, I'll include your assignments and reflections as part of the research data. To protect your privacy, your name and identifying information would be removed from the data and replaced with a code number. You can also choose to join a separate focus group discussion, which is specific to the research and not part of class activities.

This is the informed consent form. After you have a chance to read it, I will be here to answer your questions, and then you can decide whether or not to opt-into the research. Please take a few minutes to read the form and think of any questions you'd like me to answer. I'll leave and come back in 3 minutes.

…

What questions can I answer for you?

…

If I've answered all your questions and you decided you would like to participate, please sign and date both copies of the form and keep the copy that says "Your Copy." Place the copy that says "Researcher Copy" *here*. If you've decided not to participate, please return the blank forms *here* without marking on them. If you haven't decided yet, you can email me additional questions or ask me after class and return the form next class period. Everyone is welcome to email me with questions any time.

Western Washington University
Consent Form/Information Statement
Embodied Learning and Eco-Anxiety in Environmental Education Teacher Preparation

Researchers
Principal Investigator: Pippa Hemsley, M.Ed. Candidate. 970-581-5833. hemslep@wwu.edu.
Faculty Advisor: Nick Stanger, MA, PhD. Dept. of Environmental Studies. 360-650-2203. stangen@wwu.edu

Introduction
We are asking you to be in a research study investigating the use of embodied learning strategies for preparing teachers to design and teach curriculum that addresses eco-anxiety.

What is eco-anxiety?
Eco-anxiety is the experience of difficult feelings related to the environment, such as grief, anger, or anxiety about environmental damage.

What are embodied learning strategies?
Embodied learning strategies are ways of learning that ask you to pay attention to your body's movement, senses, and emotions.

Your participation is voluntary. The purpose of this form is to give you the information you will need to help you decide whether to participate. Please read the form carefully. You may ask questions about anything that is not clear. When we have answered all of your questions, you can decide if you want to be in the study or not. This process is called "informed consent."

What we will ask you to do
As a normal part of class participation, you'll have the opportunity to complete reflective writing and drawing assignments, lesson planning assignments, and activities based on movement and sensory awareness. Participation in the research involves allowing data from these activities to be used for research purposes. Research participants may also choose to join an optional, audio-recorded focus group (~50 minutes long) that is research-specific and not part of normal class participation.

Opting in or out does not affect how you will be graded in the class. Participant names will be kept confidential to Dr. Nick Stanger until after grading is completed for the quarter.

Potential risks
The risks associated with choosing to participate in the research are:
- The chance of anxiety about audio recording if you join the optional focus group
- The chance of a loss of confidentiality in the unlikely event of a data breach

Potential benefits
- Additional learning from reflecting with peers if you join the optional focus group

We anticipate no other benefits for you, but your participation might add to the body of knowledge that can help prepare teachers to address eco-anxiety, a growing challenge for people around the world.

Audio Recording
Audio recording will be used to capture the nuances of the optional focus group discussion. After the focus group recording is transcribed and coded, the audio recordings will be deleted.

Privacy & Data Security
Names will be removed from research data and it will be coded with an ID number. The link between this ID number and your name and other identifying information will be stored separately. De-identified data from this study may be shared with the research community at large without your additional informed consent.

We take every precaution to protect your information, though no guarantee of security can be absolute. We believe the chances of you being identified are low due to the protections in place for your privacy.

You may withdraw from this research at any time before May 1st, 2022. If you request to withdraw, your data will be removed from the study. There is no penalty for withdrawing.

Questions
If you have questions about this study, contact Pippa Hemsley at hemslep@wwu.edu or 970-581-5833. If you have questions about your rights as a research participant, you can contact the Western Washington University Office of Research and Sponsored Programs (RSP) at compliance@wwu.edu or (360) 650-2146.

Informed Consent
By signing below you are saying that you have read this form, that you have had your questions answered, that you understand the tasks involved, and volunteer to take part in this research.

Full Name (Print): _____

Signature: _____ Date: _____

Optional Focus Group Consent
By selecting yes below, you are saying that you are interested in completing the optional focus group that is research-specific and not part of normal class participation. You can always change your mind later and decide not to complete the focus group.

Yes

No

Please sign one copy of this form. One copy is for our records, and one copy is for you to keep.

Example of a Somatic Checkpoint Activity

This kind of activity might be used at the end of a lesson or unit to provide an opportunity for students to emotionally integrate new learning and begin to connect feeling to action.

Setup and recommendations for implementation

- Use only after the topics of eco-emotions and somatic learning have already been introduced to give context about why something this odd might be useful.
- Be sure you're willing to demonstrate this activity fully and authentically using yourself as an example, and be sure to do so before inviting students to engage in it.
- Allow students to choose their own preferred level of participation and discussion about this activity. Just observing others is a fine option to choose.
  - If the majority of students opt to observe only after you demonstrated the activity yourself, there probably needed to be more groundwork done to build a supportive and "safe-enough" context.
- Consider starting in small groups rather than doing the activity as a whole class.
- Be ready to appropriately hold non-judgmental space for different types of feelings.
  - In the context of this activity, it should be perfectly okay for your students to display feelings like annoyance, boredom, anger, and so on without reaction or consequence from you.
  - The same still holds true for emotions like excitement and happiness. To register a positive reaction to one student's feelings while ignoring others would express a judgment in this context.
- Do not grade this activity, even for participation.
- The example here uses movement because it is quick, direct, and requires no materials, but a similar effect could be achieved more indirectly using art, music, toys, etc. as long as there is still a somatic awareness component.

Directions

1. Shape your body, or part of your body such as a hand or arm, to represent how you feel about what you learned in the unit we just finished. Or you can also decide to observe instead and just imagine how you might move.
2. Take a minute to note what it feels like physically when you're in this shape. Do you feel expansive? Squished? Warm? Cool? Comfortable? Antsy?
3. Give a provisional name to this feeling shape – it can be simple or complicated, silly, celebratory, or serious.

4. Use this feeling to imagine what you might want to do next. First, go ahead and change your position in any way that you want to move physically. What movement or shape comes next?
5. Then, think about what other actions the feeling you gave a name to might be inviting you to take in relation to the unit/lesson we just finished.

Sample response to this activity

1. Initial feeling shape: I held my hand in a claw-like shape
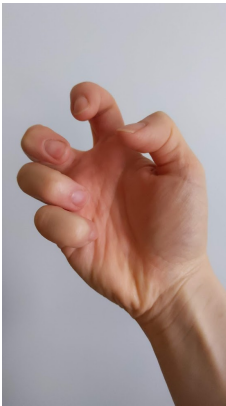
2. Physical (somatic) feelings: Painful, tense, cramped, hot, tired, numb, shaking
3. Provisional name: Unending rage like being made out of a thousand coiled snakes
4. Physical next step: I moved my hand into an outstretched, open palm shape which felt a lot less tense. It ended up looking like a "stop" hand gesture, even though I wasn't planning for it to.

5. Other next steps: Maybe I want to tell someone (An organization? A public figure? A teacher?) to stop what they are doing instead of keeping the frustration to myself.