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ARTICLE

'Attuning-with', affect, and assemblages of relations in a transdisciplinary environmental education

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Abstract

In these Anthropocene times humans are vulnerable through the effects of socio-ecological crises and are responsible for attending to past, present and future socio-ecological injustices and challenges. The purpose of this article is to challenge discursive structures that influence knowledge acquisition *about/of* the world through binary logics, acknowledging that we are never apart from the world we are seeking to understand, but that we are entangled through a mutual (re)configuring *with* the world. Through storytelling and entangled poetry from outdoor education and environmental science education contexts, this article explores discursive/material forces (socially meaningful statements/affective intensities) enacted through pedagogies 'attuning-with'. As pedagogies 'attuning-with' take up a relational ontology, in which sense-making is generated from the grounded, lived, embodied and embedded politics of location in relationship with broader ecologies of the world, they illuminate a transdisciplinary environmental education. A transdisciplinary environmental education is important for these Anthropocene times, because it not only promotes a multivocal approach to environmental education, but in acknowledging our inherent and intrinsic responsibility and accountability for the kinds of worlds that we are co-constituting, it provides opportunities to change the story of how we choose to live with/in/for these Anthropocene times.

Keywords: Attuning-with; affect; assemblage; transdisciplinary environmental education; anthropocene

Where we begin

In recent times, environmental education scholarship has suggested that the field is dominated by policy-driven discourses that emphasise linear realisations about/of the world in prioritising technicist, mechanistic and instrumentalist teaching and learning practices (see Gough, 2015; Ideland & Malmberg, 2015; Kopnina & Meijers, 2014). Set within Cartesian representational knowing that suggests universal essences are 'out there' to be discovered through a tripartite division of the *knower* (human representing), *knowledge* (representations of) and the *known* (what is represented; Barad, 2007), these discourses perpetuate and reiterate human-nonhuman binary logics. Moreover, given wider social discourses set within dominant Western worldviews of anthropocentric (relating to dominance of the human species) and humancentric (relating to dominance of the human self) thinking that views the planet as a resource for exploitation, environmental education is also enmeshed within human exceptionalism (the belief that humans are categorically or essentially different from nonhumans) and supremacism (espousing human biases in traditional Western attitudes to those deemed as 'Other', including humans, plants, animals, energies, technological objects of more-than-human worlds; Braidotti, 2013). We note here that our use of 'Other(s)' is in quotation marks, because as we will explore in this article, we understand

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'Other(s)' to only exist in relational capacities, rather than as something discrete and separate (Barad, 2017).

Through narratives and entangled poetry from our outdoor education and environmental science education contexts, therefore in this article we offer a (re)storying of human-nonhuman relationships to illuminate assemblages of relations within a transdisciplinary environmental education. Bringing humans in focus with the broader ecologies of the world (Bertelsen & Murphie, 2010) and these dynamic, complex and messy Anthropocene times, we attend to this (re)storying through a relational ontology that expands beyond a purely discursive (i.e., dominant discourse that sets limits and provides possibilities for what counts as socially meaningful statements) gaze that relegates the environment as a backdrop to the social world, to focus on the materiality (fleshy matter) of affective intensities enacted through pedagogies 'attuning-with'.

It is important to note that in this article we do not intend to uncover unknown truths or interpret experiences. Moreover, we do not intend to provide a critical analysis, reversing oppressions and suggesting 'better' ways of teaching in environmental education; nor do we aim to break down and resolve dominant discourse working to oppress 'Other(s)'. Rather, as an ongoing inquiry into the im/possibilities for environmental education, we seek to hold conflicting and contrasting stories together, which, as Adsit-Morris (2017) wrote, 'requires a different logic [in attuning and attending] to what gets gathered up, used, shared. An attentiveness to which seeds/stories should be saved for future reseeding, for future reworlding' (p. 9). It is also important to note that discussion in this article is the culmination of current understandings, which in no way can be rendered static, complete, nor inescapable from further in/evolutions. It is a partial knowing (Haraway, 2008) and situated within events (Fox & Alldred, 2015) of our outdoor education and environmental science education contexts.

Literature connections

In 2017, Wals and Benvot offered a historical perspective of education in relation to people and the planet, adopting the term *waves* to signify how this relationship has transitioned over time. Suggesting that the first wave commenced with Nature Conservation Education in the late 19th century, it was not until the 1960s that the term *environmental education* was taken up in mainstream contexts through programs like Earth Education. In Hart and Nolan's (1999) environmental education literature review, the authors argued that the field's research of the early 1970s was narrowly constructed within scientific-realist paradigm of instrumentalist and rational thinking. Prioritising applied science methods, this meant that environmental education was concerned with identifying, predicting and controlling of variable attributes that implicate responsible environmental behaviours.

Then, in 1982, Van Matre wrote an introduction to the *Earth Speaks* collection of images and recordings that aim to renew our relationship to the earth, urging us to take action against environmental devastation of the planet. He was visiting the Great Barrier Reef in Australia when he said:

> *This summer I travelled around the world talking about our Acclimatization programs, and as I circled the earth, I listened to both its natural and human voices. There is no doubt, the earth is in trouble. In our quest to be gods we have rent the very fabric of life. Everywhere the voices of despair are clear. Yet the voices of hope are there, too. Wherever I went I found people concerned about the earth. It is upon this concern that we must build for tomorrow. (Van Matre & Weiler, 1983, p. i)*

Within an Earth Education model, Van Matre also developed mystical activities like 'Earth Walk', 'Magic Spots' and 'Leaf Slides' to engage in pedagogical strategies that sought to disrupt dominant, normative paradigms through the privileging of intuition and creativity.

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As methodological, theoretical, epistemological and ontological explorations of environmental education continually open the field to proliferation in research and practice, by the turn of the century the focus of environmental education shifted to Sustainability Education (SE) and then to Education for Sustainable Development (ESD) (Wals & Benvot, 2017). This brings us to the most recent wave in environmental education, which Wals and Benvot (2017) have characterised as the Environmental and Sustainability Education wave. Within an ecocentric turn concerned with deepening human-nonhuman relations in environmental education, this wave is focused on connecting humans with place and the environment. For example, Payne and Wattchow's (2009) *slow pedagogy* draws on the poetic and the silent to encourage 'us to pause or dwell in spaces for more than a fleeting moment and … attach and receive meaning from that place' (p. 16). Set in philosophical positionings of (eco)phenomenology, the focus of slow pedagogy is on lived experiences to unite the mind and body with the environment. A relational priority in environmental education was further emphasised by Jickling Blenkinsop, Timmerman, and De Danann Sitka-Sage (2018) through their theorising and applications of *wild pedagogies*. As Jickling et al. (2018) wrote, towards a 'rewilding' of education, wild pedagogies involve 'listening to voices from the more-than-human world' (p. x) and 're-examining relationships with places, landscapes, nature, … and the wild … [in] … rethinking the concepts of wilderness, wildness, and freedom' (p. 1). While we acknowledge these different ways of knowing, being, thinking and doing in environmental education research, and practices have diversified the field, our interest in this article is to challenge an overemphasis on the human *experience* that perpetuates dualistic and oppositional divisions between humans and the environment. Illuminating the connections/divisions and the sameness/differences *between* relationships (Malone, 2016), we attend to this through embodied explorations of pedagogies 'attuning-with'.

Pedagogies 'attuning-with' depart from an inquiry into representations of/about the world by the phenomenological subject and subsequently dismantle the idea that the environment is a discrete and separate object to teach and learn *about* through discursively oriented and phenomenological positionings of bodies in 'nature'. This is because pedagogies 'attuning-with' are interested in the infolding of contexts through the *affective entering* of bodies. In other words, as bodies are 'marked' through nonconscious experiences of pre-personal affective intensities, bodies are continually undergoing a dynamic and reiterative actualising of virtual possibilities within their assemblage of relations (Massumi, 2015). This actualising of virtual possibilities is not derived from the feelings and emotions of a phenomenological subject and their object of perception, but from the grounded, lived, embodied and embedded account of individual subjectivities as relationally constituted with the composite of discursive materialities within the broader ecologies of the world (Bertelsen & Murphie, 2010; Braidotti, 2013). That is, as we know 'Other(s)' through ourselves (Rautio, 2017), bodies are pulled to action through relationships with 'Other(s)'.

These ideas were theorised by Deleuze and Guattari (1987) as an 'ecosophy of becoming other', by Stengers (2005) as an 'ecology of practices', by Haraway (2007) as 'becoming-with', and by Massumi (2015) as 'belonging-together'. In environmental education scholarship, these ideas were explored by Adsit-Morris (2017) in her research practice that sought to redraw subjective-objective and individual-collective boundaries, and transform static objects to assemblages of material-semiotic entanglements. Other examples in the field include the call from Payne et al. (2018) for more robust theoretical and empirical development of environmental affectivity in environmental education research. And in the *Research Handbook on Childhoodnature*, Rousell and Cutter Mackenzie-Knowles (2019) explored young people's affective responses to climate change through an analysis of co-implicated bodies and environments. We now turn to an exploration of our individual teacher contexts, and how we departed from a focus on pedagogies prioritising human experiences to a focus on pedagogies 'attuning-with' generative affective intensities and assemblages of relations in outdoor education and environmental science education.

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Pedagogies 'attuning-with' in outdoor education

Passing eagerly along the eucalypt and tea-tree fringed trail, we had finally arrived at our lunch spot upon a golden sandy beach. It was Day 2 of a 5-day Year 10 outdoor education bushwalking expedition, and today we were scheduled to meet the other half of the Year 10 cohort as they travelled in the opposite direction along the looped trail. I stopped to take in a deep breath, inhaling a mix of salty ocean air and sweaty bodies. Taking off my boots, my tired feet moved through the cool sand. Looking westward, I saw the other group dotted amongst the sand dunes eating their lunch. I noticed some boys playfully darting in and out of the water, chasing each other with clumps of bull kelp that had washed ashore amidst aqua-laced foam. Seeing us emerge from the trail, the boys bounded along the shoreline to greet us, sending seagulls scattering into the brazen midday sky. We were met with a rowdy onslaught of comments like, 'What took you guys so long!' and 'I knew we'd get 'ere before you!' and 'Ya took ya sweet time gettin' here!'; I noticed that the remaining students in the dunes had finished their lunch and were starting to reassemble their backpacks to return to the trail and their next campsite. In an instant, the boys turned and dashed back to their group, but not before the opportunity to abruptly point their index fingers to the sky, imitating a number '1'. As our group settled onto the sand and began eating lunch, the other cohort sauntered away, waving at us as their backpacks bobbed up and down on their backs in their haste. It was obvious that students in our group were grappling with the idea that they were being 'beaten' in this imaginary 'race', and I grew heavy with dismay and frustration. I had once again experienced the outdoors as a site of consumption for athletic feats of strength and endurance.

With a background in outdoor education, I was well accustomed to discursive structures (i.e., what counts as 'normal' social practices) of adventure hegemony (dominant discursive structures prioritising adventure-based pursuits in outdoor education) constraining and disciplining how teachers and students related with/in the outdoors. For example, the rationale of Australian Curriculum and Assessment Reporting Authority's (ACARA) 'Outdoor Learning' relates to 'the development of positive relationships with others and with the environment through interaction with the natural world' (n.d.). While this goal might be well intentioned, as teaching and learning is co-opted by adventure hegemony, outdoor education pedagogy becomes influenced by technicist, mechanistic and instrumentalist approaches to and in the outdoors. Such an example was evident in the above narrative, with the focus of this outdoor expedition largely centred upon athletic feats of strength and endurance in the outdoors. To challenge adventure hegemony in outdoor education that sets humans apart from 'Other(s)' through the reification of binary logics, I therefore turned to pedagogies 'attuning-with'. As pedagogies 'attuning-with' initiate an intuitive knowing of 'Other(s)' from one's grounded, lived, embodied and embedded politics of location through affective intensities 'marking' bodies in transformative change, they generate a 'togetherness relationship' within assemblages of relations.

Embarking on another 5-day outdoor education bushwalking expedition with another Year 10 cohort the next year, I looked for opportunities to engage in pedagogies 'attuning-with' through a series of mindfulness practices. In these mindfulness practices, students were asked to close their eyes and pay close attention to their breath, following their inhalations and exhalations from their bodies to the world around them. Students were then invited to pay close attention to any sensations within their physical bodies in thoroughly scanning their bodies from head to toe. Finally, students were invited to pay close attention to the sounds, smells and tactile experiences of their surrounding environment. The processes involved with these mindfulness practices were not an anthropomorphising project in which we approached the environment through a romantic lens drawing on the aesthetics of 'nature' as a form of inspiration to act out our teaching and learning intentions. In other words, the environment was not utilised as a tool to promote a sense of peace

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and calm. Rather, through pedagogies 'attuning-with', these mindfulness practices took up the materiality of affective intensities to explore how we were becoming 'other' to ourselves in 'transforming-with' the world. In this way, these mindfulness practices challenged humancentric positions of teaching and learning *about/of* the world, to enact a teaching and learning *with* the world, as I now explain.

One evening as we ventured to the shoreline hoping to catch a glimpse of the rising full moon on the eastern horizon, standing in a circle and clasping hands with the tide ebbing and flowing around our feet, my body stirred in/to action, reminding me of my life-affirming relationships with all 'Other(s)' around me. Becoming a human/water/sand/moon assemblage, we were emerging in a 'togetherness relationship', knowing our human selves through each other, the water, the sand, and the moon. In this moment, our human thoughts and feelings as socialised by discursive structures, had become entangled with the materiality of our own fleshy bodies; the course granules of sand under our feet, the dense swirling water around our ankles, and the iridescent yellow moon hanging in a pitch-black sky. I had always felt a romantic sense of affinity and intimacy with this coastal biome, extrinsically bound to environmental stewardship by stories of environmental crises that threaten the planet's livelihood. Yet, through affective intensities 'marking' my body with liveliness and vibrancy, this bounding became an intrinsic knowing.

Pedagogies 'attuning-with' in environmental science education

The hot summer scorched the ground and my skin. I had forgotten to bring a hat so moved from shade to shade navigating the passage from home to our river destination. I was with colleagues/friends who shared an aim of exploring the river system with/through a variety of epistemologies as we were coming to know our community. We valued our science and humanistic disciplines; our love of place and each other; an embodied practice of being in the environment and learning with 'Other(s)'; Aboriginal ways of knowing, being, thinking, and doing relating to land management; and explorations into settler identities through encounters with the land.
Prior to this physical exploration, we had explored the names of places surrounding our community: town names and older 'locations' now unrecognisable beyond a name. Aboriginal names that were difficult to understand and to get our tongues around, namely, Gidgeganup, Wagin, Peerabeelup, Mulluyup. We looked for old news articles and explored the stories told about early settlement. We spoke to residents and listened intently as they described their lives growing up, farming, and retiring in the area. The seasonal variations along with longer term chronic changes and short-term acute events in this district have had great impact. Like, for example, the summer flood of 1982, when the water covered most of where we were now sitting, taking weeks to recede when it left behind debris and catastrophe as well as generating opportunities for new life and growth.

One of the key geographical features of this town was the river that flowed around its edges. We took time to explore this river, coming to know its twists and turns and fleeting moments of story as it meandered from the centre of the state to the ocean. We canoed it and picnicked under the bridge that provided one of the main access entries to the town. We sat on its bank, enacting a Council of all Beings (Seed, Macy, Flemming, & Naess, 1993), calling on life forces to speak through us about the things this river has seen. We marvelled at the water rat and cormorants and wielding raptors. We tested the water in various ways, determining the quality of the flow, examining water chemistry, zoology, botany, and velocity. In this exploration we used

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science strategies as a way of judging and comparing so that we could determine the health of the river system.

The water testing was infinitely interesting as we had each experienced science ways of knowing through water testing previously, but in different ways and for different purposes. We had access to the necessary equipment, yet we needed to carefully consider and be prepared for how to use it. This took some time and generated some concern about the results. We found that if we interpreted the results in one way (e.g., privileging water chemistry) then the river was in bad health. Conversely, if we took time to explore water zoology, then we found macro-invertebrates that indicated good (healthy) water quality. We found other indicator species living amongst long lines of green algae that thrived on the larger than expected nutrient levels. So, our results were confusing at best. We decided that perhaps we were not so sure of how to interpret our results and that the application of other ways of knowing was a valuable practice.

In the above exploration of a local place, the science practices applied generated many valuable learning moments and considerable interest for this river ecosystem. Yet, they also brought about uncertainty in ways that are unexpected with science practices. The definitive knowing that comes from collecting data (accurately) and interpreting data according to protocols *should* provide clarity. Yet, different measurements, like different perspectives, yielded different results and outcomes. This was further demonstrated when I saw children swimming in the river, while I decided that it was safer to canoe after hearing stories of swimming preceding stomach upsets from other locals.

I experienced grief at the way the river looked with its bare banks, tangled fallen trees, tannin-coloured water and the weird froth that would occasionally cover the surface, simultaneously flowing with the water and wind currents. This river, with its starting point way out in the scarred and degenerated wheat belt, touches the lives of many as it winds through ecosystems and agricultures to the mouth of the ocean. Along its way, the river collects some of the best (exciting experiences with friends) and the worst (pesticide and fertilizer run-off) that our society manifests in this troubled time. It was one of the implications of contemporary agricultural practices, pushing the soil to ever-increasing production often resulting in misplaced and over applied fertilizer which inevitably 'ran-off' (to see the world) via the river. As discursive forces of my scientific and rational mind revealed a prospering of algae restricting flow as it took up nutrients not available to other species with/in the river, I was adamant that this river was in bad health. A casualty of the industrial revolution sapping life from much of our landscape in the name of progress and prosperity.

And then, with unexpected elation, I noticed caddisfly larvae living on a log in this very river. The caddisfly is a macro-invertebrate species that thrives in freshwater sources, where it weaves a home out of silk and organic material. They are often called 'sticks that walk' and these larvae had engineered homes of small sticks with uniformity and precision that many architects would be proud. In their homes, the larvae were inhabiting a water-logged log, which had not been in this location yesterday. It was nomadic, also flowing with the river. I noticed with increased intensity that through human experiences of joy and grief that I dwelled in the artificial binary of good/bad health of the river.

Turning to pedagogies 'attuning-with' in this scenario, rather than relying on the discursive positioning of feelings to ascertain how I understood this river, I explored how my body was pulled to action through the intensities of affect generated through my relationship with this river. As a human/river/algae/larvae assemblage, we are all implicated by what it means to be living in these Anthropocene times. For example, I mentioned that this river is a casualty to the industrial revolution, encumbered at the hands of unbridled agricultural production and capitalist consumption, just like me. I acutely understand that some live with more catastrophic effects of these times, and often without consent, yet understanding the river through assemblages of relations

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enables me to take action towards different, more sustainable futures. This is because assemblages of relations in environmental science education provide opportunities to illuminate the lived existence of 'Other(s)' through ourselves, in ways that discursive practices within the discipline could not.

Assemblages of relations in outdoor education and environmental science education

Pedagogies 'attuning-with', as described in our narratives from outdoor education teacher and environmental science education teacher contexts, saw us move beyond the epistemological boundaries of learning experiences towards material assemblages of relational ontology with the world. Providing scope for more meaningful learning engagements from the grounded, lived, embodied and embedded politics of location, we have therefore come to appreciate 'learning from otherness' in teaching and learning. Looking to expand on linear, technicist, mechanistic and instrumentalist ways of acquiring knowledge through discrete and separate disciplines, we now take up poetic expression to explore how pedagogies 'attuning-with' can generate an outdoor/environmental science education assemblage of relations in a transdisciplinary environmental education. After constructing our own discrete and separate poems without any influence from each other, we engaged in a systematic process of layering sentences in a 'togetherness relationship'. With only minor edits for purposes of clarity for this article, our entangled poem is presented below.

Learning from 'otherness'

Developing a collaborative autoethnographic action research project to confront the ecological, economic, and social injustices which underpin the threat of ecological overshoot and collapse, supported me to generate improved practices as an environmental science teacher (see Palmer, White, & Wooltorton, 2017).

Here on the shore, I entered into modes of relation through a rhizomic assemblage of interconnection.

Here on the shore, I no longer 'know you', or 'know of you', but I know myself through you.

'Attuning-with' each other and with the world.

Knowing another from within.

I am becoming hybrid.

Exploring places that I love and engaging with/through pedagogies that were un/familiar.

Always in a state of nomadic transit through the embrace of un/familiarity and contextual diversity in moment to moment intraactions with the world.

Exploring ways of knowing through relationships: questioning, suggesting, and drawing partial understandings, as sense-making becomes imbued with biological, ethical, spiritual, socio-cultural, political, and ecological forces of the discursive and material.

Experiential, spiritual, scientific, indigenous, local/common knowledges, and historical perspectives, all derived from many voices and sources.

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Wonderings and wanderings generating agency as relational through (re)'attuning-with' the world.

I am in relation to all that is discursive and material. To all that is human and nonhuman.

As I attune-with, I know-with, as the knower, knowledge, and known unfold in togetherness, becoming un/familiar time, and time, and time again.

What a paradox.

Opening to the unknown, I am deterritorialised from the house of grand narratives.

No longer constrained by what counts as important knowledge, I detach from formulas of knowledge acquisition.

Yet, I am compelled to know how to be sustainable, to find ways forward; because we and our descendants face the critical challenge for human futures: to reverse our current drive towards devastating our planetary home.

But I don't seek to realise a truth, your truth, my truth.

I practise so that I may embody the capacity to attune-with, gaining wisdom through my encounters with 'Other(s)'.

I actualise all kinds of possibilities.

I am technical.

Not to a determined end, but as experimental with different protocols.

I am creative . . .

Not because I am inspired, but because I am all at once the beginning and the end.

I am empowered . . .

Not because I am a human, but because I know the borders of my humanness.

I am critical . . .

Not because I act against what might be silenced, hidden, and/or constrained in teaching and learning practices (although sometimes I do want to rally and rage against the machine in its incapacity to account for multivocal stories),

but as I am the learner and the learning designer, I acknowledge that thinking is not enough — we needed greater and broader ways of knowing.

'Multiplicities of the same' do not do the work.

So, releasing from what teaching and learning should and should not look like.

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I am free.

A wild/domestic, human/nature hybrid.

Taking up insights through transdisciplinary sense-making — economics, biology, physics, history, anthropology, sociology — I attend to political structures and processes, and the ways in which they work with and against the sharing of disciplinary knowledges.

It starts with me.

Transcending the categories and borders of the social and the natural, the discursive and the material, I make connections through performances and across practices.

I am the co-mingling of pedagogies.

As I am becoming-with the world.

As I am transforming-with/through a 'togetherness relationship'.

And thus, I am always responsible for how I choose to act with the world.

While we acknowledge that each discrete and separate discipline has its own independent teaching and learning projects and outcomes (albeit through an over-emphasis on policy discourse), through an assemblage of relations in this entangled poem, outdoor education and environmental science education are braided in a 'togetherness relationship'. Barad (2014) referred to this as a diffractive process of a singular and dynamic act of 'cutting together-apart', in which discrete and separate categories and borders change to an entangled, yet differentiated, existence. Illuminating differences as they emerge, a diffractive way of understanding helps us to learn from 'Otherness', in that we do not look at the difference between things, within separations and divisions from a deficit stance. Rather, difference between things becomes affirmative, 'caused by connections and relations within and between different bodies, affecting each other and being affected' (Hultman & Lenz Taguchi, 2010, p. 529). Therefore, as outdoor education and environmental science education become entangled through the grounded, lived, embodied and embedded account of the individual, discrete and separate disciplines of inquiry undergo a shifting to a transdisciplinary environmental education.

Shifting to a transdisciplinary environmental education

A transdisciplinary environmental education expands beyond an interdisciplinary environmental education, in that it does not merely draw from different disciplines and institutions of knowledge, but as it zigzags between branches of philosophy, science and the arts, it makes connections across *practices* (Barad, 2007). As an assemblage of heterogeneous relations, a transdisciplinary environmental education therefore has the capacity to deterritorialise habits of thought within 'normalising' socio-cultural protocols of education (dominant discourse), because as teachers and learners move between the categories and borders of each discipline in a 'togetherness relationship', power differentials between disciplines fall away. Challenging discursive structures constraining and disciplining teaching and learning practices (e.g., outdoor education's adventure hegemony and environmental science education's quantifiable data collection practices determining a solution in environmental science education), a transdisciplinary environmental education therefore promotes multivocal stories in teaching and learning practices, attending to rich and fluid dialogues between diverse epistemic worlds.

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In a transdisciplinary environmental education, because knowing is generated through discursive/material entanglements with the broader ecologies of the world, agency as a self-contained, discrete and self-determined property (e.g., as social constructivist theories might suggest) breaks down to reveal ideas of relational agency. This matters for environmental education in these times of the Anthropocene, because if it is impossible to extricate oneself from co-constituted worlding, then there becomes an inherent and intrinsic sense of responsibility and accountability for the kinds of worlds that are co-constituted. Moreover, through relational agency, responsibility and accountability for socio-ecological wellbeing and justice are not just *ethical principles* that emphasise cognitive engagement, but grounded, lived, embodied, and embedded *practices* of knowing, being, thinking, and doing (Haraway, 2016).

While ideas in this article are derived from a theory-practice entanglement, we acknowledge the need for pedagogies 'attuning-with' and affective inquiry to be made more visible and applicable to practical teaching and learning contexts. That is, given the ubiquitous pull of policy-driven discourses that emphasise linear realisations about/of the world through the prioritising of technicist, mechanistic and instrumentalist teaching and learning practices, while theoretically it makes sense to enact a transdisciplinary (environmental) education in Western education models, this can be a daunting task to apply in practical teaching and learning contexts. As such, what needs further research attention are practical strategies and examples of how transdisciplinary models of education could work across all disciplines, and how teaching and learning practices can be more sustainable in opening to discursive-material complexities in the grounded, lived, embodied, and embodied politics of location.

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