(Re)Storying Human/Nonhuman Relationships:
Posthumanist Possibilities in Researcher/Teacher/Environmental Education Worlds

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(Re)Storying Human/Nonhuman Relationships: Posthumanist Possibilities in Researcher/Teacher/Environmental Education Worlds

submitted for the degree of Doctor of Philosophy

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Abstract

Stories of ecological, social, and cultural exploitation are the dominant narratives in these Anthropocene times, fuelled by pervasive and ongoing effects of 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, people, plants, animals, energies, technological objects of more-than-human worlds). As such, given that environmental education is typically enacted to inspire a sense of socio-ecological justice in its exploration of human/nonhuman relationships, it is a crucial field of inquiry to respond to socio-ecological crisis narratives. Yet, environmental education is susceptible to dominant discourse, for example, an over-reliance on science, technology, and economic development set within globalisation, neoliberalism, and capitalism. Working to homogenise and institutionalise the field, these forces drive instrumentalist, technicist, and mechanistic teaching practices, in which the world is a resource to learn about. This has implications for socio-ecological justice for/with/in these Anthropocene times, because as humans are positioned as separate and detached from the world we are seeking to understand, human/nonhuman binary logics are inevitably maintained within anthropocentric (relating to dominance of the human species) and humancentric (relating to dominance of the human self) hierarchies.

In response, this research contributes to the field of environmental education by offering new and different stories of human/nonhuman relationships through the exploration of affects emerging from interacting Researcher/Teacher/Environmental Education Worlds. Bringing forth a multitude of stories that demonstrate biological, spiritual, ethical, socio-cultural, political, and ecological forces imbued within material/discursive entanglements, is not to suggest a more
correct or better way of teaching in environmental education. Rather, illuminating complex and dynamic affective intraactions between researcher/teacher/environmental education relationships, in (re)configuring binary logics, these stories are intended to inspire new and different ways of knowing, being, thinking, and doing in an environmental education for/with/in these Anthropocene times. This is understood through ideas of relational agency, in which difference between categories and boundaries is taken up as relationally entangled, rather than as oppositional and dualistic.

Situated in the simultaneous thinking (theory) and doing (action) of posthumanist performativity and new materialist methodologies, this research takes up cartographic and diffractive storytelling to explore affects emerging within, and between, a research assemblage comprising Researcher/Teacher/Environmental Education Worlds. Thinking-with/through this assemblage, this research first explores the Researcher World and how the researcher makes sense of herself with/in the broader ecology of the world. It then explores the Researcher/Teacher World as the researcher collaborates with one elementary-school teacher, co-creating and co-implementing four multisensory, Land-based researcher/teacher enactments: Mindful Walking’, ‘Mapping Worlds’, ‘Photographic Encounters’, and ‘Eco-Art Installation’. This research then explores Researcher/Teacher/Environmental Education Worlds and how the researcher/teacher organised themselves with ‘Other(s)’, Land pedagogies, environmental education curriculum policy mandates, and wider discourses of (environmental) education.

As affects emerged from intraactions within, and between, Researcher/Teacher/Environmental Education Worlds, they offered insights into moments of rupture, in that to be affected by something provides the conditions of possibility to simultaneously affect ‘Other(s)’. Bringing commensurate attention to how discursive practices within dominant discourse work to influence
and inform an understanding of the world, these moments of rupture illuminated the lively vibrancy of material forces in sense-making. Through a material/discursive entanglement of sense-making, therefore, binary logics of static, stable, fixed, and rigid categories and boundaries fall away. This is because difference is no longer understood as oppositional and dualistic, but as relational through mutual co-constitutions with the world.

Taking up alternative stories from this research that understand humans are not separate and detached from nonhumans, provides opportunities for teaching practices to enact a grounded, lived, embodied, and embedded ‘response-ability’ towards a more ethically grounded ecocentric narrative in environmental education. This means that teaching practices do not escape, transcend, or rebuke the realities of these Anthropocene times, but they act from the politics of location to attend to situated socio-ecological issues, understanding all species share a vital materiality within co-implicated futures.
For Daryl and Denise
Glimpsing our self like we’ve never been apart,
her blazing hues of beauty imprinted upon our heart.
She is animate and alive, yet claimed as our own,
In knowing her through us, our worlds are intimately sown.

Then, when the sun disappears over the Western night sky,
we return to our phones and commercials spinning by.
A distant memory, as something out there,
she was our Other, a managed space to care.

The Western centre clutching a colonised world,
in cloaks of domination and a power-hungry sword.
Or dressed in romantic escape in search for meaning,
spiritually (re)appropriating the Dreamer’s dreaming.

Yet, we need you as you, for all our tomorrows,
not as a reflection of our Anthropocene sorrows.
To be entangled together, even for a day,
sparking a sense of wonder for a new and different way.

(Riley 2018)
Cluster One: Research Inspiring
Chapters One and Two

Cluster Two: Research Performing
Chapter Three

Cluster Three: Research Understanding
Chapters Four, Five, Six, Seven

Cluster Four: Research Becoming
Chapter Eight
Chapter One: Research Introduction


Donna Haraway (2016, p. 3)

1.1 Coming to this Research

I came to environmental education through teaching and research practices in Outdoor Education, passionate about outdoor recreating and education in, about, and for the outdoors. It was through my Masters research, that I began to understand the lived experiences of anthropocentric (involving human species dominance) and androcentric (involving male dominance) orientations of humans cast against a subjugated ‘nature’\(^1\). Through a deep ecology and ecofeminist lens, I examined how dominant discourse of Australian Outdoor and Environmental Studies (OES) normalised affirmations of human exceptionalism (the belief that humans are categorically or essentially different from animals/nonhumans) and supremacism (espousing human biases in traditional Western attitudes to those deemed as ‘Other’, including humans, people, plants, animals, energies, technological objects of more-than-human worlds).

Then, I moved to Canada and things got a whole lot more confusing.

Moving from coastal Australia to the prairies of western Canada in the summer of 2015, I was struck by the breadth and depth of colours, as the seasons transitioned from blazing hot and dry in the short summer, to cool and drizzly in autumn, to menacingly cold through the long and

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\(^1\) I have grappled with terminology relating to how the ‘natural world’ could/should be languaged, considering that the term ‘nature’ is often used interchangeably with terms such as, ‘Country’: adopted by Indigenous Australians (e.g., Rose 1996), ‘Land’: adopted by First Nations people of North America (e.g., Tuck, McCoy & McKenzie 2014), ‘environment’/‘outdoors’/‘Place’: most commonly adopted in the West (e.g., Somerville & Green 2015). As I will explain later in this chapter, I adopt the term ‘Land’ in this thesis, considering that this research is conducted within a North American context of Land education. Moreover, troubling ‘nature’ as a highly contested, socially constructed concept (e.g. Russell 2005), in taking it up to be an inherent part of humans and nonhumans and not something conceived of as separate to humans, ‘nature’ will be in quotation marks throughout this thesis. ‘More-than-human worlds’ will also be taken up, to denote a relationally-comprised human/nonhuman worlding.
dark winter. There didn’t appear to be a spring season, as temperatures transitioned from cold to hot, and from hot to cold, in an instant. I felt estranged and disoriented in the vast expanse of this new Land. And without a ‘handrail’ to steady myself, it felt like I might slip away into the ‘nothingness’ of the prairies around me.

As an Australian accustomed to oceanscapes and the mobility to readily access these Places that I associated with ‘belonging home’, I became acutely aware how discursive and material forces informed and influenced my sense of self with the world. Simultaneously, it was in this time, that a gnawing frustration with my professional experiences in environmental education came to the fore. Involved with Canadian research projects and visiting K-12 schools across the country, it appeared that environmental education was indeed set within a policy-driven discourse of instrumentalist, technicist, and mechanistic teaching practices, enmeshed within globalised, neoliberal, and capitalist agendas (Gough, A 2015; Ideland & Malmberg 2015; 3

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2 ‘Land’ is capitalised in this thesis to extend beyond ‘land’ understood as an empty container that only includes the materiality of earth, rocks, and waterways, etc. Denoting a material/discursive relationship, Land suggests ‘a spiritually infused place grounded in interconnected and interdependent relationships, cultural positioning, and is highly contextualized’ (Styres & Zinga 2013, p. 300-301). This same logic is applied to articulations of ‘Place’. Moreover, within politics of ‘White’ and ‘Western’, these terms will be capitalised to indicate reference to specific social groups, also acknowledging the unstable nature of these categories in that ‘White’ and ‘Western’ groups possess fluid borders and heterogenous members (Haney-Lopez 2006).

3 In this research, ‘discursive/discursivity’ refers to practices that set limits and provide possibilities for what counts as socially meaningful statements (Anggard 2016). As set within discursive structures of dominant discourse, discursive practices are producing, rather than describing ‘subjects’ and ‘objects’ of knowledge practices. ‘They are not conditions in the sense of transcendental, ahistorical, cross-cultural, abstract laws defining the possibilities of experience (Kant), but rather they are actual historically situated social conditions’ (Barad 2003, p. 819). ‘Material/materiality’ refers to the physical substance of things (i.e., matter).

4 Instrumentalism is understood as a tool facilitating a productive means to an end.

5 Technicism refers to set objectives within actionable goal-setting, rather than intrinsically-derived ethics that are organically motivated within a concern for the environment.

6 Sandy Steen (2003) described mechanism as enacting processes of ‘compartmentalisation and using an empirical or objectivist approach to make sense of isolated information’ (p. 193). Steen further noted that mechanistic teaching and learning approaches perpetuates reductionism, in which phenomena are understood by reducing them to their separate parts.
Kopnina & Meijers 2014). This lens of human exceptionalism and supremacism in my professional world stood in stark contrast to what I was encountering in my personal world, drawing a sharp dissonance between my professional and personal worlds. For example, my own viscerally-charged encounters with Land, in which I understood my sense of self with the world as affected by discursive and material forces, was seemingly oppositionally and dualistically positioned against a discursive logic that placed humans at the centre, relegating ‘nature’ as a backdrop to the social world.

Searching for new ways of thinking about human relationships with nonhumans in environmental education, I engaged with scholarly work by Karen Barad, Rosi Braidotti, and Donna Haraway. Located in the posthumanist and new materialist turn of social research, such perspectives challenged the idea that agency is something humans ‘have’ as an individual phenomenon. Rather, understanding agency as relational, in acknowledging the inextricable interdependence and interconnection of humans and nonhumans, posthumanism and new materialism engenders the capacity to take up material forces in environmental education.

Moving beyond a purely discursive gaze focused upon social dynamics of anthropocentric (relating to dominance of the human species) and humancentric (relating to dominance of the human self) thinking, I was, therefore, curious as to how relational agency might generate a more ethically grounded ecocentric narrative in environmental education teaching practices. By ethically grounded ecocentric narrative, I am referring to the system of values that places intrinsic value on all species, irrespective of anthropocentric and humancentric utility, inferring socio-ecological justice.

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7 First names will be used in the first introduction of theorists to challenge an arbitrary truncation and to invite a sense of personalisation and relationality into this thesis assemblage (Gough, N 2016).
I was (and am) still very attached to my ‘humanness’, as this is something I cannot escape from, nor something that I want to transcend. However, as sense-making\(^8\) began to shift through posthumanist and new materialist lenses, I looked at nonhumans in a different way. For example, I noticed how my body was ‘marked’ with affect as I watched a herd of white-tailed deer (\textit{Odocoileus virginianus})\(^9\) grazing in the pastures of the acreage where my friend lived, as I heard the eerie and haunting call of a red-tailed hawk (\textit{Buteo jamaicensis}) outside the kitchen window on a late-summer’s morning, and, as I witnessed the rising of the moon through the pines, juxtaposed against an eastern dusty pink sky of a prairie sunset (shown in Figure 1.1.1). I also noticed that it was not only the ‘sensational’ encounters that seemed to affect me, but also the mundane, insignificant moments. For example, feeding the cats (\textit{Felis catus}), laying out wild

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{eastern_dusty_pink_sky.jpg}
\caption{An eastern dusty pink sky 2017}
\end{figure}

\textsuperscript{8} I deliberately use the term ‘sense-making’ as I take this up to depict an embodied form of generating new knowledge. In this way, I depart from the term, ‘meaning-making’, as this depicts a cognitive emphasis in generating new knowledge. Moreover, I depart from the idea of ‘knowledge acquisition’, as knowledge is not something ‘out there’ to be acquired in an understanding of the world. Rather, as this thesis will explore, any given intraaction is already imbued with material/discursive forces, meaning that we make sense with the world.

\textsuperscript{9} Used to describe both the ‘genus’ and ‘species’ that categorise plants and animals, I include scientific Latin plant and animal names the first time I introduce a plants and animals. This is to highlight the ubiquity of scientific discourse in these Anthropocene times (Haraway 2016).
bird seed in the backyard, or chopping a home-grown tomato (*Solanum lycopersicum*) for an evening meal. These moments seemed to leave traces, ‘marking’ my body with vibrancy and livelihood, and it was through these encounters that I began to generate a vibrant and lively sense of belonging in the prairies.

Inspired by these encounters, my research is indebted to postqualitative research and posthumanist and new materialist ways of thinking, being, knowing, and doing. Collaborating with one elementary school teacher, Lily¹⁰, I explore an assemblage of relations within, and between, Researcher/Teacher/Environmental Education Worlds to understand how my sense of self in the world might be transformed with ‘Other(s)’¹¹. In this sense, this research is more than the making of a thesis, but it is the making of myself, in that I did not only find home in myself, but more importantly in these Anthropocene times, I found home with ‘Other(s)’.

1.2 Engaging with this Research

As narratives work to transgress and transform ‘discursive fields in which they move’ (Gough, N 2004, p. 255), in adopting ‘machineries’ of text I have constructed my thesis into an assemblage comprising four clusters and eight chapters. The clusters demonstrate broader conceptions of thought relating to how I have understood my research project, with the chapters being a more detailed account of research processes and practices. Although each cluster and chapter of this thesis might appear discreet and separate categorised under neat headings, the idea that they are assembled together in relationship, means that they form a simultaneous part and a whole (holonic) of this research. My thesis assemblage is shown in Figure 1.2.1.

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¹⁰ Pseudonym.

¹¹ ‘Other(s)’ will be in quotation marks throughout this thesis, because through a philosophical orientation of posthumanist perspective, ‘Other(s)’ only exists in a relational capacity, rather than as something separate and discreet (Barad 2017). In this sense, I am challenging the marginalisation, exclusion, exploitation, and dispossession of what Braidotti (2010) called ‘The others – women or sexual minorities, natives and non-Europeans and earth or animal others’ (p. 409).
As an ongoing inquiry into possibilities for environmental education, my research does not intend to uncover unknown truths, nor does it seek to interpret experiences. It also does not intend to provide a critical analysis, reversing oppressions and suggesting ‘better’ ways of teaching in environmental education, nor does it aim to break down and resolve dominant discourse working to oppress ‘Other(s)’. Rather, offering a (re)storying of human/nonhuman relationships, my research seeks to hold new and different stories with the dynamic, complex, and messy socio-ecological crisis narratives of these Anthropocene times. Holding conflicting
and contrasting stories together, as Chessa 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). Through my research, I hope to open possibilities in environmental education for amazement, wonder, and delight for more-than-human worlds, inspiring a deeper sense of moral interdependence and interconnectedness with nonhumans. Further, this work 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), situated within events (Fox & Alldred 2015), and contextualised within researcher/teacher/environmental educational contexts and relationships, as afforded by my teacher collaborator and school community in western Canada.

Just as this thesis and I wrote each other through a mutually constitutive unfolding, my hope for this research is that it inspires further understanding of how we are entangled with ‘Other(s)’ in co-implicated futures. Moreover, acknowledging that entanglements are not isolated and discreet binary co-productions, but a composite of unique and different threads interwoven within a common ground of relating (Barad 2007), you are not separate and detached, reading and critiquing these pages as a passive bystander looking in. Rather, you are a very part of the complex and dynamic assemblage of this research. Therefore, inviting you to consider where, and how, you might also be entangled with these stories, at the end of each cluster I have included a provocation to encourage you to observe and notice how your body might be ‘marked’ with affect as you engage and entangle with this work. These provocations are at the end of each cluster and are titled: ‘Research Inspiring: Provocation One’, ‘Research Performing: Provocation Two’, ‘Research Understanding: Provocation Three’, and, ‘Research Becoming: Provocation Four’.
1.3 Changing the Story in Environmental Education

1.3.1 What is the Problem?

In these times of Anthropocene, society is bombarded by narratives of ecological, social, and cultural exploitation, domination, and objectification (Braidotti 2013; McKenzie 2009). For Braidotti (2013), these narratives are driven by advanced capitalism and the globalising ‘commercialisation of planet Earth in all its forms through a series of inter-related modes of appropriation’ (p. 7). Marcia McKenzie (2009) referred to these narratives as derived from ‘anthropocentricism, globalization, colonialism, racism, classism, [and] heteronormativity’ (p. 212), fuelled by neoliberal political and economic philosophy, which conceptualises the individual as autonomous and free, while also creating conditions, laws, and institutions according to its capitalistic values (McKenzie 2012). These Anthropocene stories are implicated in environmental education, because as local policy becomes more diffuse through globalisation, there is an inevitable ‘twinning of sustainability with priorities of economic neoliberalization in education’ (McKenzie, Bieler & McNeil 2015, p. 319). As Bob Jickling and Arjen Wals (2008) claimed, ‘The powerful wave of neo-liberalism rolling over the planet, with pleas for ‘market solutions’ to educational problems and universal quality-assurance schemes, are homogenizing the educational landscape’ (p. 2). In other words, environmental education becomes enmeshed within a ‘western trajectory of cultural norms and practices, promoting ““free market” conditions that prioritise corporations and economic growth over considerations of social equity or environmental protection’ (Tuck & McKenzie 2015, p. 3, original quotation marks). According to Nathan Snaza et al. (2014), globalising, neoliberal and capitalist forces have ‘circumscribed and defined “politics” in particular ways’ (p. 40), with far reaching consequences as they infiltrate Western education models. For example, schools prepare children/adolescents to sit at
desks and spend long periods of time within the confines of an indoor classroom. As Snaza et al. wrote, schools propagate humanist ideas about human exceptionalism and ‘tame our wild animal impulses early on…training our attentions away from the body and toward forms of “rational” thought’ (2014, p. 45). As such, set within the dominant Western worldview, affirmations of human exceptionalism and supremacism in education project a view of the planet as a resource for exploitation (Kopnina 2016). Within this, as one side of the dualistic relationship has social value and the other does not (McKenzie 2012), human exceptionalism and supremacism manifests in accumulation by dispossession and involuntary relations set up through power differentials of coercive social hierarchies (Morgensen 2009; Snaza & Weaver 2015; Sonu & Snaza 2015).

Understanding how human/nonhuman relationships are implicated within globalisation, neoliberalism, and capitalism, the field of environmental education is well positioned to respond to the socio-ecological crisis narratives of these Anthropocene times, through its sustained examination of binary logics that set humans apart from ‘nature’ and the nonhuman. Yet given the contested nature of practices that count towards socio-ecological citizenship (Sund & Ohman 2013; Van Poeck & Vandenabeele 2014), environmentalism is value-laden and enmeshed within a politically messy mix of power struggles regarding what counts as viable knowledge (Gough, A 2012b). Following this, ethical, social, and political complexities abound in environmental education (Jickling 1997), and there is much debate as to how environmentalism should be performed in the environmental education field (Payne 2016). I am cognisant of the field of environmental education diverging along paths to Education for Sustainable Development (ESD), Education for Sustainability (EfS), and Sustainability Education (SE) (e.g., Jones, Selby & Sterling 2010; Pavlova 2013; Sterling 2004). Yet, I am wary of sustainability discourses, co-
opted by a policy-driven discourse of instrumentalist, technicist, and mechanistic teaching practices, because such ideals prioritise *individual autonomy* within behavioural changes towards a more sustainable lifestyle (Gough, A 2015; Ideland & Malmberg 2015; Kopnina & Meijers 2014).

The anthropocentric and humancentric nature of individual autonomy is problematised in my research, understanding that this positions *agency* as something humans ‘have’, as an individual phenomenon, and as the capacity for people to act and produce a specified effect on the social world (Burkitt 2016). In understanding agency through classical humanist ideas of subjectivity, coinciding with conscious, individualised, autonomous, and self-determined agency (e.g., social constructivist theories of Jean Piaget 1928/1952; Barbara Rogoff 2003; and, Lev Vygotsky 1978), two interrelated tensions come to the fore in environmental education. First, anthropocentric and humancentric agency of individual autonomy supports human exceptionalism and supremacism, in that nonhumans are undermined through attitudes and behaviours of domination, control, consumption, and exploitation of human biases (Kopnina 2015). Second, with the capacity to reflexively challenge their positionality in any given socio-cultural context, the individual as separate from their structural social arrangements perpetuates binary logics between a discreet individual and the wider collective (Burkitt 2016; Grossberg 2010). In other words, when agency is assumed as emerging from the cognitive property of individuals in their ability to question and transcend assumptions, practices, and outcomes taken for granted in the dominant culture (e.g., Rogoff 2003), the individual is outside of, and detached from, the very structures of society they are critiquing.


1.3.2 Why is this Research Important?

Challenging an understanding of agency emerging from a sense of empowerment through individual autonomy, *relational agency* facilitates an expansion of human boundaries. Relational agency fosters the potential for a sense of interconnection with others, not confined within our species, but including nonhuman, or ‘earth’ others (Somerville & Green 2015), espousing the idea of situated entanglements with the broader ecology of the world (Bertelsen & Murphie 2010). Based upon a relation-centred ethic (Haraway 2008), in which humans and nonhumans share a vital materiality (Bennett 2010; Braidotti 2013; Haraway 2016), relational agency detaches from self-centred individualism towards notions of *living belonging with* community. This is different to *living identity in* community, in which there are discreet, self-contained, and categorised individuals (Grossberg 2010).

My research, therefore, draws inspiration from two interrelated and intersecting ideas. The first idea is analogous with Daniel Wildcat’s (2005) claim that, ‘It is becoming untenable to continue thinking about our present situation and, more importantly, our future in the context of linear and anthropocentric ideologies typically associated with the Western tradition’ (p. 435).

The second idea corresponds with arguments from environmental education scholars, namely Constance Russell (2005), Noel Gough (2016), and Phillip Payne et al. (2018). For instance, Russell (2005) argued that environmental education researchers need to more actively address polyvocality, creating ‘space for the “voices” of “nature” to be more audible, and in their polyvocality, take into account our own animality, and in doing both, trouble the “nature”/culture divide’ (p. 439, original quotation marks). Drawing upon contradictions in outdoor and environmental education, Gough (2016) argued that:

*On the one hand, many outdoor and environmental activists, philosophers, and educators view anthropocentrism as an undesirable ethical position and valorise conceptual alternatives signified by terms such as ‘biocentrism’ and/or ‘ecocentrism’. On the other hand, many reports of outdoor and environmental*
education research privilege an anthropocentric gaze, which assumes autonomous human subjects as starting points for knowledge production and the focus of attention for data production and analysis. (p. 11)

And according to Payne et al. (2018), ‘One major gap in the theoretical and empirical development of environmental education research is the role of aesthetics and embodied place of environmental affectivity’ (p. 95). Therefore, interested in relational agency within research and teaching practices in environmental education, my research responded to:

1. Overarching trends of anthropocentric and humancentric discourses in Western society, as set within human exceptionalism and supremacism perpetuating socio-ecological crisis narratives;

2. Calls from the environmental education field that environmental education needs to:
   a. Address polyvocality to trouble human/nonhuman binary logics;
   b. Challenge the anthropocentric gaze through notions of relational agency;
   c. Attend to the affectivity of materiality.

My contributions to the environmental education field, therefore, are offered through stories that illustrate a (re)configuring of oppositional and dualistic difference within static, stable, fixed, and rigid categories and a (re)drawing of subject/object boundaries, while also challenging the subsequent hierarchical ordering based on this difference (Fine 1998). (Re)Thinking human/nonhuman relationships to be co-constituted through relational agency, provides opportunities to move the environmental education field to a more ethically grounded ecocentric narrative. This is because when agency is understood as relationally distributed, humans are not seen as the ‘only significant actors in the world’ (Sonu & Snaza 2015, p. 267), because we understand our existence on the planet as shared and mutually constituted.
1.3.3 How does this Research Respond to the Problem?

Looking for different ways of understanding socio-political and ethical engagements in human/nonhuman relationships, my research explored biological, spiritual, ethical, socio-cultural, political, and ecological forces of material/discursive *intraactions* within, and between, a Researcher/Teacher/Environmental Education assemblage of worlds. By intraactions, I am referring to Barad’s (2007) ontological (the form and nature of reality) orientations of agency, in that agency is understood as distinct in *relation* to mutual entanglements, rather than existing as an individual element (as the term *interaction* would propose). As Pauliina Rautio (2013) commented:

> In interaction independent entities are viewed as taking turns in affecting each other, these entities are taken to each have an independent existence. In intraaction, interdependent entities are taken to co-emerge through simultaneous activity: to come into being as certain kind of entity because of their encounter. (p. 2)

To explore *intraactions* within, and between, Researcher/Teacher/Environmental Education Worlds, therefore, I engaged in a yearlong collaboration with one Grade4/5 elementary school teacher in the western Canadian province of Saskatchewan.

1.3.3.1 Engaging a Teacher Collaborator

This researcher/teacher collaboration afforded me two opportunities. First, it provided me with the opportunity to inquire into current stories being told within provincial curriculum guides (which reflect a Canadian focus), relating to how a teacher conceived of, and practiced environmental education. This illuminated the im/possibility for other/multiple stories to be told/shared/experienced. Second, it afforded me with the opportunity to engage in a co-created project attending to the living materiality of nonhumans. As such, as a researcher/teacher practicing environmental education-type teaching, we developed and implemented four multisensory researcher/teacher enactments we called: ‘Mindful Walking’, ‘Mapping Worlds’, ‘Photographic Encounters’, and ‘Eco-Art Installation’. Initially, I thought to locate the
researcher/teacher enactments within Place-pedagogies (e.g., Orr 2004) of Place-based Education (PBE) (e.g., Bowers 2004, 2008; Greenwood 2004, 2008ab; Sobel 1996, 2004; Somerville & Green 2015), given that Place is the ‘locus of human and more-than-human differences and relations’ (Taylor & Giugni 2012, p. 108). Yet, I was not convinced that PBE was the most appropriate focus for my research, given the salience of Land education to move PBE forward with its emphasis upon indigeneity, challenging educational forms of settler colonialism12 (Calderon 2014; Tuck et al. 2014). Moreover, an emphasis on Land was pertinent to my research, given my focus on (re)conceptualising deeply rooted Western binary logics and the subsequent understanding of human/nonhuman relationships, acknowledging that Indigenous perspectives are traditionally rooted in nondualistic epistemic traditions13 (Sundberg 2014; Wildcat 2005). Therefore, given that my research was inspired by Indigenous nondualistic perspectives, it was philosophically and methodologically situated within postqualitative research and the simultaneous thinking (theory) and doing (action) of posthumanist performativity and new materialism, given that these perspectives and approaches also work to account for a nondualistic understanding of the world.

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12 I am cognisant that the word settler is a loaded term. Without meaning to reinstate the settler/Indigenous binary, through obscuring the many different routes that non-Indigenous people have taken to call Canada home, all intensely complicated and fraught with vast differences in resources and privilege (e.g., refugees, African-Americans in North America), settler is the best word I currently have to describe my White privilege (Hern & Johal 2018). Moreover, colonialisation should not be thought of as a universal category, enacted in the same way in every context. Rather, there are many colonialisms with different goals and strategies. However, in the context of this research, I take up the term settler colonialism, ‘where colonial settlers come to stay and do not leave’ (Hern & Johal 2018, p. 13).

13 It is crucial to note that relationships to Land among Indigenous peoples are diverse, specific, and ungeneralisable (Tuck et al. 2014). As such, I acknowledge the importance to attend to contextualised accounts of cultural practices relating to ecology and spirituality and associated Indigenous relationships to Land over time, locating precise accounts that are firmly rooted in the educational research context of Saskatchewan, Canada.
1.3.3.2 Thinking/Doing-With/Through Posthumanist Performativity and New Materialism

Posthumanist performativity is grounded in, yet expands beyond, Judith Butler’s (e.g., 1993, 2007) radical rethinking of identity. In Butler’s analyses of identity politics, she claimed that identity is not an essence, nor is it an inherent categorical attribute of an individual, but that identity is a doing, a becoming, a performing. However, responding to ‘the enormous and almost crushing weight of several millennia of humanist thought’ (Snaza & Weaver 2015, p. 1), posthumanist performativity expands beyond a critique of socio-cultural inscriptions of identity (how discursive structures influence and inform a person’s understanding of themselves in the world), taking up materiality to understand identity and agency as relationally configured (Alaimo & Hekman 2008; Anggard 2016). Through posthumanist performativity’s attention to materiality, categories and boundaries are differentiated to incorporate material/discursive, social/scientific, human/nonhuman, and natural/cultural relationships (Barad 2007). Therefore, because posthumanist performativity understands difference through affirmative politics, in that categories and boundaries become relationally entangled to reveal less obvious hierarchical configurations (Braidotti 2013; Fine 1998), it helped me to make important connections between discursive formations and worldly materiality.

Methodologically, I took up new materialism to contest the idea that there is a universal split between ‘nature’ and culture, rooted in Enlightenment meta-narratives (derived from European Industrial Revolutions) and mobilised through global discursive practices of colonisation (Sundberg 2014). In demonstrating ‘how a multiplicity of beings cast as human and nonhuman – people, plants, animals, energies, technological objects – participate in the coproduction of socio-political collectives’ (Sundberg 2014, p. 33), new materialism challenges the disassociation of body and person, body and mind, ‘nature’ and culture, animality and
humanity (Ramirez-Barreto 2010). As Rick Dolphijn and Iris van der Tuin (2012) wrote, new materialism ‘emerges as a method, a conceptual frame and a political stand, which refuses the linguistic paradigm, stressing instead the concrete yet complex materiality of bodies immersed in social relations of power’ (p. 21). Following this, acknowledging that new materialism understands the world as ‘things-in-phenomena’, rather than ‘things-in-themselves’ or ‘things-behind-phenomena’ (Barad 2007), my research was not concerned with the isolated and inert structuring of the human experience (e.g., how teaching and/or learning practices are enacted/perceived). Rather, in relocating agency to encompass the intraactions between human relationships (discursive) with matter (material), my research was interested in affects emerging from material/discursive forces of worldly intraactions (Barad 2007; Braidotti 2013).

1.3.3.3 Notes on Affect

_Affect_ in my research was understood through philosophies of Benedict Spinoza, which were concerned with the body’s capacity to be affected and to simultaneously affect through its intraactions (Massumi 2015). Challenging Cartesian mind/body dualism, for Spinoza, ‘Thought and extension (bodies in space) are two aspects of a single reality, as reality presents itself to human beings’ (Curley & Hampshire 1996, p. viii), meaning that as we are affected and affecting, bodies are materially ‘marked’ generating transformational change. As Gregory Seigworth and Melissa Gregg (2010) wrote, ‘Affect, is the name we give to those forces—visceral forces beneath, alongside, or generally other than conscious knowing, vital forces insisting beyond emotion—that can serve to drive us towards movement, toward thought’ (p. 1).

Understanding that _any_ type of affect emerging from intraactions may provide the conditions of possibility for generative change (Braidotti 2009), my research did not intend to dismiss socio-ecological crisis narratives. Rather, it sought to expand on these narratives to
include stories of discomfort and stories of amazement, wonder, and delight in illuminating the lively vibrancy of matter through sensory, affective engagement for a renewed worldly (re)enchantment (Bartlett 2008; Braidotti 2013). Following this, I explored affects emerging from my researcher subjectivity interacting with the people and Land in my new Canadian home (Researcher World). I explored affects emerging from my researcher interactions with a teacher collaborator (Researcher/Teacher Worlds). And I explored affects emerging from researcher/teacher interactions with environmental education-type teaching practices (Researcher/Teacher/Environmental Education Worlds).

1.4 Research Question

Given that my research was not concerned with linear, conclusive, or static definitions representing knowledge as fixed and stable (Somerville 2008), it was important that I did not look for definitive solutions to problems. Rather, taking up Margaret Somerville’s (2008) ideas of wondering and generating, I understood that my research would be a ‘process that cannot begin with logic but comes from a place of not knowing, informed by intuition and responsiveness’ (p. 210). Opening myself to what I did not yet know was perplexing and puzzling for some time, as I seemingly had to shed years upon years of educational processes, which demonstrated to me that my learning needed to yield some form of ‘correct’ answer to a definitive and closed question. Grappling with this challenge, I committed myself to opening to all possibilities in the shifting unfolding of this research. (Re)Emphasising that I did not know where this research might lead me, in the exploration of relational Researcher/Teacher/Environmental Educational Worlds, in their wild, fluid, dynamic, and lively formation with material, earthly forces, the following question helped me to navigate my way:

How might affects emerging from Researcher/Teacher/Environmental Education relationships (re)story human/nonhuman relationships?
1.5 Mapping the Research Journey: Thesis Organisation

My research journey continues in Chapter Two: Research Context. Contextualising this research to environmental education, I explore definitions of the field and its evolution to sustainable development in Education for Sustainable Development (ESD) agendas. I then discuss some inherent limitations of ESD, as derived from, and further contributing to, an over-reliance on science, technology, and economic development, globalising, neoliberal, and capitalist forces, and, the homogenising and institutionalising of global policy on local policies, practices, and knowledges. All implicating human/nonhuman relationships, I explore how binary logics are historically situated, culturally located, and socially mediated in these Anthropocene times, in which humans are dialectically separate from, and outside of, ‘nature’ through Cartesian representational knowing. I then map how environmental education seeks to understand human/nonhuman relationships through the critical theory paradigm and poststructuralism. This is to demonstrate how the environmental education field has evolved through different lenses of thinking, and to illustrate the important roots of posthumanist performativity and new materialist methodologies, particularly within poststructural deconstructivism.14

In Chapter Three: New Materialist Methodologies, I explore the methodologies of this research taken up with/through new materialism. New materialism is an important and useful strategy as it opens to a (re)configuring of socio-political and ethical approaches, which rest upon the binary opposition of given (nature) and constructed (culture) (Braidotti 2013). In this way, new materialism works towards a nondualistic understanding of human/nonhuman

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14 For clarity, I have included a ‘Chapter Overview’ at the beginning of each chapter. However, I do not necessarily include a definitive chapter summary. Seeking to avoid chapters closing in on themselves, this was to facilitate opportunities for each chapter to remain dynamically open to following chapters in a relationally entangled way.
relationships, in its critique of humanist ideals that people occupy a separate and privileged place among nonhuman ‘Other(s)’ (Anderson & Perrin 2015). In a reworking of the nature of the relationship between the knower, or would-be knower, and what can be known (Guba & Lincoln 1994; Neuman 2011), the shift in this research, is not only epistemological (the way something is understood), but, it is also ontological in that different questions about the form and nature of reality and how this is understood are brought to the fore.

I begin my cartographic and diffractive storytelling in Chapter Four: ‘Lady/Backpacker’

**Storytelling.** Exploring my nomadic wanderings from Australia to Canada and my longing to belong with the people and the Land of the prairies, this chapter seeks to understand the microcosmic world of the researcher. In this way, I am not suggesting that a microcosmic world of an individual is conceived of as dualistically different to that of the macrocosmic world, but, that singularity/individuality is relationally entangled with the plural/collective (Barad 2017). In this chapter, I adopt Braidotti’s (2010) descriptions of ‘conscious nomadism’, in that my nomadic wanderings took on an affirmative stance, rather than negative appropriations of aimless wandering, or notions of being lost. In this way, I situate my nomadic wanderings in what Adsit-Morris (2017) called ‘a spiritual movement, a practice of connecting with universal flows and forces’ (p. 52). My nomadic wanderings also enacted political objectives, in which the ‘expression of a nonunitary vision of the subject [is] defined by motion in a complex manner that is densely material’ (Braidotti 2011, p. 3). Thinking/doing-with/through nomadic multiplicities of subjectivities of a Lady/Backpacker in acting from my politics of location as a woman/lady/female and as a White settler in Canada, I activate a figuration of hope for postcolonial ethics in environmental education.
In *Chapter Five: Researcher/Teacher Relationships with Land and Pedagogy*, as I begin to intraact with my teacher collaborator, all my stories are gathered up in the (re)configuring of worlds. Mapping the researcher/teacher relationship to Land and pedagogy, this chapter is an exploration of the Researcher/Teacher World, exploring how, as a researcher/teacher, we negotiated a shared space of entangled existence, with each other, with Land, and with pedagogical events of the researcher/teacher enactments. Specifically, drawing upon pedagogical events in the researcher/teacher enactments, which involved practices attuning with Land, I explore notions of affirmative politics of vulnerability. This is to demonstrate the importance of vulnerability in opening to affect, and how opening to affect might inspire relational care ethics.

*Chapter Six: Negotiating a Lived Curriculum* is an exploration of the Environmental Education World, as derived from affects emerging from intraacting Researcher/Teacher Worlds. I begin this chapter with a journal entry, exploring how affective traces ‘marking’ my body helped to transform my understanding of curriculum policy. I then discuss how my teacher collaborator typically engaged environmental education-type teaching practices and how environmental education is considered in Grade 4/5 curriculum policy mandates through ideas of sustainable development. Troubling discursive tensions relating to the idea that curriculum is ‘done’ to teachers, I explore how the researcher/teacher enactments took up transdisciplinary approaches to teaching and learning. Adopting Felix Guattari’s (and to some extend Gilles Deleuze’s) (1987) ecosophy, which is interested in the transformations of self through relations, I explore the potential for subjective (re)configurations, in ‘becoming-with’ curriculum policy through negotiating tensions between Ted Aoki’s (1993) curriculum-as-plan and notions of a lived curriculum. At the end of Chapter Six, I discuss Beth Dempster’s (2000) sympoietic
systems theory to demonstrate how through their collectively producing, co-constituted existences, they provide a useful lens for dwelling in affirmative difference between a policy-driven curriculum focus, purporting instrumentalist, technicist, and mechanistic teaching practices, and teaching and learning enacting a lived curriculum.

In **Chapter Seven: Agential Worlds Outside the Classroom**, I explore affects emerging from intraacting Researcher/Teacher/Environmental Education Worlds. Starting with a journal entry exploring in a pedagogical event of the third researcher/teacher enactment, ‘Photographic Encounters’, I illuminate how my body was ‘marked’ by tensions derived from constraining and disciplining discursive structures elucidating indoor classrooms as ‘normal’ and outdoor classrooms as ‘deviant’. I then map some pertinent Western educational theories of the 20th Century, drawing upon perspectives from John Dewey, Paulo Freire, Erich Fromm, Michel Foucault, and Neil Postman, to demonstrate how these theorists have both grappled with, and perpetuated, binary logics in educational theory. Troubling indoor/outdoor binary logics, as they play out in environmental education, I explore Land as relationally agential and as an active part of the teaching and learning community, drawing on aspects of Murray Bookchin’s social ecology to discuss important individual/community entanglements. I then provide an example of my own sense of self with the world through a journal entry written as I was coming near the end of the formal researcher/teacher collaborative relationship. The final discussion in this chapter explores the idea of myself and my teacher collaborator as a holobiont researcher/teacher, in that we are always in a state of nomadic transit through dynamic intraactions with material/discursive forces of world-making.

Thinking/doing from my present-moment politics of location, as the past is threaded through the future (Barad 2007; Mazzei 2016), in **Chapter Eight: Becoming (Partially)**
Posthumanist. I draw upon the moments of rupture, as cartographically and diffractively storied in Chapters Four to Seven of this thesis assemblage. I then explore how I have attended to my research question, discussing insights generated from my research that helped me to understand and take up a more ethically grounded ecocentric narrative for an environmental education for/with/in these Anthropocene times. Following Haraway’s (2016) articulations of critters and people attached to ongoing pasts, bringing ‘each other forward in thick presents and still possible futures’ (p. 133), I draw upon ‘Stories of the Past’ in ‘Stories of the Present’, to inspire new and different ‘Stories for the Future’ in environmental education policy, practice, and research.
Chapter Two: Research Context

Both the critique of ahistorical Eurocentricism and the quest for alternative genealogies of European universalism express a form of ethical and political accountability that requires adequate understandings of one’s specific location, that is to say, one’s embedded and embodied perspectives.

Rosi Braidotti (2011, p. 215)

2.1 Chapter Overview

To situate my research in environmental education for/with/in these Anthropocene times, I first explore common definitions of environmental education and how the field has shifted to Education for Sustainable Development (ESD) in some contexts. I then discuss how ESD is problematic for the field of environmental education as derived from, and contributing to, affirmations of human exceptionalism and supremacism. This leads me to an exploration of the historically situated-nature of binary logics giving rise to Cartesian representationalism. I then explore how environmental education seeks to understand and trouble human/nonhuman binary logics, mapping different theoretical perspectives/concepts/terms in the field through a critical theory lens. While critical theory is a useful approach to address oppressive/oppressor dualisms and empower individuals to act against oppressive realities, it is, however, limited in its capacity to address wider socio-cultural structures of oppression. Departing from critical theory, I explore decolonisation pursuits of Land education as positioned within poststructural deconstructivism. Discussing the deconstruction of language and discourse and the dismantling of binary oppositions, I draw upon ecofeminist examples to challenge ‘either/or’ logics through ‘both/and’ logics. Yet, as I illuminate, there are also inherent tensions within a poststructural deconstructivist approach to understanding human/nonhuman relationships, because it inevitably brings us back to the human. Therefore, at the end of this chapter I explore ideas composing-with Gaia for/with/in these Anthropocene times, drawing on the capacity for posthumanist
performativity and new materialism to destabilise an anthropocentric and human-centric focus in environmental education.

2.2 Defining the Environmental Education Field

The ‘classic’ definition of environmental education emerged in the US in 1970.

Described by the IUCN (the International Union for the Conservation of Nature and Natural Resources or the World Conservation Union), environmental education entailed:

the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man [sic], his culture, and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality. (Palmer 1998, p. 7)

An Australian definition of the same time understood environmental education as education ‘in’, ‘about’, and ‘for’ the environment (Lucas 1973). Focusing upon the triadic relationship between personal development (construction of identity), social development (development of human alterity/other of two), and the sphere of the Oikos (eco/nature/environment), this remains as a key focus in environmental education today (Sauve, Brunelle & Berryman 2005, p.272).

Expanding upon the ‘classic’ US definition towards the end of the 20th Century, Jenni Lane, Richard Wilke and Dan Sivek (1995) described environmental education as the practice of developing informed, skilled, and action-oriented citizenry towards responsible environmental behaviour. This behaviour change discourse was particularly pertinent given society’s grave acknowledgement of the techno-industrial progression, and subsequent negative impacts on the health of human and nonhuman communities through evidence and circumstances of a burgeoning global environmental catastrophe (Greenwood 2004; McInerney, Smyth & Down 2011; Orr 2004). Grounded in the logic that if human actors pursued their enlightened self-interests in understanding and appreciating the environment through direct experiences, then rational behaviour towards sustainable living would be sure to follow (Gough, A 2012a; Pavlova 2013; Stevenson 2007). Ultimately however, since its formal inception in the mid-20th Century
(Palmer 1998), with contributions and articulations from environmental activists, ecologists, conservationists, biologists, environmental scientists, outdoor educators, and geographers, environmental education’s identity is a value-laden composite of different contextual meanings regarding teacher interpretations of ‘best practice’ (Adsit-Morris 2017; Jickling 1997).

2.3 Evolution of the Environmental Education Field

Historically, the United Nations (UN) system, comprising United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations Environment Program (UNEP), played a critical role in the formulation of environmental education policy (Gough, A & Gough, N 2015). According to Joy Palmer (1998), because of UNESCO’s 1968 *Biosphere* conference in Paris, the IUCN established a formal approach to curriculum materials pertaining to environmental education, also promoting technical training, awareness of global environmental problems, and global designations of national coordinating bodies. Then, in Stockholm, Sweden, in 1972, the importance of immersing young people in environmental education was declared, leading to the establishment of the United Nations Environment Programme (UNEP) in 1975, and together with UNESCO, the International Environmental Education Program (IEEP) was conceived (Palmer 1998).

As environmental education gained momentum on a global scale, IEEP produced the first intergovernmental statement, known as The *Belgrade Charter - A Global Framework for Environmental Education*. Then, at the first intergovernmental conference on environmental education in 1977, in Tbilisi, Georgia, UNESCO in cooperation with UNEP developed the *Tbilisi Declaration* (Marcinkowski 2010; UNEP 2015a; UNESCO 1977). While this declaration focused on ecological interdependence in rural and urban areas, it extended the environmental education field to include a concern for the *development* of economic, social, political, cultural-
historical, ethical, and aesthetic dimensions (Pavlova 2013). This was the beginning of direct links between sustainability, development, and education, which then became consolidated at the 1992 United Nations conference on Environment and Development in Rio de Janeiro in conceptions of Agenda 21 (United Nations Environment 2015). Agenda 21 synonymously integrated the environment with sustainable development, heralding sustainability as the ‘metanarrative of our time’ and the brand of environmental education known as Sustainability Education (SE) was born (Jones, Selby & Sterling 2010). To reimagine and reinscribe how education could effectively work to attend to global socio-ecological justice, the imperative to interrogate the political and social components of such problems came to the fore through the Education for Sustainability (EfS) model. According to Stephen Sterling (2004), this model was geared towards the development of an active, constructive and radical citizenry in education, acknowledging that learners are not docile bodies, but can be agents of change within reflexive and critical understandings of the current system (Zink 2004).

A little over a decade later, the Brundtland Commission signalled a shift to Education for Sustainable Development (ESD) (Dyment & Hill 2015; Gough, A & Gough, N 2015). As per the policy of UNEP (2015b), key activities of ESD are designed to:

- Ensure access for all youth to all types of education, wherever appropriate, providing alternative learning structures, ensure that education reflects the economic and social needs of youth and incorporates the concepts of environmental awareness and sustainable development throughout the curricula; and expand vocational training, implementing innovative methods aimed at increasing practical skills, such as environmental scouring. (n.p.)

As the United Nations Environment (2015) stated, ‘Environmental Education is fundamental to the achievement of the goal of sustainable development’ (n.p.), a shift that announced the field of environmental education to enter ‘an intergenerational and transnational stage in its global “development”, as the reach, affects, and impacts of ESD “stretch”’ (Payne 2016, p. 69).

Understanding environmental education’s evolution to sustainable development within the ESD
agenda is crucial to this research, because it affirms the field’s position in the global marketplace of sustainability discourses. This has implications for how human/nonhuman relationships are understood, because as I explored in Chapter One, sustainability discourses are typically set within anthropocentric and humancentric thinking and courses of action that prioritise individual autonomy and empowerment to enact change.

2.4 Education for Sustainable Development (ESD)

In the Canadian context, a national body called the Council of Ministers for Education Canada (CMEC) was formed in 1967 to provide a forum for provincial/territorial education ministers to have a national voice on important issues. This was particularly important for Canada given that education policy is provincially/territorially mandated (Nazir et al. 2009). While CMEC has produced several documents relating to ESD recommendations for Canadian education (e.g., CMEC 2007, 2010), there are no formal educational frameworks that sanction provinces/territories to engage with these endorsements. Yet, Jickling (2006) claimed that although it was not a compulsory curriculum agenda, ESD was generally not received well by Canadian environmental educators. As Jickling suggested, teachers typically opposed notions of sustainability with preferences to maintaining association with environmental education. Further, Jickling commented that teachers were deterred by ESD, given its focus on learning, rather than more holistic ideas relating to education.

On a global scale, scholars in the environmental education field have illuminated inherent tensions within UNESCO’s vision of ESD for environmental education. While I acknowledge that there are many different critiques of ESD within any given context, I have included these specific interrelated and interconnected tensions, and associated comments from scholars in the
environmental education field, as I have identified these as the most pervasive issues implicated in challenging binary logics through a (re)storying of human/nonhuman relationships.

2.4.1 ESD Tension One: Over-reliance on Science, Technology, and Economic Growth

Drawing on ESD’s over-reliance on science and technology, Edgard Gonzalez-Gaudiano and Rosa Nidia Buenfil-Burgos (2009) argued that this has caused societies to become enmeshed within utilitarian values, driven by consumerism, and further divided from the environment. For Margarita Pavlova (2013), overarching ideas of sustainable development remain ‘linked to the contemporary faith in the power of science and technology to resolve environmental problems’ (p. 665). And according to Braidotti (2013), the prevailing idea that economic growth and rational and secular pursuits of techno-scientific innovations can provide the solution to global ecological problems is fraught with tension. As the spinning machine of the global economy impacts all living species, Braidotti suggests that this also leads to the radical disruption of human/nonhuman relationships.

While the discursive systems perpetuating the over-reliance on science, technology, and economic growth might not explicitly deny pervasive and ongoing socio-ecological crisis narratives, they are detrimental to the field of environmental education. In prioritising the development of science, technology, and economic growth, the political, economic, and social ideologies of these systems understand such crises through the lens of ecological modernisation. Through this lens, the structure of the ecological crisis is, indeed, derived from unsustainable commercialisation, consumption, and exploitation of planet Earth, yet this lens simultaneously assumes that existing political, economic, and social institutions can fix these issues through their internalising care for the environment. In its lack of genuine commitment to the environment (Payne 2016), the result of an over-reliance on science, technology, and economic
development means that it fails to actively account for social and environmental considerations in attending to socio-ecological crisis narratives.

2.4.2 ESD Tension Two: Globalising, Neoliberal, and Capitalist Spinning Wheels of a Commercialised Earth

Other critics of ESD have questioned whether such agenda has the traction to challenge or problematise globalisation, neoliberalism, and capitalist political and economic structures, suggesting rather, that it contributes to, and exacerbates, globalisation, neoliberalism, and capitalism (Jickling 2016). For example, John Huckle alongside Wals (2015) claimed that, ‘there is too little attention to power, politics and citizenship; the ways in which neoliberalism has made the adoption of sustainable behaviours and lifestyles less likely’ (p. 492). Helen Kopnina (2012, 2015) examined power hegemonies in ESD/environmental education, as neoliberal ideologies purport that good citizenship equates to market participation, advancing global competitiveness of political and economic agendas. Moreover, as governments look for market solutions to educational expansion, efforts to understand human/nonhuman relationships in environmental education are implicated by the globalised ‘market economy’ (Rizvi & Lingard 2010). As David Greenwood (formerly Gruenewald) (2004) argued, ‘corporations, government, and the media constantly reinforce the connection between education and successful competition in the global, capitalist economy...directed at and adopted by educational institutions, sometimes with militant urgency’ (p. 77). These ideas were also taken up by McKenzie alongside Andrew Bieler and Rebecca McNeil (2015), as they questioned the integrity of sustainability when twinning with processes of neoliberalism in educational policy. For David Hursh, Joseph Henderson, and David Greenwood (2015), while the known effects of neoliberalism are certainly troubling for the field of environmental education, more troubling is the idea that neoliberalism has become so
naturalised, and internalised in these Anthropocene times, that its homogenising and institutionalising effects on environmental education can often go unnoticed.

**2.4.3 ESD Tension Three: Homogenising and Institutionalising of Policy on Local Practices**

Referring to the unclear definitions of ESD, McKenzie (2012) highlighted issues pertaining to the often vague and tacitly accepted clarifications of what sustainability, education, and development might mean at the local level. Given Canada’s vast and diverse geo-political landscapes, with varying historical, cultural, and linguistic affordances, and an education system of provincially/territorially-based curriculum, the gap between globalising policy mandates and policy, practices, and knowledges within any given situated local context, is particularly problematic (Nazir et al. 2009). This is because ESD agendas are often filtered through governmental bodies causing different interpretations and political agendas, which means that there is a risk that ESD will not be fully realised at the local school level. In other words, as local policies, practices, and knowledges become co-opted by the (re)colonising and globalising trajectories of Western education, the uptake of sustainable development at local level becomes obscured and diffused (McKenzie 2012).

When environmental education is siloed within structures and forces of globalisation, neoliberalism, and capitalism, a policy-driven discourse of instrumentalist, technicist, and mechanistic teaching practices works to prioritise outcomes-focused ideals (Gough, A 2015; Ideland & Malmberg 2015; Kopnina & Meijers 2014). Pointing to the homogenisation and institutionalisation of global policy movements and the prescriptive construction of teaching, Jickling and Wals (2008) stated:

> Many trends in education seem policy-driven, rather than innovation-driven. Trends such as lifelong learning and competence-based education are inspired by national and international policies (and corresponding economic incentives). Environmental education is no different. The conversion from environmental education to education for sustainable development may be seen as a policy-driven transition. (p. 5)
As these three interrelated and interconnected tensions in ESD co-opt environmental education, then as the field uses the same tools, principles and theoretical foundations of a system within a culture situated in competition with the nonhuman world, then environmental education is incompatible with its own aims and objectives (Blenkinsop & Egan 2009). In this way, environmental education is geared to:

- Depict humans at the centre (Pavlova 2013);
- Prioritise economic concerns to the detriment of socio-ecological priorities (Hart 2002; Sauve et al. 2005);
- Promote an individualistic and national competition of winners and losers (Greenwood 2004; Hursh et al. 2015; Kopnina 2015);
- Teach about ‘nature’ as a resource (Kopnina 2012);
- View the environment is something to be valued as an entity outside of humans (Bell & Russell 2000).

Ultimately, the narrative emulating the idea that the Earth is something humans can ‘save’, through affirmations of human exceptionalism and supremacism, means that environmental education is limited through its ability or capacity to actively address and (re)story the cultural roots of socio-ecological crisis narratives (Bowers 2004).

2.5 Welcome to the Anthropocene

Welcome, welcome to the Anthropocene
Raccoon, coyote, house mouse, peregrine,
squirrel, red fox, Rattus norvegicus –
all you creatures who can live with us,
being sufficiently plastic to adapt
and thrive upon our handouts, urban crap,
suburban rubbish dumps and garbage cans.
Welcome Canada goose, taking your stand
(all five million of you) on our parks
and golf courses – you avian oligarchs
hissing at our dogs, dropping grey-green turds
on swathes of grass. You’re what we’ve deserved
after we’ve homogenized the landscape planet wide.

(Major 2018, p. 13)

In the story of our times, humans are identified as the most significant species, with nonhuman ‘Other(s)’ only valuable as a means to promote or enhance human interests (Braidotti 2013). These anthropocentric narratives, rooted in a humancentric logic, position the environment as an entity outside human control, suggesting that the environment is something that needs to be managed by humans if we are to have an ecological future. By using the phrase, ecological future, I am drawing on the call for action in 1987, as initiated by the World Commission on Environment and Development (WCED) through the *Brundtland report*, also known as *Our Common Future*. Illuminating the planet’s threatened future, in this report the WCED (1987) found grounds for hope, stating:

> people can cooperate to build a future that is more prosperous, more just, and more secure; that a new era of economic growth can be attained, one based on policies that sustain and expand the Earth’s resource base; and that the progress that some have known over the last century can be experienced by all in the years ahead. But for this to happen, we must understand better the symptoms of stress that confront us, we must identify the causes, and we must design new approaches to managing environmental resources and to sustaining human development. (n.p.)

This story of human exceptionalism and supremacism is largely reflected in the naming of the present-day geological epoch, and global movement, of the Anthropocene, superseding what was known as the Holocene. While this term might have been previously used within scientific circles, notions of the Anthropocene were taken up with popularity by earth systems scientists through globalising discourses at the turn of the 21st Century, as Eugene Stoermer and Paul Crutzen (n.d.) declared, ‘the Earth had recently crossed a threshold into a new epoch’ (International Geosphere-Biosphere Programme n.d.). Because of extensive human impact on planetary processes (Angus 2015; Crutzen 2002, 2005), the term Anthropocene:

> suggests that the Earth has now left its natural geological epoch, the present interglacial state called the Holocene. Human activities have become so pervasive and profound that they rival the great forces of Nature and are pushing the Earth into planetary terra incognita. (Steffen, Crutzen & McNeill 2007, p. 614)
Proposing that ‘overconsumptive and fossil-fuel-dependent human activities have permanently changed the planet’ (Taylor & Pacini-Ketchabaw 2015, p. 508), the Anthropocene crucially exemplifies the entangled nature of humans and the fate of the planet (Somerville & Green 2015).

As Braidotti (2013) and Haraway (2016) have pointed out, however, depictions of the Anthropocene are the height of human exceptionalism and supremacism. For example, Braidotti claimed, ‘The fact that our geological era is known as the ‘anthropocene’, stresses both the technologically mediated power acquired by anthropos and its potentially lethal consequences for everyone else’ (2013, p. 66). Haraway took up provocations of Gaia by James Lovelock, Lynn Marguilis, and Isabelle Stengers to understand the planet as a synergistic, self-regulating, complex system (autopoietic) maintaining the conditions of possibility for life. Arguing that ‘Gaia does not and could not care about human or other biological beings’ intentions or desires or needs, but Gaia puts into question our very existence’ (Haraway 2016, p. 44), Haraway illuminates a striking paradox. This paradox highlights how anthropocentric and humancentric thinking, disrupting, degrading, and destroying environmental systems, is ironically employed to remedy the damage done through the original exploits of anthropocentric and humancentric thinking.

Drawing upon the personalisation of Gaia as female, Haraway (2016) also contrasts Gaia against the ‘man plus tool’ narratives of the Anthropocene. Through its organisation of top-heavy bureaucracy setting humans apart from nonhumans through binary oppositions, Haraway views the Anthropocene as more of a boundary than an epoch (thus why I write these ‘Anthropocene times’, rather than the ‘Anthropocene epoch’ throughout this thesis). As Haraway wrote, ‘The Anthropocene marks severe discontinuities; what comes after will not be like what came before’
(2016, p. 100). Haraway’s statement highlights that these Anthropocene times suggest a critical juncture. While the planet might continue with or without us, the ecosystem and critter entanglements that we have become accustomed to may not, given the extent of ecological modification at the hands of the Anthropos. However, there are still opportunities to (re)story how we understand and relate with Gaia, in generating stories of hope about the kinds of futures that create/cultivate with ‘Other(s)’. To (re)orient the historically-situated, culturally located, and socially mediated story of binary logics towards these visions and actions of hope in understanding where we have come from, I provide a mapping (albeit a condensed version) of the archaeology (discourses producing subjects) and the genealogy (how subjectivities become realised through discourse) of binary logics.

2.6 Historically Situated Dualistic Thinking

Some scholars, namely Heesoon Bai (2009), and Sean Blenkinsop and Kieran Egan (2009) suggest that binary logics in Western knowing, being, thinking, and doing, can be traced back to Ancient Greek and Roman philosophy. In Ancient Greek philosophy, an example of binary logics is demonstrated in Plato’s Allegory of the Cave, as presented in Republic. In this allegory, Plato contends that thoughts were superior to the senses, drawing attention to the idea that knowledge only relates to absolute certainty and belief of what is and what is not. If knowledge is a justified true belief, therefore, then as humans follow rules that are established through concrete and visible truths, they are deemed virtuous. If humans do not follow rules as established through this all-encompassing truth, then they are not virtuous. Viewing the cosmos through truth, rationality, reason, idealism, and mathematical order (Braidotti 2011), Plato’s understanding of the world representing good/bad, truth/nontruth binary logics also suggests that humans are entrapped by social truths (realities) made for them. As Bai (2009) wrote:
we cannot be independent and critical thinking persons, when our senses and feelings are aroused and ready to do their trickery of distracting us from seeing and understanding things for what they really are, as well as distorting how they appear (p. 140)

Haraway (2008) also commented that binary logics were represented in *Genesis* 3:23–24. In God’s creation of the first nature park, he separated ‘light from dark, land from water, humans from animals, and man from woman, creating a pristine garden filled with everything man could need’ (Adsit-Morris 2017, p. 18). This was upheld through to the 13th Century, in which ‘nature’ was the essence of a thing that made it behave the way it did, denoting an essential quality and an innate character, meaning that ‘nature’ either was, or was not, but it was not both (Merchant 1980; Winter & Koger 2004).

By the 14th Century, ‘nature’ came to mean a vital or inherent force that directed the world of human beings, and self, society, and the cosmos were understood as interdependent (Greenwood 2005). It was in this time that the metaphor, ‘nurturing mother’ was adopted to describe the cosmos as female (Howell 1997; Merchant 1980). Because ‘nature’ was understood as wild, uncontrollable, violent, and chaotic, the appropriate response to was to control and tame her through civilising and colonising processes of the West (Wildcat 2005). As Theodore Roszak (2001) elaborated, by the 16th and 17th Centuries Francis Bacon’s descriptions of ‘nature’ revealed suspicion, distrust, and hostility, in that ‘Nature, always portrayed as female, became an elusive antagonist who must be vexed, prodded, tortured into confessing her secrets’ (p. 143). Bacon’s ‘New Philosophy’ within Scientific Revolutions contributed ‘to the creation of the disembedded and disembodied self and its attendant de-animated consciousness in the west’ (Bai 2009, p. 136) and as the work of God became more omnipresent, men became the lords and possessors of ‘nature’ (Greenwood 2005; Howell 1997). With mastery of ‘nature’ superseding respect for ‘nature’ and the rational mind superseding the feeling body, it was in this time that a separation of the thinking mind (humans) from the material world (‘nature’) was championed by
Rene Descartes. Emphasising the measurability and computations of mathematics as the purest form of reason, this signalled the beginning of Cartesian representational knowing in Western logics (Jickling 2009).

2.7 Problems with Cartesian Representational Knowing

In Cartesian representational knowing, knowledge is mediated through the thinking mind, producing an understanding of ‘reality’ as external, objective, foundational and stable. Purporting a separation between the subjective knower and an independent objective reality sets up binary logics between the ‘internal’ (the human subject) and the ‘external’ (the object of inquiry) (Barad 2007; St. Pierre 2014). This internal/external and subject/object break causes representational knowing to serve as a mediating function, which in turn, maintains a separation between two independently existing entities. In this sense, there is a tripartite division of the knowing subjectivity of the individual, representation (knowledge of/about the world), and reality (lived experiences in the world) (St. Pierre 2014). In Barad’s (2007) words, through Cartesian representational knowing, the knower (human representing), knowledge (representations of), and the known (what is represented) are separate and detached, rather than mutually imbricated, as notions of relational agency would suggest. Figure 2.7.1 depicts this tripartite division.

![Diagram](image.png)

**Figure 2.7.1 Representational knowing (Barad 2007)**

As set within anthropocentric and humancentric accounts of knowledge production, representational knowing exacerbates human exceptionalism and supremacism through its production of ‘grand narratives’. That is, failing to recognise how discursive structures work to
mediate truth claims and the pre-determined conceptions of knowledge production, representational knowing is irreducible to socio-cultural systems of dominant discourse (Rosiek & Gleason 2017). As Jickling (2009) argued, Cartesian representational knowing is so ‘deeply buried in cultural norms’ (p. 170) that it remains virtually invisible, illuminating the salience of posthumanist performativity and new materialism to disrupt pervasive and ongoing implications of binary logics in Cartesian representational knowing. This is because posthumanist performativity and new materialism, as set within the material-turn of social research, push ontological boundaries of Cartesian representational knowing. Challenging the idea of a discreet and separate human-knowing subject, posthumanist performativity and new materialism understand knowledge generation as relationally entangled between subject and object, producing new and different ways of knowing, being, thinking, and doing for/with/in these Anthropocene times.

Before I elaborate on how posthumanist performativity and new materialism can (re)configure binary logics in human/nonhuman relationships, I first map how environmental education has attended to, and understood, human/nonhuman relationships through lenses of critical theory and poststructuralism. This mapping has two purposes. First, it facilitates an inquiry into how environmental education research/practice has shifted from an emancipation focus on the individual (critical theory) to a linguistic focus on discursive structures housing the individual (poststructuralism) and then to a material focus on the individual with the collective (posthumanist performativity and new materialism). Second, this mapping simultaneously demonstrates important roots of posthumanist performativity and new materialism, particularly in poststructural deconstructivism, while also attending to the limitations of critical theory and poststructural deconstructivism. In this way, I ground the rationale for why posthumanist
performativity and new materialism are crucially important approaches to environmental education research for/with/in these Anthropocene times.

2.8 Understanding Human/Nonhuman Relationships in Critical Theory

An influential thesis centring upon the emancipation of the oppressed ‘Other(s)’, came from critical pedagogue Freire (1972) in his seminal work, Pedagogy of the Oppressed. In this body of work, Freire introduced theories of ‘conscientisation’, meaning that through critical reflexivity, an individual can learn to perceive social, political and economic contradictions, develop agential empowerment, and act against the oppressive elements of reality. As a critical pedagogue, Freire positioned himself deeply within the critical theory paradigm. This lens for viewing the world, originating from the Frankfurt school in the 1930s, seeks to expose the dominant status-quo, reveal societal injustices, and emancipate ‘Other(s)’. In giving a voice to the oppressed minority, critical theory in educational research today calls for equality, democracy, and emancipation (Cohen, Manion & Morrison 2007; Lather 2006). Inspired by Freire, other scholars coined the ecopedagogy movement, within a focus on the critical nature of sustainable environments, planetary citizenship, and the development of ecoliterate societies. For example, Richard Kahn and Brandy Humes (2009) took up ecopedagogy through an ecophenomenological lens, and in more posthumanist articulations Leesa Fawcett (2002, 2009) explored ‘liberatory education’, and Russell (2019) explored intersections of socio-ecological justice and animal liberation.

The development of ecoliterate societies in environmental education, in response to militant globalisation, imperialism, and neoliberalism, was also championed by David Orr (2004). In his powerful contributions to the environmental education field, Orr claimed that, ‘all education is environmental education’ (2004, p.13). Yet, Orr’s critical stance contended that the
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way students are taught will inevitably inform their worldview. That is, according to Orr, the depth and type of teaching in environmental education, will inevitably influence whether the learner conceives themselves as a part of, or apart from, ‘nature’. Such view acknowledges the production, application, circulation, and regulation of discursive practice, as it is mediated by, and in turn mediates educational processes towards normative practice.

Exposing the social effects of power in discourse, through an understanding of whose storylines are being made relevant and mobilised, whose interests are being served by these stories, and whose storylines have been eclipsed, Bowers (1996) also highlighted inherent tensions in environmental education pursuits of ecological literacy. In his interrogation of problematic dualist thinking in environmental education discursive practices, Bowers argued that ecological literacy has not been taken up with educational rigor, due to overarching pervasive cultural narratives representing ‘humans as separate from “nature’—as being in control of their own destiny regardless of how their actions degraded the environment’ (1996, n.p., my quotation marks) (i.e., through conceptions of the Anthropocene). This alludes to the idea that teaching is constructed and governed within a dominant discourse (for example, globalisation, neoliberalism, and capitalism), which is informed by, and further informs, the status quo and ‘naturalisation’ of educational practices (Ideland & Malmberg 2015; Zink 2004). These critiques of ecoliteracy foregrounds important ecocritical (Buell 1995, 1998; Oppermann 2011) perspectives. As Lawrence Buell (1998) wrote, ecocriticism:

has been energized by two chief ethico-political commitments: protection of the endangered natural world and recuperation of a sense of how human beings have been and might be imagined as (re)connected with it, notwithstanding the threat of the death of “nature” from industrialism and/or postmodernity. (p. 640, my quotation marks)

Ecocriticism, interested in the meaning of text and the environment in its attempts to restore agency to ‘nature’ in dismantling the significance of anthropocentric narratives to a more ecocentric worldview, warns that through dominant cultural modes, the environment will be
taught as a resource for human consumption and exploitation (Orr 2004). Therefore, when
attempts towards environmental literacy are inevitably derived from dominant cultural narratives
for producing environmental knowledge, akin to Buell’s (1998) ‘toxic narratives’, ecological
literacy in environmental education becomes limited in its capacity to (re)configure
human/nonhuman binaries.

Despite ecocritical concerns for how the environment might be marginalised and made
inferior through narratives of human exceptionalism and supremacism, ecocriticism, however, is
also problematic. Charged with dualistic epistemic practices, Serpil Oppermann (2013) argued
that traditional forms of ecocriticism have inadvertently maintained the human/nonhuman rift.
This is due to ecocritical critiques of discursive formulations of the environment, which do not
adequately account for material formulations (more on this later in discussion pertaining to
poststructural deconstructivism). An examination of the polarisation of strict binary discourses,
juxtaposed alongside the critique of globalisation, neoliberalism and capitalism promoting
hegemonic and institutionalised curricular models, has been critically taken up by Place-based
educators, namely Greenwood (2004, 2008ab), and Somerville along with Monica Green (2015).
In this sense, given the expansive commercialisation of the planet, the importance of localised,
Place-based inquiry has become more salient in environmental education (Stevenson 2008).

2.9 Place-based Education

Place-based education (PBE) is an experiential, hands-on, student-centred, and real-life
approach to teaching and learning (Knapp 2005). It can be traced back to Deweyan philosophy of
the 1930s, in which ‘experiencing a ‘lived connection’ with the world was depicted in Dewey’s
seminal work, Experience and Education. In his writings, Dewey (1997) called for a new,
progressive education, one that prioritised ‘the organic connection between education and
personal experience’ (p. 25). This brought forth experiential education as a pedagogic process infusing direct teaching and learning experiences with the immediate environment (Ford 1981; Higgins & Humberstone 1999; Kolb 1984).

Set within Leopold’s (1949) ‘land ethic’ suggesting that ‘we can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in’ (p. 214), PBE attends to Edward O. Wilson’s conceptions of biophilia, first coined in 1984. For Wilson, biophilia is an intimate attachment to our loyalties and deeper affinities for life, in that we tend to bond with, and love, what we grow to know well and have come to be familiar with (Orr 2004). Notions of biophilia in PBE have been taken up by Place-based educators, namely David Sobel (e.g., 1996), Molly Baker (e.g., 2005), and Richard Louv (e.g., 2008). For example, Sobel argued that, ‘What’s important is that children have an opportunity to bond with the natural world, to learn to love it and feel comfortable in it, before being asked to heal its wounds’ (1996, p. 10). Baker explored the concept, ‘landfullness’, to necessitate a rethinking of how a ‘sense of place’ can be generated in the face of technology substantiating disconnections with Place. And in his work, Last Child in the Woods, Louv warned that children today are experiencing a ‘nature deficit disorder’, arguing for increased attention to ‘nature’-based learning inquiry to cultivate an environmental consciousness and identity for the wellbeing of children.

Ultimately, pedagogical pursuits in contemporary conceptions of PBE aim to respond to the West’s metaphysical schizophrenia, as ‘a direct result of our disconnection, insulation, and isolation from the natural world’ (Wildcat 2005, p. 436). In this way, advocates for PBE draw upon burgeoning evidence suggesting that, ‘A direct causal relationship exists between pro-environmental activities and a personal link to the natural environment’ (Gray & Birrell 2015). As Somerville and Green (2015) commented:
It is only by knowing place in its ever-changing forms through thousands of such intimate moments that we can read a place, that we can know how a place is going, how well it is. It is only through knowing a place in those thousands of intimate moments that we can learn to love a place and have the knowledge to be able to take care of it. (p. xxi)

In this way, PBE emphasises a decentralised pedagogical approach to environmental quality, ecological restoration, and social justice through first-hand interactions with local bioregions. However, before delving into a discussion pertaining to how this is adopted by critical pedagogues in the environmental education field, I first identify important meanings of Place that I take up, and expand on, in this research.

### 2.9.1 Meaning(s) of Place

Doreen Massey (2006) defined Place as an open (rather than bounded) and ongoing production (rather than something pre-given) of ‘happenings’ that will again be dispersed. For Massey, Place was a meeting point comprised of spacio-temporal ‘events’; a ‘throwntogetherness’ of previously unrelated things in the coming together of unique trajectories that run through space (Pink 2009; Somerville & Green 2015; Taylor & Giugni 2012). In other words, Massey understood Place as a constellation of processes derived of a discursive (social) and material (earthly matter) coming together, rather than a static, fixed, settled point on a map. As such, because Massey conceived Place to be comprised of a heterogenous, relational, contingent, and active space, this means that dwelling-orientated studies in Place worked to generate a knowing of Place, as different from Place representing knowledge. Sarah Pink (2009) took up these ideas in suggesting the term, ‘emplacement’, in which Place-based experience accounts ‘for the relationship between bodies, minds, and the materiality and sensoriality of the environment’ (p. 4). This brings commensurate attention to the sensuous interrelationship between body-mind and environment.

In the environmental education field, Place, for Payne and co-author Brian Wattchow (2009) was merged into the hybrid term, ‘splace’, in the making visible of an ‘edge’, where
‘other’, the in-between, and often unknown, practices in ‘nature’ emerge. Through conscious dwelling and pausing in ‘splace’, the pedagogical gaze turns to the ‘wild primordiality of the body and how it is positioned and reflected in increasingly “cultured” versions of time, space, and nature’ (Payne & Wattchow 2009, p. 18, original quotation marks). Such critique of ‘bodies in culture’ was taken up by Braidotti (2013) and Somerville and Green (2015), given that definitions of Place are open, dynamic, and heterogenous, and thus, susceptible to power differentials within Eurocentric and settler hegemonies (Massey 2006). This illuminates inherent tensions within PBE, in that it is often set within middle-class, White, and Western privileges (Malone 2016). Looking for better ways of engaging environmental education to develop informed, skilled, and action-oriented citizenry towards responsible environmental behaviour (as previously stated as one of the key definitions of environmental education), Greenwood (2008a) proposed a ‘critical pedagogy of place’.

2.9.2 Critical Pedagogy of Place

Greenwood’s (2008a) ‘critical pedagogy of place’ in PBE was intentionally nonanthropocentric in its inclusion of a more robust focus on Land, the natural environment, and the nonhuman world. Yet, Greenwood still worked to attend to power relations manifesting in place, as the agenda of a ‘critical pedagogy of place’ was designed to develop the ability to recognise ways of thinking that exploit and injure people and place. Through notions of ‘ecological reinhabitation’, in which cultural knowledges are identified, affirmed, conserved, and created to nurture and protect people and ecosystems, a ‘critical pedagogy of place’ works to challenges assumptions, practices, and taken for granted outcomes in dominant cultural discourse of conventional education.
Despite Greenwood’s (2008a) attempts to highlight the direct influence of social and ecological wellbeing of places people inhabit, in giving less attention to socio-cultural aspects of Place, however, a ‘critical pedagogy of place’ was critiqued and problematised by environmental education scholars. For example, Chet Bowers (2008) initiated a live print debate, suggesting that a ‘critical pedagogy of place’ harboured underlying assumptions that perpetuate deep seated colonisation tactics. Charging a ‘critical pedagogy of place’ with universalising tendencies oriented to Western prejudices, Bowers argued that it failed to account for the contextualised and situated nature of diverse cultural practices throughout the world’s commons.

While Greenwood (2008b) later responded to critiques from Bowers, reasserting that a ‘critical pedagogy of place’ is, indeed, plural and diverse, claiming that, ‘Critical theory and critical pedagogy do not offer a singular, unified, or static set of perspectives’ (p. 338), the Greenwood-Bowers debate prompts the crucial imperative to challenge how Western theories of Place have been shaped and coloured by colonial and settler histories (Somerville & Green 2015; Tuck et al. 2014; Tuck & McKenzie 2015). As Eve Tuck alongside Ruben Gaztambide-Fernandez (2013) argued, ‘indeed invasion is a structure, not an event’ (p. 73), emphasising that settler colonialism is practiced at covering its tracks within an ongoing imperialist view, and pointing to Western ways of thinking about Place, as traced back to its colonial past (Somerville & Green 2015; Tuck et al. 2014). As Dolores Calderon (2014) claimed:

> While place-based education models emphasize community needs and engagement, they do not go far enough to promote decolonizing goals that should be included in any place-based education model interested in cultural and ecological sustainability’. (p. 26)

The idea that settler colonial histories and Indigenous claims to land are invisible in PBE (Tuck et al. 2014, p. 17), was also taken up by Fikile Nxumalo and Stacia Cedillo (2017), in their arguments that:

> While recent articulations of place-based education bring attention to settler colonialism and unsettle anthropocentricism…reconceptualizations of place-based education, despite recognition of Indigenous
claims to land, often serve to re-enact colonial relations to land through universalizing discourses such as reinhabitation that reinforce settler emplacement. (p. 102).

These critiques of PBE from various environmental education scholars signals the importance of expanding PBE’s focus on ecological sustainability and community, to include Indigenous communities, in that questions of sustainability are not only ecologically oriented, but also socially bound (Calderon 2014). As such, given a more robust focus on ecological and social aspects of inquiry, I depart from PBE, locating my research within important decolonising approaches of Land education. Although, as I will later explain, I also expand on decolonisation approaches taking up a postcolonial Land ethic through posthuman performativity and new materialism.

2.10 Decolonising Approaches of Land Education

While the meanings and processes of decolonisation is different for every person, Derrick Jensen (2009) described some common features of decolonisation as:

the process of breaking your identity with and loyalty to this culture – industrial capitalism, and more broadly civilization—and remembering your identification with and loyalty to the real physical world, including the land where you live. It means reexamining premises and stories the dominant culture handed down to you. It means seeing the harm the dominant culture does to other cultures, and to the planet. If you are a member of settler society, it means recognizing that you are living on stolen land and it means working to return that land to the humans whose blood has forever mixed with the soil. If you are an indigenous person it means never forgetting that your land was stolen, and it means working to repossess that land, and it means working to be repossessed by that land (p. 9).

In Calderon’s (2014) words, decolonisation is ‘uncovering how settler colonial projects are maintained and reproduced, with understandings of land being one of the primary ways such identities are formed’ (p. 28). In this way, Land education seeks to acknowledge conditions of settler colonialism, calling into question educational practices and theories that affirm settler occupation, and reasserting that ‘all places were once Indigenous lands and continue to be’ (Calderon 2014, p. 27).
Understanding that settler colonialism underpinning teaching (and learning) in environmental education is often covert and blurred (Bang et al. 2014), Land education actively works to re-centre Indigenous cosmologies. In this sense, it attends to the Indigenous position that ‘knowledge is not an exclusively human construction; but, must be an emergent property of life systems and environments’ (Wildcat 2005, p. 420). According to Calderon (2014), Land education facilitates the opportunity to ‘name realities and corresponding ideologies that are missing from mainstream educational research and current place-based education models’ (p.25). As such, while environmental education is a site of struggle through its contested meaning (Jickling 1997), it can also be a site of hope forming a nexus between understandings of Land and Indigenous futurity15 (Bang et al. 2014).

Land education also has the potential to attend to the conceptual ‘double bind’, identified by Bowers (2008) in his response to a ‘critical pedagogy of place’ arguing that critical pedagogues (within place-based education, and science/environmental oriented education) find in each other language that represents common interests. This inevitably leads to a contradiction, in that prejudices and silences are not questioned in the reconstruction of the ‘oppressed’ into the dominant model of the status quo. Alternatively, Bowers contended that pedagogical approaches need to mediate students to engage in:

thick descriptions of the differences between their experiences in various cultural commons activities and experiences in the industrial/consumer culture. The mediator, unlike the critical pedagogy-oriented teacher, does not set out to decolonize or emancipate students from the intergenerational knowledge and skills that the critical pedagogy theorist has relegated to the realm of silence or has prejudged as backward. Rather, it is to encourage students to identify and to give voice to their experiences in the various cultural commons in their community as well as the corresponding industrial/consumer activities. (2008 pp. 332-333)

This quote from Bowers demonstrates decolonisation strategies in environmental education to be more useful if understood through poststructural schools of thought that challenge structures

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15 Futurity is a term used in relation to the (re)configuring of a different temporal horizon to that of oppressions of the past (Tuck & Gaztambide-Fernandez 2013).
housing oppressive binaries. In this way, rather than an environmental education focus on individual emancipation (i.e., through critical theory), the focus turns to deconstructing socio-cultural narratives housed within dominant discourse.

### 2.11 Going Beyond Binary Oppositions: The Poststructural Turn of Antihumanism

Through social revolutions of feminism, decolonisation, anti-racism, anti-nuclear and pacifist movements of the 1960s, movements of antihumanism, in which a new generation of radical thinkers now known as poststructuralists, emerged (Braidotti 2013). As Braidotti articulated, ‘humanistic universalism, coupled with the social constructivist emphasis on the man-made [sic] and historically variable nature of social inequalities, [laid] the ground for a robust political ontology’ (2013, p. 20). This is because, in their critiques of discursive formulations, poststructuralists scrutinised and departed from binary constructions of agency versus structure (Barad 2007; Braidotti 2013). In this way, poststructuralism works to trouble the web of social structures housing discourse and working to oppress ‘Other(s)’ (i.e., the structural arrangements informing agency).

With the inception of Foucault’s, *The Order of Things* in 1970, and his announcement of the ‘death of Man’, the idea of ‘the human’ began to shift, and new understandings of human subjectivity were theorised (Braidotti 2013). What was targeted was, ‘the implicit Humanism of Marxism, more specifically the humanistic arrogance of continuing to place Man at the centre of world history’ (Braidotti 2013, p. 23). As such, poststructuralism is a shift in thinking from modernist, structural, humanist theories/discourses, to disrupt and dismantle concepts of language, discourse, knowledge, truth, reason, power, freedom, and the subject (St. Pierre 2000; Lather 2006). Challenging the strong and pervasive hegemonic influence of the positivist science paradigm, Foucault proposed that it is *discourse*, not the things in themselves (e.g., Freire’s
‘conscientisation’ through emancipation of the individual self) that produces knowledge, agency and power (Sikes & Gale 2006). These truth games became known as Foucault’s, ‘Regime of Truth’ (Foucault 1988). Moreover, proceeding the poststructuralist school of thought, led by thinkers such as Jacques Derrida, a deconstructive brand of social constructivism emerged, with a focus upon troubling and destabilising discursive, disciplining practices of power. This is important to my research, because in bringing commensurate attention to material forces in sense-making, I am simultaneously working to dismantle discursive structures of dominant discourse, redistributing ‘power’ in sense-making to be materially and discursively derived.

2.11.1 Poststructural Deconstructivism

Through the examination of semiotics (the study of signs and symbols within language and their interpretation and application to the world), Derrida’s deconstructive thinking was instrumental to poststructuralism, because it does not privilege knowing over being and gives up representational and binary logics. In this way, deconstructivism resists epistemological capture, shifting the position of the researcher from the powerful knower of object, to knowledge producer. This means that there is no one centre, but several simultaneous points of activity and valid roles (Lather 2006). Crucially, deconstructivism emphasises performance over formation. Therefore, my research was not interested in producing new knowledge of the world (i.e., through Cartesian representational knowing), exploring how myself, or my research ‘participants’ might understand the world through engaging with this research. Rather, my research was interested in generating sense-making with/through researcher/teacher performances of thinking/doing with/through environmental education.

(Re)Imagining and (re)inscribing what constitutes as ‘legitimate’ knowledge (St. Pierre 2000), in focusing on the relationship between the subject and ‘Otherness’, deconstructivism
challenges the idea of staunch individualism as substantiated by liberal thinking. This has been most famously taken up by feminists Helene Cixous (e.g., 1976), Luce Irigaray (e.g., 1985), and Judith Butler (e.g., 1993, 2007), and by ecofeminists Ariel Salleh (e.g., 1984, 1992, 1996), Val Plumwood (e.g., 1991, 2001), and Greta Gaard (e.g., 2011, 2015). For my research, this means that if individualism is constructed through discursive practices of language and cultural practices, then it can also be deconstructed to resemble a more relational (re)orientation (Braidotti 2009).

2.11.2 Ecofeminist Contributions

Stacy Alaimo and Susan Hekman (2008) suggested that the male/female dichotomy ‘informs all the dichotomies that ground Western thought: culture/“nature”, mind/body, subject/object, rational/emotional, and countless others’ (p. 2, my quotation marks). As such, in its capacity to teach nondualistic and non-hierarchical systems within dominant modes of thought (Howell 1997; Russell & Bell 1996), in critically acknowledging the systemic oppression of women and ‘nature’, some interpretations of ecofeminism argued that the connection between women and ‘nature’ needs to be prioritised, if there is going to be an ecological future (Howell 1997; Ilhaam 2009; Merchant 1980; Plumwood 1991; Warren 2000, 2002). However, towards the end of the 20th Century, ‘nature’ was a treacherous terrain for feminism as ecofeminism was charged with essentialism in claims that it equated all women with ‘nature’ (Alaimo & Hekman 2008; Gaard 2011).

In response, some ecofeminists exemplified that ecofeminism was not about gendered essentialism, within the biology of male and female, but a question of socio-cultural positioning emerging from historical perspectives. For example, Karen Warren (2002) proposed ‘strategic essentialism’, broadening the understanding of females as political actors, departing from
essentialised gender to take the historicity of the subjugation of women as a platform from which to enact socio-ecological change. And Gaard (2011) emphasised the importance of avoiding an ‘elite, apolitical retreat and individual salvation rather than inspiring engaged struggles for local, community-wide, and global eco-justice’ (p.38).

Ecofeminism has more recently re-emerged as an important philosophical lens to broaden the understanding of females as political actors within socio-ecological contexts, in reiterating ‘political risks in celebrating women’s association with caring (both as an ethic and a practice) and in reducing women’s ethico-political life to care’ (MacGregor 2004, p. 57). Through the situated politics of location, standpoint feminist theory has become an important lens, within notions of embodiment, to emphasise a more accurate analysis of power differentials (Braidotti 2011, 2013; Haraway 1988). In this way, ecofeminism seeks to liberate and reorient the either/or hierarchy, in giving an unfiltered ‘voice’ to ‘Other(s)’ (Russell 2005) through developing multi-voices and multi-centred discourses/narratives. Such polyvocal accounts, in which binary ‘either/or’ positions are being replaced by a ‘both/and’ logic (McKenzie 2005), mean that, ‘There is no general opening of the border; instead a contradiction (either/or) has been turned into a contrast (and, and)’ (Stengers 2005, p. 193).

Poststructural ecofeminism, therefore, is an important and useful strategy to attend to power differentials within human/nonhuman relationships, through its delinking of the human from universal posturing thus upholding ideas of ‘Otherness’ through dualistic thinking (e.g., human/nonhuman; Western/Indigenous; male/female) (Braidotti 2013). However, as it is steeped in humancentric narratives, poststructural ecofeminism is limited in its capacity to attend well to human/nonhuman binaries. Put differently, despite poststructural deconstructivism seeking to dismantle dualistic thinking, inadequacies within this school of thought lie within ideas of social
determinism, in that this perspective inadvertently perpetuates agency as solely human-centric.

According to Anne Bell and Constance Russell (2000):

> Critical pedagogy, even as inflected by certain poststructuralisms, tends to reinforce rather than subvert deep-seated humanist assumptions about humans and ‘nature’ by taking for granted the borders that define ‘nature’ as the devalued Other. (p. 188, my quotation marks)

Drawing upon the deconstruction of language in social constructivist theories, Alaimo and Hekman (2008) also argued that feminist theory and cultural studies have turned ‘to the discursive pole as the exclusive source of the constitution of “nature”, society, and reality’ (p. 2, my quotation marks). Subsequently, Alaimo and Hekman suggested that instead of deconstructing language/reality dichotomies, poststructural deconstructivism has embraced one side, and rejected the other. Emphasising subjective performances as negotiated by culturally inscribed models, in which identity is understood as something that can be chosen, we return to notions of a static, stable, fixed, and rigid identity and fall back into the very structures that poststructural deconstructivism is seeking to problematise (Braidotti 2009). Moreover, failing to bring commensurate attention to how questions of identity become linked ‘with the materiality of the body’ (Barad 2007, p. 63), ‘nature’ becomes a blank and silent resource for the exploits of culture.

Through posthumanist performativity, however, as subjective performances are not conducted by a wilful subject, in their choosing of any identity based upon their capacity to deconstruct ‘normal’ cultural protocol or discursive practices, ‘matter matters’ and has its own historicity (Barad 2003). Following this, contesting socially constructed narratives within discourse and the intensifying of human/nonhuman binaries, is understanding ‘nature’ (materiality) as a co-constructor with social (discursive) processes (Russell 2005). That is, matter is not opposed to culture but continuous with it (Barad 2007). In this way, I (re)turn to Russell’s (2005) articulations in Chapter One, in which she calls for environmental education to more
actively attend to the ‘voice’ of ‘nature’, bringing it in commensurate attention with the voice of the human. In attempting to justify why an ontological (re)orientation for environmental education research is important, I now explore the importance of ‘composing-with’ matter through posthumanist performativity and new materialism for/with/in these Anthropocene times.

2.12 ‘Composing-with’ Matter in the Anthropocene

As I explored in the ‘Welcome to the Anthropocene’ part of this chapter, affirmations of human exceptionalism and supremacism are at the root of 21st Century planetary socio-ecological crisis narratives (Braidotti 2013; Haraway 2016). In the call for an urgent (re)storying of how humans relate with Gaia, for Stengers (2017), this does not mean that we change as humans, facing Gaia ‘head on’, as if she (Gaia) needs protection through human engineering, but, that humans might understand Gaia as an intrusive maker and destroyer in its dynamic and complex composing of a living planet. Stengers stressed the destructive nature of capitalism through inhibiting the ‘collective capacity to think and act and imagine together’ (2017, p. 387), suggesting that struggling against Gaia makes no sense, ‘but it is a matter of learning to compose with her’ (2017, p. 387). According to Stengers, learning to compose with Gaia is refuting the idea that Gaia is imposing a correct way of acting in the world and rejecting the master story of guilt and responsibility, as inflicted by capitalist authoritarian disciplinary regimes. Yet, as I have discussed in this chapter, in additional to capitalist tensions, I also include globalisation and neoliberalism, as they diffuse and obscure local policies, practices, and knowledges, while also enacting a fervent focus on the empowerment of a detached and separate individual. For environmental education this results in an over-reliance on science, technology, and economic development, and the homogenisation and institutionalisation of local policies, practices, and knowledges in any given context.
Forming the inspiration for my research in opening to the conditions of possibility for a worldly (re)enchantment, ‘composing-with’ in these Anthropocene times attends to these pervasive and ongoing tensions, in its capacity to challenge master stories/grand narratives imbued within socio-ecological crisis narratives. As Haraway (2016) suggested, ‘our job is to make the Anthropocene as short/thin as possible and to cultivate with each other in every way imaginable epochs to come that can replenish refuge’ (p. 100). Bringing the unit of analysis to discursive and material forces comprising the relation between the individual and the broader ecology of the world, therefore, ‘composing-with’ is not changing as discreet, separate, and empowered humans, but our subjectivities and ways of knowing, being, thinking, and doing with the world are transformed through intraactions with ‘Other(s)’. As Jane Bennett (2010) articulated:

Such a newfound attentiveness to matter and its powers will not solve the problem of human exploitation or oppression, but it can inspire a greater sense of the extent to which all bodies are kin in the sense of inextricably enmeshed in a dense network of relations. (p. 13)

Following this, I identified posthumanist performativity and new materialism to be the most effective philosophical and methodological resources to enact this and attend to my research question. In exploring affects emerging from Researcher/Teacher/Environmental Education relationships in the (re)storying of human/nonhuman relationships, posthumanist performativity and new materialism understands world-making through relational co-constitutions. In this way, because posthumanist performativity and new materialism do not seek to emancipate humanist individuals with their unique ‘voices’ waiting to be set free (e.g., critical theory), but in challenging oppressive discursive structures (e.g., poststructuralism) and simultaneously attending the materiality of affect, they are useful philosophical and methodological approaches to explore the conditions of possibility for individuals to transform with the world.
How we might learn to compose-with through posthuman performativity and new materialism is explored next in Chapter Three. First however, returning to the idea that as you intraact with these stories you are relationally entangled with this research, to generate a practical understanding of how a dynamic, ongoing, continual, and reiterative sense-making with the world might unfold, on the next page I present my first provocation to you.
Research Inspiring: Provocation One

What might inspire you to a worldly (re)enchantment for/with/in these Anthropocene times?

To understand your response through affects emerging from intraacting with this provocation, I invite you to ponder, journal, draw, discuss, move with/through your ideas, thinking/doing these thoughts/actions with the world.
Cluster One: Research Inspiring
Chapters One and Two

Cluster Two: Research Performing
Chapter Three

Cluster Three: Research Understanding
Chapters Four, Five, Six, Seven

Cluster Four: Research Becoming
Chapter Eight

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Chapter Three: New Materialist Methodologies

Agential realism is not a manifesto, it does not take for granted that all is or will or can be made manifest. On the contrary, it is a call, a plea, a provocation, a cry, a passionate yearning for an appreciation of, attention to the tissue of ethicality that runs through the world.

Karen Barad (interview, cited in Dolphijn & van der Tuin 2012, p. 70)

3.1 Chapter Overview

The beginning of this chapter is a theoretical account explaining Barad’s (2007) agential realism within her conceptions of ethico-onto-epistemology and (re)configurations of time-space-mattering. I then discuss rhizomic orientations of knowledge, as theorised by Deleuze and Guattari (1987), to introduce important concepts in postqualitative research approaches of new materialist methodologies, namely, research assemblages, affect, lines of flight, territorialisation/de-territorialisation/re-territorialisation, and research apparatuses. Exploring the Researcher/Teacher/Environmental Education Worlds as the assemblage of relations in this research, I highlight the research apparatuses (typically understood as ‘methods’ in quantitative and qualitative research, in that apparatuses act as boundary-making practices for ‘data collection’) and introduce Lily as my teacher collaborator. At the end of this chapter, I explore cartographic, diffractive, storytelling approaches, adopted as ways to understand the intraactions in, and between, Researcher/Teacher/Environmental Education Worlds (typically understood as forms of ‘analysis’ ‘interpretation’ and ‘findings’ in quantitative and qualitative research).

3.2 Agential realism: Ethico- Onto- Epistemological (Re) Orientations

Opposing classical Newtonian\textsuperscript{16} physics, in which divisions separate everything and ideas of continuity suggest that effects follow their causes within determinist parametres, Barad’s

\textsuperscript{16} While Barad (2017) acknowledged that thick histories pertaining to voyagers of discovery by European settlers to non-European sites of settlement was more complex and layered, she wrote, ‘Newtonian physics helped consolidate and give scientific credence to colonialist endeavors to make claims on lands that were said to be devoid of persons in possession of culture and reason’ (p. 77).
(2007) ethico-onto-epistemology takes up Niels Bohr’s philosophy of physics. Drawing upon Bohr’s critiques of binaries of difference in the early-mid 20th Century and his associated complementary theories, Barad explored the principle of position-momentum indeterminacy, in that it is impossible to know position and momentum (of matter) simultaneously, because there are no determinate values of position and momentum simultaneously. Following this, Barad theorised that there are no inherent, stable, and fixed attributes of objects, but rather objects are co-constituted through relational properties.

Barad’s agential realism emerged from this idea, as “distinct” agencies are only distinct in a relational, not an absolute, sense, that is, agencies are only distinct in relation to their mutual entanglements; they don’t exist as individual elements’ (p. 33, original quotation marks). Giving rise to the idea of intraaction, as different from the usual interaction, which assumes two separate individual agencies, this (re)orients ontological assumptions, and makes a point about the nature of reality, not just our knowledge of it. According to Barad:

Phenomena do not merely mark the epistemological inseparability of observer and observed, or the results of measurements; rather, phenomena are the ontological inseparability of agentially intraacting components. (2007, p. 33)

Ontologies conceiving object and subject as mutually constituted, relationally distinct, and not existing as separate individual elements, problematises deeply rooted structures of dualistic thinking, because:

there is no such thing as a discreet individual with its own roster of properties. In fact, the ‘other’ – the constitutively excluded – is always already within: the very notion of the ‘self’ is a troubling of the interior/exterior distinction. Matter in the indeterminacy of its being un/does identity and unsettles the very foundations of non/being. Together with Derrida, we might then say, ‘Identity… can only affirm itself as identity to itself by opening itself to the hospitality of a difference from itself or of a difference with itself. (Barad 2017, p. 80)

Considering the nature of being and the basic categories of existence as nondualistic (St. Pierre, Jackson & Mazzei 2016), generating new knowledge, therefore, escapes binaries to be conceived through continuums and multiplicities, ‘Zigzagging through networks of difference in a non-
hierarchical manner’ (Lather 2013, p. 639). That is, in the classical model of empiricism (about knowledge), knowledge is legitimised through a discursive sense-experience (St. Pierre et al. 2016). For example, drawing upon the Cartesian subject, discursive structures work to constrain and discipline what counts as ‘normal’, ‘correct’, ‘viable’, restricting how the world ‘out there’ is understood (St. Pierre 2014).

Working in, and against, normalising discourses of anthropocentric and humancentric knowledge production, however, I consider dynamic, ongoing, continual, and reiterative human intraactions with *matter* (discursive/material intraactions), so that matter becomes entangled in the generating of knowledge (Coole & Frost 2010). In this sense, empiricism changes to include the agency of matter and the classical division between ontology and epistemology breaks down (St. Pierre et al. 2016). Emphasising nondualistic processes of knowledge production taking leave of categories and classifications viewing the ‘knower’ as separate and detached from ‘knowledge’ and ‘known’ (i.e., through Cartesian representational knowing), Barad (2007) conceptualises this as an ethico-onto-epistemology. According to Barad:

> knowing is a matter of part of the world making itself intelligible to another part. Practices of knowing and being are not isolable; they are mutually implicated. We don’t obtain knowledge by standing outside the world; we know because we are of the world. We are part of the world in its differential becoming. The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse. (Barad 2007, p. 185)

Understanding that differences are formed through intraactivity, in that intraactivity enacts agential separability (Barad 2007), it is, therefore, impossible to remove and disconnect oneself from the world that we are situated and embedded in. Given that we are co-creating and co-constituting our lived realities *with* the world, realism ‘is not about representations of an independent reality but about the real consequences, interventions, creative possibilities, and responsibilities of intraacting within and as part of the world’ (Barad 2007, p. 37).
Barad’s (2007) agential realism, within ethico-onto-epistemological (re)orientations, is crucial to this research, because if it is impossible to extricate oneself from a co-constituted world, then it follows that there has never been a separation of humans from the world in which we live (Barad 2007; Kirby & Wilson 2011; Malone 2016). Moreover, if our worlds are co-constituted, then as the ‘ethico’ in ethico-onto-epistemology implies, there is a grounded, lived, embodied, and embedded sense of responsibility and accountability to the kinds of worlds that are co-constituted. It therefore follows that given the grounded, lived, embodied, and embedded nature of co-constituted worlds, responsibility and accountability for socio-ecological wellbeing are not just ethical principles, but practices of knowing, being, thinking, and doing. As such, I take up Haraway’s (2016) term, ‘response-ability’ or ‘response-able’ to account for responsibility and accountability through a grounded, lived, embodied, and embedded practice in the (re)storying of human/nonhuman relationships.

3.3 Time-Space-Matter (Re)Configurations of a Rhizomic Research Assemblage

From classical Newtonian perspectives, how we orient ourselves within the world has involved an understanding of how space and time defines us. Space has been known as a ‘container’, or the map-making process that locates us within specific coordinates in relation to the world. Similarly, time has been conceived to march along as a succession of evenly spaced individual moments, as an external parameter backgrounding the human experience. Typically, time has taken on a trajectory of continuous fashion, in which there is an origin (a beginning), and a completion (an end). Within the ethico-onto-epistemological (re)orientations of this research, however, affect, force, and movement travel in all directions, in which phenomena are dynamically ‘diffracted and temporally and spatially distributed across multiple times and spaces’ (Dolphijn & van der Tuin 2012, p. 68). In this research, therefore, as time and space are
enfolded (enclosed together) within matter’s dynamic, ongoing, continual, and reiterative becoming, I focus upon knowledge production (sense-making with the world) and new theoretical conceptions, rather than on knowledge construction (knowledge acquisition of the world) and theoretical definition (Hughes & Lury 2013).

To work with the nonlinear and non-hierarchical nature of knowledge production, my Researcher/Teacher/Environmental Education World research assemblage was developed thinking-with/through Deleuze and Guattari’s (1987) conceptions of a rhizome. Denoting a complex configuration of an underground system of roots, the rhizome, according to Deleuze and Guattari (1987) resembled principles of:

- **Asignifying rupture:** ‘asignifying’ means that it does not signify language/semiotics, working to disrupt representational knowing in that there is no central point of reference to what the language/semiotics means. As language/semiotics don’t make meaning by themselves through asignifying, language/semiotics cannot be eradicated and replaced, in the same way that a rhizome cannot be broken or shattered. Rather, language/semiotics, and the rhizome, start up again on a new line, or return to an old line, affirming interconnection and growth. This is what I mean by ‘changing the story in environmental education’, not discarding or eradicating old stories, but expanding on them in taking up new and different stories for/with/in these Anthropocene times;

- **Cartography:** a rhizome is a map, in that it is oriented through experimentation with the real in its portrayal of a visual relationship of connections between fields;

- **Connection:** any point of a rhizome could connect to another with multiple entry-ways.

This means that sense-making is not linear, but messy, dynamic, contextual, and
complex, changing directions as new and different intraactions generate new and different affects;

- **Decalcomania**: a rhizome (re)forms through continuous negotiation with its situated context. Through its adaptation properties of experimentation, it actively resists rigid organisation and restriction. Like ‘connection’, as new and different intraactions generate new and different affects, sense-making transforms with the world in a dynamic, ongoing, continual, and reiterative unfolding;

- **Heterogeneity**: as a rhizome is diverse in character, it does not close in on itself through static, stable, fixed, and rigid representations, but it changes form through dynamic, ongoing, continual, and reiterative unfolding with the world;

- **Multiplicity**: a rhizome is not a unit to be measured, but produces varieties of measurement through its dynamic directions in motion. This helps me to challenge a static, stable, fixed, and rigid identity, taking up nomadic multiplicities of subjectivities in acknowledging that we transform through dynamic, ongoing, continual, and reiterative unfolding with the world.

Taking up Deleuze and Guattari’s rhizomic principles, my research assemblage worked to produce new knowledge through the coming together of different kinds of entities, comprising relational networks. Designed to understand how human subjectivity accounts for the relationships with materiality/discursivities in environmental education, my research assemblage was not interested in the ‘practices that produce distinctions between human and nonhuman but the practices through which their differentiated constitution is produced’ (Barad 2007, p. 59, original emphasis). In other words, although methodological approaches in my research could be deemed ethnographic (the systematic study of people and cultures), thinking/doing-with/through
a rhizomic research assemblage, methodologies were designed to garner evidence pertaining to how Researcher/Teacher/Environmental Education Worlds were relationally situated and materially/discursively co-constituted.

My research assemblage, therefore, did not seek to represent subjective perspectives of the world, within a static, stable, fixed, and rigid state of being, in which agency belongs to an individual entity in, and of, itself. That is, my research assemblage was not an instrumental focus on an individual’s ideas, action and feelings, ‘which assumes autonomous human subjects as starting points for knowledge production and the focus of attention for data production and analysis’ (Gough, N 2015, p. 159). Rather, my research assemblage was interested in how relational networks affect and are affected (Fox & Alldred 2015). This is a focused attention ‘on the generative significance of relations’ (Hughes & Lury 2013, p. 790), the connections/divisions and the sameness/differences between relationships (Haraway 1988; Malone 2016). As Dianne Mulcahy (2006) wrote, assemblages ‘direct attention to the many, diverse and contesting actors, agencies and practices through which human subjects and material objects take form’ (p. 85, original emphasis). Acknowledging the intraacting implications of subjects and objects through a rhizomic entanglement meant that there were no discreet and separate subjects or objects in my research (Haraway 1988). Through a rhizomic research assemblage, therefore, I included both humans (and associated socially formed discursive practices), and matter (the materiality of the world, including nonhuman animals/machines/texts). In Figure 3.3.1, I show the mapping of relational networks of Researcher/Teacher/Environmental Education Worlds.
Figure 3.3.1 Rhizomic research assemblage of Researcher/Teacher/Environmental Education Worlds
3.3.1 Affect: Lines of Flight (Re)Composing Territory

Zigzagging through Figure 3.3.1, I show how my research assemblage was organised by rhizomic ‘lines of flight’ (affect). These lines of flight (affect) gave my research assemblage ‘form, stability, and relative fixity’ (Mulcahy 2016, p. 85). This is because they worked to stabilise and/or destabilise the research assemblage, in that affects emerging from intraactions worked to ‘affirm’ and/or ‘disrupt’ discursive structures within the situated context of this research assemblage. In this way, assemblages could also be understood as ‘territories’. As affects emerge through territories in flux, assemblages are continually and reiteratively (re)composing through processes of territorialisation/de-territorialisation/re-territorialisation.

Territorialisation refers to how normalising worldviews are generated and how a ‘natural’ order to knowing, thinking, being, and doing is formed (Mulcahy 2016). For example, enacting certain types of teaching practices in environmental education and having them taken up as a ‘normal’ regular practice through the disciplining effects of discursive structures and dominant discourse. In this sense, the territory is ‘claimed’. De-territorialisation, according to Deleuze and Guattari (1987), ‘is the movement by which “one” leaves the territory…carried off by other types of assemblages’ (pp. 508-509, original quotation marks) to form new assemblages. An example of de-territorialising is to enact certain types of teaching practices in environmental education that break away from imposed order and create new worlds comprising different types and forms of teaching practices. It is also important to keep in mind that these new ideals might be later rejected/challenged/disrupted through a dynamic, ongoing, continual, and reiterative unfolding of new lines of flight (affects) working to further territorialise/de-territorialise/re-territorialise new worlds. As an ‘obstruction’ in a line of flight, re-territorialisation goes hand in hand with de-territorialisation, in its reiterative and dynamic (re)composing of territory and the formation of new assemblages (Deleuze & Guattari 1987; Mulcahy 2016). For example, as the
body is ‘marked’ through affects emerging from any given intraaction, there is opportunity for moments of rupture to (re)compose territories. Following this, as my research assemblage becomes territorialised/de-territorialised/re-territorialised by affects emerging from intraactions within, and between, the Researcher/Teacher/Environmental Education Worlds, there were possibilities for ‘being-acting-feeling-together’ (Lather 2013). This philosophically oriented me to the co-production of knowledge (Senior & Moss 2015), in which sense-making unfolded with the world (Fox & Alldred 2015).

3.3.2 Research Apparatuses

As depicted in Figure 3.3.1, each assemblage offered events to be researched, which is understood as a research apparatus in new materialist methodologies (Fox & Alldred 2015). According to Barad (2007), ‘apparatuses are the material conditions of possibility and impossibility of mattering; they enact what matters and what is excluded from mattering’ (p. 148), meaning they are boundary-making practices in research, working to identify specific ‘methods’ used. Apparatuses do not probe the socio-material context towards a deterministic outcome, but they are the various, plural, and diverging characters of material/discursive practices within any given context. Given attention to materiality in the apparatus, in which the focus is on how the body is ‘marked’ with affect, apparatuses are perpetually open to rearrangements, re-articulations, and other reworkings, in their continual and dynamic unfolding of phenomena (time-space-mattering) (Barad 2007; Lenz Taguchi & Palmer 2013).

Because there are no defining boundaries between temporal, spatial, and material beginnings and endings, therefore the human subject (myself as the researcher) is not independently outside any given apparatus intervening in its workings (Barad 2007). This would resemble a Cartesian representational approach to knowing, in which the knower (me) stands at a
distance from what is to become known (teaching practices in environmental education),
maintaining subject/object binary logics. Rather, as Barad (2007) wrote:

humans do not merely assemble different apparatuses for satisfying particular knowledge projects; humans
are part of the configuration or ongoing reconfiguration of the world – that is they/we too are phenomena.
In other words, humans (like other parts of ‘nature’) are of the world, not in the world, and surely not
outside of it looking in. (p. 206, my quotation marks).

In other words, an apparatus is not an assemblage of human and nonhumans, but involves
specific, contingent, situated, and open-ended intraactions between humans and nonhumans.
Given that the idea of a research apparatus proposes that I am entangled with practices of
research, I am consequently written into this research (Mazzei 2016). I take this up through
conceptualisations of the Researcher World as relationally entangled with the Teacher and
Environmental Education Worlds.

3.4 Researcher World

Patricia Clough (2002) argued that we do not, ‘come innocent to a research task, or a
situation of events; rather we situate these events not merely in the institutional meanings which
our profession provides, but also constitute them as an expression of ourselves’ (p.17).
Understanding my worldview, and personal beliefs, values, and attitudes, derived from my
subjectivities as an Australian/30-something/White/Western/female/backpacker/environmental
education researcher/environmental activist coming into this research, it was important to
explore how this was implicated in my research endeavours. In this way, as I contemplated my
journey from Australia to Canada and intraactions with humans/nonhumans (people and Land) in
my new Saskatchewan home, my sense of self was continually and reiteratively co-constituted in
a dynamic and ongoing (re)configuration of nomadic multiplicities of subjectivities (Braidotti
2011).
3.4.1 Researcher World Research Apparatus

The Researcher World Research Apparatus did not have any pre-defined ‘data collection’ methods set out. Rather, working to identify moments of amazement, wonder, and delight, I immersed myself in the day-to-day unfolding of events in my researcher life in the months leading up to meetings with my teacher collaborator. This was acknowledging that affect cannot be forecasted, as it is a not a hypothesis generated from a pre-determined cause and effect; but, as Somerville (2007) articulated, affect emerges from the in-between space of dynamic complex systems. Further, this was not a vague, unplanned, dismissive approach to this apparatus, but an openness to how incidental and/or sensational moments might leave traces and ‘mark’ my body in affect through a dynamic, ongoing, continual, and reiterative co-constituted unfolding of sense-making.

There was some nervousness and anxiety in this approach, attributed to the idea that I was unmoored from planning structures and frameworks, and step-by-step procedures of ‘finding something out’. Yet, looking for the potential in events was also liberating and exciting, in that remaining vigilantly open, knowing that in any moment, affect could move and inspire me through my worldly intraactions (Braidotti 2013; Massumi 2015). Further, these events did not have to be ‘positive’ intraactions, as I was consciously working to challenge positive/negative binary logics. In remaining open to all events, in their potential to generate any affect, I appreciated that the positive/negative spectrum would inspire new understandings/new worlds/new assemblages in any sense. It was indifference that I was wary of (Jones & Hoskins 2016), as indifference cordons the ‘practice of being open and attentive to the vital forces that shape our becoming-withs’ (Adsit-Morris 2017, pp. 51-52).
3.5 Teacher World: Researcher/Teacher Collaboration

Through professional contacts, one elementary school teacher, Lily, was invited to collaborate in this research. As a Grade 4/5 teacher in Saskatchewan, Canada, Lily expressed keen interest in my research, given that her teaching philosophy was self-proclaimed as focused on relationality, civic engagement, and decolonising approaches to education through a First Nations’ epistemological lens. There were no exclusionary parameters regarding the invitation for Lily to be a teacher collaborator in this research, because I was interested in affects emerging from teaching interactions, and not how teachers implemented age appropriate pedagogies (as prescribed by curriculum). In this way, my research was not exclusively seeking to select a teacher of specific learning age, because relational teaching and learning is something that is relevant to any teacher, irrespective of their student’s age or developmental stage. Moreover, as it was important that I attended to this research within a contextualised and situated emplacement (Haraway 1988), one teacher collaborator was chosen. In this way, I acknowledged that working with one teacher collaborator would facilitate a meaningful and relevant researcher/teacher relational engagement.

3.5.1 Meet Lily

Lily’s environmental teaching philosophy typically prioritised a holistic, systemic, and ecological integration of interdisciplinary approaches to environmental education, through project, inquiry-based practices. Her vision was to create a community of learners that included the people and Land of Saskatchewan. Lily’s self-written bio is presented in Figure 3.5.1.1.
Chapter Three: New Materialist Methodologies

Lily’s Bio

Having spent twenty some years working with children, I have found a pathway that I feel is best practice for student’s learning. My education includes a Masters in Curriculum Studies and new learning in Place-based Education and learning strategies to support students who have experienced trauma. I believe that connecting to the land and authentic experience connects students to deeper levels of understanding and accomplishment. It engages learners to find places and spaces to focus on enhancing meaning and understanding with all aspects of their learning abilities. I also use what I am being taught through indigenous ways of knowing to enhance learning connections to people and land of Saskatchewan and beyond.

Figure 3.5.1.1 Meet Lily

3.5.2 Teacher World Research Apparatus

The Teacher World Research Apparatus extended over a one-year period (April 2017–April 2018) and included three, sixty to ninety-minute meetings with Lily: twice in April 2017, and once in March 2018 respectively. It is important to note that I used terms such as ‘meetings’ (with my teacher collaborator) instead of ‘interviews’. This was because new materialist methodologies understand traditional interviews work to constrain and discipline sense-making, as language works to ‘normalise’ difference in any given experience in its privileging of least differentiated from the most differentiated, the regular from the singular, and the ordinary from the remarkable (Kuntz & Presnall 2012). As such, this apparatus was designed to understand both productive (potentia) and restrictive (potestas) forces (Braidotti 2013), implicating how environmental education was understood and practiced by Lily.
While I came to the researcher/teacher collaboration meetings with specific questions in mind\(^\text{17}\), these acted more as a provocation for open-ended conversation, rather than as a rule determining how the dialogue would/should unfold. In this way, I worked with Eileen Honan’s (2014) descriptions of ‘method as messy’, in that ‘the nature of linguistic interactions between two people, can and always/already are disrupted and challenged by the relations and movements in any particular moment’ (p. 3). Using the idea of provocations in these meetings, I sought to elicit historical accounts of Lily’s childhood encounters with Land, how her conceptions and practices of environmental education (as mapped against Saskatchewan curriculum policy mandates), conceptions of how we (as a researcher/teacher) could enact ideas of relational agency (engaging with Lily’s environmental education teaching philosophy), and how Lily might take up the researcher/teacher enactments in future environmental education-type teaching practices.

Provocations sought to elicit thick descriptions as conceived by anthropologist Clifford Geertz, or thick meanings in Haraway’s (2004) terms. According to Bowers (2008), thick descriptions ‘involves examining the history of prior relationships, issues of gender and class, personal biography and all the other background cultural patterns’ (p. 330) that may influence particular messages. This inquiry into socio-cultural accounts is acknowledging that teaching is a dynamic process, informed and influenced by the web of structure undergirding social performance in any given context. Drawing upon Haraway’s thick meanings, I sought to generate layered, messy meanings of Lily’s narratives, which are multimodal, multidisciplinary, and historically situated in their translation. The outcomes of these conversations with Lily were not to produce static definitions, but as her stories were gathered they helped to inform my

\(^{17}\) Meeting provocations can be found in ‘Appendix A: Meeting Provocations’. 
understanding of how her teacher subjectivities were implicated in the relational orientations of our researcher/teacher collaboration and subsequent researcher/teacher enactments (Adsit-Morris 2017).

3.5.2.1 Historical accounts

In my first meeting with Lily in early April 2017, I sought to understand how Lily came to environmental education in her professional teaching endeavours. Provocations in these meetings worked to elicit Lily’s articulations of art, illustration, and storytelling, seeking to immerse her within an ecocentric sense of self. Lily was invited to draw the Land where she grew up, to provide narratives regarding any emotional responses that she could recall through engagement with these places, to comment upon any significant role models influencing her ‘nature’-based immersion, and, whether these experiences might have worked to inform her environmental education-type teaching practices.

3.5.2.2 Mapping Conceptions and Practices of Environmental Education

In the second meeting with Lily in late April 2017, provocations involved an inquiry into how she conceived of and practiced environmental education as set against Saskatchewan curriculum policy mandates, how these teaching practices were taken up by her students, and, whether there were any limitations to these practices. These provocations were designed to elicit an understanding of how curriculum might constrain and discipline and/or empower and affirm environmental education-type teaching practices. In the latter part of this meeting and negotiated further through email correspondence, Lily and I discussed what relational teaching practices might look like in the context of her classroom. As such, through meetings and conversations in the researcher/teacher collaboration, we generated four researcher/teacher enactments, called: ‘Mindful Walking’, ‘Mapping Worlds’, ‘Photographic Encounters’, and ‘Eco-Art Installation’ (I
go into more detail of these researcher/teacher enactments in 3.6 of this chapter, Environmental Education World: Researcher/Teacher Enactments).

3.5.2.3 The Potential for the Future

In my final meeting with Lily in March 2018, provocations referred to relational teaching practices that were taken up through the four researcher/teacher enactments, extending from May 2017 to February 2018. In this meeting, I was interested in how the researcher/teacher enactments might have differed from what Lily had conceived environmental education to be about in the past. I also inquired whether this type of teaching might influence how she might take up environmental education-type teaching practices in the future, reflecting upon student engagement, significant occurrences, and implications for teaching practices. Finally, I inquired as to whether the researcher/teacher enactments addressed Saskatchewan curriculum policy mandates and whether they could be further taken up as a whole-school approach in Lily’s school. Discussion in this meeting segued into how Lily understood ideas of ‘more-than-human worlds’ and how her relationship with Land developed as we engaged with this concept/term in the researcher/teacher enactments.

3.6 Environmental Education World: Researcher/Teacher Enactments

Forming the inspiration for my doctoral studies, I was interested in understanding how dominant narratives might confine and limit the way teachers practiced environmental education. As such, I was driven to disrupt settled concepts and theories and destabilise essential meanings regarding who teachers ‘are’ or their ‘practice’ (Sellers & Gough, N 2010). I came to this assemblage, therefore, saddled with some preconceptions regarding how normative definitions of environmental education might inform certain types of teaching practices. Namely, anthropocentric and humancentric notions of agency, culminating in a policy-driven discourse of
instrumentalist, technicist, and mechanistic teaching practices within sustainable development goals. Thinking/doing-with/through a philosophical lens of posthumanist performativity and a methodological approach of new materialism, therefore, to trouble human exceptionalism and supremacism in environmental education, I asked Lily how these ideas might evolve in the context of her Grade 4/5 class.

Through my initial teacher meetings with Lily, I acknowledged some important synergies within our overarching teaching philosophies, in which we were both passionate about the development of the whole-child through multisensory-oriented pedagogies, working to foster meaningful connections to the local community, including Land. Therefore, pursuing a vital and vibrant ‘touching’, ‘listening’, ‘feeling’, and ‘living’ with Land, the result of the researcher/teacher collaboration was the co-designing and co-implementation of a series of multisensory researcher/teacher enactments with her Grade 4/5 class. Within this, the researcher/teacher enactments were a threading of both of our environmental educational philosophies.

3.6.1 Environmental Education World Research Apparatus

As previously mentioned, the researcher/teacher enactments were implemented over a nine-month period from May 2017 to February 2018. Therefore, given that the Canadian school year extends from September through to June, with summer holidays in July and August, engagement with students extended partially over two school years: May to June 2017 with one Grade 4/5 cohort, and then September 2017 to February 2018 with a different Grade 4/5 cohort. Reiterating that the project of this research was to explore affects emerging from researcher/teacher/environmental education intraactions, the fact that we worked with two different student cohorts from year-to-year was inconsequential. As such, I was open to the
possibility of researcher/teacher stories attending to unique learning needs within each cohort over the two school years, yet this would be *incidental* in the Environmental Education World Research Apparatus.

The Environmental Education World Research Apparatus emerged through researcher/teacher interactions in the second researcher/teacher meeting in late April 2017 and as previously stated, was further developed through ongoing email correspondence. As Lily and I explored how we could develop teaching strategies set within ideas of relationality, I acknowledged the researcher/teacher enactments carried affective traces from the past (Renold & Ivinson 2014), in that the past will inevitably inform and influence present-day approaches to environmental education-type teaching practices. For example, I brought with me some pedagogical approaches incorporated from my Masters research into my conversations with Lily, and through the research/teacher interactions, these pedagogical approaches transformed in relation to the situated context of the researcher/teacher enactments. In my Masters research, I focused upon the role of mindfulness practice in a 5-day outdoor education expedition to prompt a more meaningful environmental ethic and sense of student connection to ‘nature’. However, given that I was interested in understanding relational practices of teaching in my doctoral research in bringing commensurate attention to matter, it was important to ground the researcher/teacher enactments within a material and tactile experience with Land. For this reason, rather than a practice of mindfulness that worked towards a sense of earthly transcendence, I deliberately proposed approaches to mindfulness to be set within a focus on dynamic movement, in which students could focus upon material interactions with the Land. For example, rather than the focus of mindfulness being on the internal functioning of any given individual, our approach to mindfulness in this situated context involved an exploration of how
any given individual’s feet felt *with* the Land with every step. These ideas were taken up with enthusiasm by Lily, given that so many examples of her environmental education-type teaching practices worked to facilitate a quiet engagement with Land. Hence, the first researcher/teacher enactment, ‘Mindful Walking’, was conceived.

I introduced the second, third, and fourth researcher/teacher enactments, ‘Mapping Worlds’, ‘Photographic Encounters’, and ‘Eco-Art Installation’ to Lily, as I had previously encountered these relational type approaches to teaching (and learning) at various educational conferences. As I had experienced them through the teachings of colleagues, I was interested in how they might also be taken up within an actual school/classroom environment. However, like ‘Mindful Walking’, in which this type of teaching strategy was analogous to what Lily might have already engaged with in her teaching, it could also be said that the purpose and intentions of the second, third, and fourth researcher/teacher enactments were very similar to environmental education-type teaching practices that Lily had already prioritised. While I typically instigated the general ideas relating to the researcher/teacher enactments, although led by Lily, the researcher/teacher enactments were co-implemented by both of us. The only exception was ‘Photographic Encounters’, which I implemented on my own. This was because ‘Photographic Encounters’ was part of a larger fieldtrip where student groups revolved around three different educational leaders (Lily, myself, and a local ecologist).

It is important to note that the Environmental Education World Research Apparatus continually changed shape and form, right until the moment of, and throughout, implementation. This is because Lily and I both understood the messy, dynamic, contextual, and contingent nature of teaching, and therefore agreed that we would remain flexible and open to how these researcher/teacher enactments might unfold in the moment of teaching. That is, while we had a
general plan for teaching prompts that would initiate learning activities, in also attending to relevant Saskatchewan curriculum policy mandates, teaching prompts were initiated in the moment of teaching. Like the two research apparatuses, Researcher World and Teacher World, this was not a dismissive and ignorant act negating the importance of planning and preparation towards a thorough and well-thought out teaching practice (also managing physical, emotional, psychological, spiritual, and social risk factors). Rather, we aimed to stimulate a sense of dynamic openness and flexibility to the researcher/teacher enactments, understanding the constituency of contextual and situational affordances in the indoor/outdoor classroom. The apparatus for the Environmental Education World is included in Table 3.6.1.1 (a more detailed description of these core curricular and cross-curricular competences will be provided in Chapter Six).

Table 3.6.1.1 Environmental Education World: Researcher/teacher enactments research apparatus

<table>
<thead>
<tr>
<th>Multisensory Researcher/Teacher Enactments</th>
<th>Saskatchewan Curriculum Policy</th>
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<tbody>
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<td></td>
<td>Grade 4</td>
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<td></td>
<td>Grade 5</td>
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<tr>
<td><strong>Mindful Walking</strong></td>
<td>English Language Arts;</td>
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<td>Health Education;</td>
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<td>Science;</td>
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<td>Social Studies.</td>
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<tr>
<td><strong>Cross-curricular Competencies</strong></td>
<td>English Language Arts;</td>
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<td>Science;</td>
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<td>Social Studies.</td>
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<tr>
<td><strong>May 2017</strong></td>
<td>Developing Thinking;</td>
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<td>Developing Identity and Interdependence;</td>
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<td>Developing Social Responsibility.</td>
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<td><strong>Mapping Worlds</strong></td>
<td>English Language Arts;</td>
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<td>Developing Social Responsibility.</td>
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</tbody>
</table>
### Photographic Encounters
- In groups of 4/5, students were handed one disposable camera and invited to look for examples of how Land might show them similar emotions that they might be feeling in that present moment (e.g., were they feeling excited, nervous, fearful, hopeful?);
- Afterwards, students were invited to share their experiences with the class.

### Cross-curricular Competencies
- Developing Thinking;
- Developing Identity and Interdependence;
- Developing Literacies;
- Developing Social Responsibility.

### June 2017

### Eco-Art Installation
- Students were invited to forage for raw materials (broken twigs, decaying leaves, pine cones, feathers, or any earthly matter that they were interested in).
- Meeting inside and forming groups of 4-5, students were provided with some key words (cut out on paper) relating to terms and concepts of Land, in which they could choose as many as they liked to add to their Eco-Art Installations;
- Students were invited to create an Eco-Art Installation using words that they chose and the materials that they had collected;
- Students were invited to share with the class their ideas and motivations behind the creation of their Eco-Art Installations.

### Cross-curricular Competencies
- Developing Thinking;
- Developing Identity and Interdependence;
- Developing Literacies;
- Developing Social Responsibility.

### February 2018

### 3.7 The ‘Sensing of Events’ and ‘Data that ‘Glows’

As the Researcher/Teacher/Environmental Education Worlds intraacted, I was interested in the multisensory, thick, materiality of affect within, and between, these worlds. In other words, I was interested in affects emerging from the relational networks of intraactions (Hughes & Lury 2013), not in what the ‘data’ showed of action, but in what it showed as relationships (Dixon 2015). Moving beyond interpretation (Lather 2013), I was no longer an autonomous agent choosing and disposing of what counts as ‘data’, understanding that ‘data’, in Maggie MacLure’s (2013) terms, is not an ‘inert and indifferent mass waiting to be in/formed and calibrated by our analytic acumen or our coding systems’ (p. 660). Rather, ‘data’ had its own way of making itself known to me. Eben Kirksey (2015) referred to this as the ‘transformative
encounters, seductive moments, that generate new modes of existence’ (p. 5), or as MacLure proposed, ‘data that glows’. 

How ‘data’ made itself known to me is difficult to portray through language, so I draw upon MacLure’s (2013) *sensing of events*, which intersects between language and the world. As MacLure wrote, a sensing of events allows bodies ‘to resonate and relate, while never being reducible to either ‘side’ of that old duality that separates the material world from the worlds that putatively represent it’ (2013, p. 659). Therefore, through a sensing of events, I paid attention to the moments that my body was affected through vibrancy and liveliness. It is difficult to decipher *why* some intraactions seemed to take precedence over others. Yet, what I can offer for a sense clarity, is that I was struck by the *varying intensities of affect* derived from intraacting Researcher/Teacher/Environmental Education Worlds. That is, it was the varying intensities, leaving traces and ‘marking’ my body, that demarcated what seemed significant to include in this thesis assemblage and what seemed less important to include.

At times I pondered whether this was some kind of ‘spiritual’ experience, in that parts of the ‘data’ seemed to ‘speak’ more profoundly than others, coming to me more thickly and with more force, and consequently flowing through me with more rigour into my writing. Yet, working with materiality offered me insight into realism rather than romanticism. That is, through various intraactions (including with people, nonhumans, machines, text), I noticed that my body ignited with curiosity, inquisitiveness, and inspiration in various degrees. To make sense of all this, I attempted to generate an intertextual narrative (Senior & Moss 2015), entangling my ‘data’ sources to form ‘sub-plots’ mapped against my research question (in Chapter One). In exploring these ‘sub-plots’, I attuned to the ‘figural densities’ of entangled words, imagery, sounds, and memories, ‘including bodies, spaces, objects and the entangled
relationship between all of these’ (Dixon 2015 p. 102). I then overlaid these ‘sub-plots’ with cartographic and diffractive storytelling, which then helped me to craft Chapters Four, Five, Six, and Seven of this thesis assemblage.

### 3.8 Cartographic and Diffractive Storytelling

Cartographic and diffractive storytelling was enacted to understand how the Researcher/Teacher/Environmental Education Worlds were organised through their intraactions, and, how I came to give meaning to human/nonhuman relationships through these intraactions (Malone 2016). Through a cartographic and diffractive storytelling, I was able to map researcher and teacher stories and explore how these were entangled within wider narratives of (environmental) education. In this way, a cartographic and diffractive storytelling helped me to perform a *mapping of difference*. Acting from my politics of location, this is taken up in Chapter Four as an exploration of the relationship between myself as a ‘Lady’ and as a ‘Backpacker’, in Chapter Five as an exploration of the relationship between myself as a researcher and Lily as a teacher (and subsequent relationships to Land and pedagogy), in Chapter Six as an exploration of the relationship between a ‘lived curriculum’ (e.g., Aoki 1993) and Saskatchewan curriculum policy mandates pertaining to environmental education, and in Chapter Seven as an exploration of the relationship between environmental education and broader Western education models. In this way, I was able to explore *differences* between ‘normalising’ and ‘alternative’ stories in Researcher/Teacher/Environmental Education Worlds towards a (re)storying of human/nonhuman relationships.

### 3.8.1 Understanding through Cartography

Cartographic practices for knowledge production are a nondualistic mapping of differences, which draw upon time-space dimensions (the historical, genealogical aspects; and,
the geopolitical, ecological, systemic aspects). Cartographies attend to both the constraining and disciplining, and empowering and affirmative ‘politics of location’, through ‘a theoretically based and politically informed reading of the present’ (Braidotti 2011, p. 216). Cartography differs from classification, moving away from a closed, fixed, solidified essence and the categorising of similarities, as typically understood through Cartesian representational knowing, to postrepresentational configurations (Dolphijn & van der Tuin 2012; Haraway 1988; Hughes & Lury 2013). Postrepresentational configurations redraw subject/object boundaries, because they suggest the implicit entanglements of knower, knowledge, and known. In this sense, they are dynamic, contextualised, and situated within partial knowing (Haraway 1988), understanding that knowing is not derived from standing at a distance (Haraway 2016), but through a direct material engagement with the world (Barad 2007). In Alaimo and Hekman’s (2008) terms:

Attending to materiality [of the world] erases the commonsensical boundaries between human and ‘nature’, body and environment, mind and matter. In short, taking matter seriously entails nothing less than a thorough rethinking of the fundamental categories of Western culture. (p. 17, my quotation marks)

Cartographies are geared towards a nondualistic alternative to conventional representation (Barad 2007; Braidotti 2013; Dolphijn & Van der Tuin 2012), accounting for the politics of location, in an examination of power struggles that go beyond self, ‘expressing a view of subjectivity that is relational and outside directed’ (Braidotti 2011, p. 216). As the questions change from descriptions of reality, within representations (e.g. mirrors of ‘nature’ or culture), to doings and actions within performative accounts (Barad 2003; Butler 1993), cartographic mapping practices call for closer attention to the practices involved in mapmaking, acknowledging the contextual orientations of the mapmaker (Boria & Rossetto 2017).

Through a cartographic understanding of the world, the space to advance ethical considerations in environmental education teaching practices becomes more apparent, as cartographies unveil power locations in dominant discourse, helping to understand possible sites
of struggle and resistance within researcher/teacher practices of broader educational contexts. Further, in an environmental education that acknowledges human participation in the (re)configuring of the world (Barad 2007; Bennett 2010), there are opportunities to spark a logic of connection (Rose 2013). That is, in its rejection of individualism, such logic understands sense-making as co-constituted through intraactions with the world. As Braidotti (2013) suggested, this logic, therefore, gives rise to a sense of ‘collectivity, relationality and hence community building’ (p. 49). As postrepresentational (re)configurings of cartography step out from the Enlightenment project of Western metaphysics, I was therefore unanchored from solid and fixed foundations of knowledge through representational thinking (Massey 2006). As such, to ground a cartographic way of understanding of affects emerging within, and between, Researcher/Teacher/Environmental Education Worlds, I acted from my politics of location through a cartographic reading of my lived, embodied, embedded, and situational structures of thinking/doing (Braidotti 2002). This was taken up through Haraway’s (2007) literary tool called a ‘figuration’.

3.8.1.1 Figurations in a Cartographic Ways of Understanding

A figuration is not a figurative way of thinking, nor is it a metaphor. Rather, figurations express different socio-economic and symbolic locations in the mapping of power relations. They are not didactic illustrations, intending to suggest a ‘right way’ of thinking/doing in the world, but are material/discursive entanglements of different bodies and meanings co-constituting each other (Haraway 2007). Figurations are ‘a commonly shared foundation of collective figures of speech’ (Braidotti 2011, p. 101), used to articulate the multilayered, dynamic, contingent, situated, and non-unitary identities of the de-centred self (Braidotti 2013),
and, the situated perspectives of living in the in-between spaces that flow and connect (Braidotti 2002). According to Braidotti (2013):

A figuration is the expression of alternative representations of the subject as a dynamic non-unitary entity; it is the dramatization of processes of becoming. These processes assume that subject formation takes place in-between ‘nature’/technology; male/female; black/white; local/global; present/past – in the spaces that flow and connect the binaries. (p. 164, my quotation marks)

As Stephanie Springgay (2008) suggested, figurations are a highly specific living map that ‘account for power-relations, agency, and corporeality’ (p. 2) in that they are not universal claims, but expressions of complex singularities (Braidotti 2013). For example, Ursula Le Guin (1989) adopted the figuration of a ‘carrier-bag theory’, later taken up as ‘Bag-lady Storytelling’ by Haraway (2016) and Adsit-Morris (2017). Therefore, in Chapter Four, I adopt a figuration of a ‘Lady/Backpacker’ to explore my politics of location in the Researcher World. And in Chapters Five, Six, and Seven, I adopt a figuration of the ‘pedagogical event’, drawing upon specific events that occurred in the researcher/teacher enactments of the intraacting Researcher/Teacher/Environmental Education worlds.

3.8.2 Understanding through Diffraction

The science of diffraction describes the interference and diversifying of light waves as they encounter obstacles and pass through a narrow opening: bending, spreading, merging, and overlapping towards becoming something new (Rautio 2013). Differing from reflection in its mirroring of sameness, diffraction is marked by difference (Barad 2007). Metaphorically in research, diffraction can be used to think about differences that matter (Barad 2007), attending to a variety of agents in their crisscrossing relations to each other (Rautio 2013). As Hillevi Lenz Taguchi and Anna Palmer (2013) wrote, diffraction ‘takes into account that thinking, seeing and knowing are never done in isolation but are always affected by different forces coming together’ (p. 676). As such, a diffusive way of understanding is different to anthropocentric and
humancentric positions of the researcher interpreting and reflecting upon an object of research, which implies that an observer stands:

Separate and outside of ‘the data’, digging behind or beyond or beneath it, to identify higher order meanings, themes or categories. This again is the logic of representational thought, operating under the ‘logic of instead’: instead of multiple instances, interpretation substitutes patterns or meanings. (MacLure 2013, p. 660)

Alternatively, thinking/doing-with/through the ‘data’ (Barad 2007; MacLure 2013), in the ‘event of becoming-with the data’ (Hultman & Lenz Taguchi 2010, p. 534), a diffractive way of understanding helps to ‘illuminate differences as they emerge’ (Barad 2007, p. 30). This is because a diffractive analysis learns from ‘Otherness’.

Learning from ‘Otherness’ does not involve a difference between things, within separations and divisions from a deficit stance. Rather, it involves an affirmative understanding of difference ‘caused by connections and relations within and between different bodies, affecting each other and being affected’ (Hultman & Lenz Taguchi 2010, p. 529). In this way, a diffractive way of understanding challenges subject/object dichotomies, given that diffraction enacts an ‘iterative (re)configuring of patterns of differentiating-entangling’ (Barad 2014, p. 168). This is a singular and dynamic act of cutting into two, diversifying and reconfiguring layered movements of spacetimemattering, which Barad (2007) called ‘cutting together-apart’, in that, ‘ongoing reconfigurings of…bodily boundaries and connectivity are products of iterative causal intraactions – material-discursive practices – through which the agential cut between “self” and “other” is differentially enacted’ (p. 376, original quotation marks). In this way, subjects and objects are different, yet through their entangled nature, they form co-constituted meanings of the world in which they are situated. My visual understanding of diffraction is demonstrated in Figure 3.8.2.1, in which I show how a rock disrupts two opposing waves causing the waves to become de/re/territorialised in forming a new wave together. Simultaneously crashing together and apart over the rock, through a dynamic, ongoing, continual, and reiterative unfolding, the
rock acts as the ‘/’ in any given relationship (e.g., researcher/teacher; subject/object; human/nonhuman), as it denotes the enactment of an agential cut, cutting together apart in one move through a differentiating-entangling, reconstituting waves to travel in new and different ways in the wider body of water.

Figure 3.8.2.1 Diffractive patterns 2017

A diffractive way of understanding in this research is an intraactive process, in which affects emerging from intraactions transforms the body, as the body connects and overlaps with the materiality of the world in a relational and horizontal field. In this sense the researcher/teacher and the material world are doing something to each other simultaneously, enacting a relational agency (Hultman & Lenz Taguchi 2010). Or, in Deleuze’s (1988) terms, a ‘plane of immanence’, in which human/nonhuman relationships are in a constant, reiterative, entangled and inter-dependent ‘becoming-with’ (Haraway 2007). However, it is crucial to note, that this can only ever be understood through the thinking/doing subject in consideration, in that it is impossible (and unethical) to suggest that someone/something can speak for
someone/something else, as typically taken up through human-centric logics (e.g., humans speaking for ‘nature’). For example, I can only ever speak from my researcher subjectivity (as contextualised to this research) and how through my intraactions with ‘Other(s)’, my subjectivities might transform through affects emerging from intraactions. I cannot speak for affects that might ‘mark’ other bodies, or how they might experience affects from their perspective (this idea will become clearer in following chapters and elaborated on in Chapter Eight).

3.8.3 Understanding through Storytelling

Discerning the relationships between the affectivity of materiality, cultural factors (informing teaching philosophies and practices), and institutional factors (curriculum policy mandates), storytelling in this research worked to generate new and different human/nonhuman relations (Clandinin & Rosiek 2007; Murphy, Ross & Huber 2012). Storytelling in this research did not slip into interpretive paradigms, in attempting to explore the phenomena of experience within a social setting (Clandinin & Connelly 2000; Neuman 2011). Rather, storytelling acted as a powerful medium to understand the overlapping and layered entanglements of material/discursive practices, in that telling stories together might compose a more liveable cosmopolitics (the idea that we share a single worldly community based on a shared morality). This was acknowledging that in one way or another, we all make sense of our lives through story (Clough 2002) in that ‘we relate, know, think, world, and tell stories through and with other stories, worlds, knowledges, thinking, yearnings’ (Haraway 2016, p. 97). As Linda Wason-Ellam (2010) suggested:

Stories beget other stories…Story then realizes several things that information does not for stories are analogies for living life. Meanings articulated in prose or poetry creates relationships, translates information into image and excites imagination or sense of wonder. (p. 282)
Storytelling, therefore, can be used to propose new and different ways of thinking about environmental education teaching practices (Cutter-Mackenzie, Payne & Reid 2011). For example, Australian artist, author, and filmmaker, Jeanie Baker worked with story to awaken hearts and minds of young children (Wason-Ellam 2010). Another example is Payne’s (2010) ‘Remarkable Gnome Tracking’. Highlighting that the human species are storytellers, ‘ranging from grand narratives, scientific and moral truths to folklore, myth and superstition’ (p. 305), Payne cautioned against pervasive narratives and discourses that are constantly being told and (re)told through state-sanctioned curriculum stories in education. Within this, he made a pertinent point regarding the importance of storytelling to retain the possibility of being different, other, or wild, in environmental education.

Due to the fictional and anonymous elements of story-telling and facilitating the opportunity for the importing of relevant artefacts to create an engaging story, stories also have the capacity to speak to the heart of social consciousness (Clough 2002). This is important in a (re)storing of human/nonhuman relationships, because storytelling can challenge the status quo of social constructs and power relations through polyvocal accounts (McKenzie 2005; Russell 2005). As stories, lived and told by individuals, are a direct product of the social confluence evident within the context of inquiry, there is potential for a real engagement of values to reveal radical, moral and political phenomena (Clough 2002). For example, the potency of stories can ‘serve as entry toward discussions of and encounters with specific Indigenous place relations, including specific Indigenous cosmologies and relationalities with more-than-human others in specific lands’ (Nxumalo & Cedillo 2017, p. 103). Before moving on to explore how I made sense of my research question through a cartographic and diffractive storytelling, threading yourself with/through these stories, on the next page I pose my second provocation to you.
Research Performing: Provocation Two

How might you perform a rhizomic orientation to organising your (environmental education) teaching practices?

To understand your response through affects emerging from intraacting with this provocation, I invite you to ponder, journal, draw, discuss, move with/through your ideas, thinking/doing these thoughts/actions with the world.
Cluster One: Research Inspiring
Chapters One and Two

Cluster Two: Research Performing
Chapter Three

Cluster Three: Research Understanding
Chapters Four, Five, Six, Seven

Cluster Four: Research Becoming
Chapter Eight
Chapter Four: Lady/Backpacker Storytelling

We are all responsible to and for shaping conditions for multispecies flourishing in the face of terrible histories, and sometimes joyful histories too, but we are not all response-able in the same ways. The differences matter – in ecologies, economies, species, lives.

Donna Haraway (2016, p. 29)

4.1 Chapter Overview

Delving into the microcosm of the Researcher World, this chapter is an exploration of my dynamic intraaction with macrocosmic entanglements of the broader ecology of the world (Bertelsen & Murphy 2010). Mapping my wanderings from Australia to Canada and acting from the politics of location in my new of Saskatchewan, through a Lady/Backpacker figuration I take up a cartographic and diffractive reading of my grounded, lived, embodied, and embedded situational structures of thinking/doing (Braidotti 2002). Acknowledging that present-day stories are imbued with affective traces carried from the past (Renold & Ivinson 2014), I start in the middle of things to reactivate adolescent stories that demonstrated moments of rupture re-territorialising how I understood gender identification18. Illuminating how I disengaged from a unitary identity as ‘Other’ (e.g., as a female ‘Othered’ to male) through ideas of ‘becoming-lady’, I then explore the idea of nomadic multiplicities of subjectivities (Braidotti 2011) and how I worked between the borders of subjectivities as a White settler in Canada. This exploration was made possible through affects emerging from human/nonhuman intraactions and an unexpected friendship with a grey wolf (Canis-lupus). Attending to the materiality of mutually entangled futures (Somerville 2007, 2008; Taylor & Giugni 2012; Taylor, Giugni & Blaise 2013), I explore concepts of the contact zone and ecotone to demonstrate how I understood myself as a

18 ‘Moments of rupture’ in Chapter Four, Five, Six, and Seven are presented in italics to denote journal entries derived from fieldnotes. Reluctant to suggest that I ‘change’ voice between ‘academic scholarship’ and ‘personal reflection’, I take up Lisa Mazzei’s (2016) articulations of voice to (re)imagine voice as an ontological unit that is not linked to the “I” of a humanist subject. In this way, I understand that ‘there is no longer a voice; only voice’ (Mazzei 2016, p. 152).
‘Lady/Backpacker’ through ‘multiplicities of difference’ rather than ‘multiplicities of same’ (Braidotti 2011).

4.2 Moments of Rupture: Nomadic Multiplicities of Subjectivities in ‘Becoming-Lady’

Journal Entry 18th February 2017

As a child I never played with dolls. Instead, I would be somewhere outside building cubby-houses and makeshift forts, always more interested to be moving between earth and sky. In this sense, although I embody a female biology, physiology, and consciousness, I don’t think I was necessarily ‘gendered’ as female until well into my adolescence. Perhaps this occurred at the time when I wanted to wear the boy’s uniform to school (because it looked more comfortable). Alas, I was sternly reminded that girls wear the dress. I am not sure if this came from my parents, the school, or society’s general rule. Yet in any case, it seemed we were all functioning under the socio-cultural protocol of what it meant to be gendered through cultural constructions of male/female binary logics.

And then through my teenage years as the borders of gender identity closed in on me, I was left wondering whether I was, indeed, fulfilling the norm of female as socio-culturally set up. I wasn’t sure if I was performing ‘Lady’ well enough. This all came to light in the summer months after my 15th birthday, when my friend and I went surfing after school. We were paddling out into the water and I noticed a burgeoning sense of intimidation, wondering how the male surfers (Homo sapiens) might perceive us. Us girls were known as ‘Skegs’, meaning someone who pretends to be into surfing through their apparel and certain ‘surfy’ attitudes. But what this really meant was that our participation in this sport could never be as authentic as it was for the boys. Through normalising socio-cultural protocol, I was discursively disciplined to return to
normative ways of ‘producing’ a ‘lady’ identity and this did not involve surfing. The result: I always felt on (the) edge.

While my surfing days were limited after these experiences, I was still drawn to the wildness of this edged oceanscape, and I would often return looking for some sort of consoling. Writing this now, I remember wild winter days and the thundering shore-breakers crashing and tumbling forth to greet me as I would stand upon rain-drenched rolling shorelines and fix my gaze over jagged and turbulent gun-metal grey horizons, and then trail golden dunes to notice hooded plover (Thinornis rubricollis) nests dotted amongst coastal heathland. In the summer, I remember winter’s deep bottle-green marine transform to a tropical aqua, laced peacefully with white fringes of foam. I can still remember marauding gulls fading into the indigo skyline with summer’s end and I was always mystified by the changing colours, watching, witnessing, waiting, as the water intraacted with the sky’s moods. I wondered what would happen next, as nothing in this edged Place seemed to stay the same for very long. It was transitional, always in constant motion, and continually changing.

As part of a third-generation settler family (with Scottish and English backgrounds), it seemed like a very normal and regular practice to turn away from the harsh and arid Australian interior, or even my own confused teenage interior, and wander this edged oceanscape looking for meaning and a sense of self. As the waves smashed and dispersed, responding to wind and water currents, sandbars, troughs, and rock obstacles, they whipped and thrashed forward, and then, without warning, they would suddenly change direction, clashing with retreating turbulent water, and then conjoining together again, synergistically creating a new path of least resistance. Although a messy and violent display of commotion and chaos governed by the gravitational
powers of lunar cycles, as the waves forged their way forward, they showed me that change was not only okay, but unavoidable.

I tell you this because these were the first moments that I can recall a boundary-less ‘composing-with’, ‘making-with’, ‘becoming-with’, as this edged oceanscape and I seemingly emerged together. Of course, I didn’t understand this at the time. However, as an adult researcher interested in affects that emerge through intraactions, I now acknowledge that although this oceanscape was different to me, it acted as the locus facilitating new understandings of myself through affects emerging from intraacting with its cacophony of colours, sounds, smells, and shifting sands and waters. It inspired me to think-with/through its dynamic flow of tides and sand dune drifts, affording me the opportunity to recognise the always changing and transitional nature of things.

Letting go of who I thought I was or who I thought I should be, in which the discursive borders housing the category of my gender were static, stable, fixed, and rigid, intraacting with this edged oceanscape affected me in such a way that I saw the conditions of possibility for categories to open up into the world (rather than the world seemingly closing in on me). I am not suggesting that the materiality of ebbing and flowing tides was the sole instigator for my questioning of gender normativity. Rather, the materiality of this edged oceanscape helped me to understand my relationship with gender normativity, because here I didn’t have to subscribe to any social roles that my gender inflicted upon me. These were the first moments that I can recall agency as relational, comprised of my intraactions with the materiality of the world and my intraactions with socially normalising protocol of what gender meant. Then, engaging with Braidotti’s (2011) nomadic multiplicity of subjectivities in more recent times, I found new ways
of being, in that I am not ‘lady’ in the static, stable, fixed, and rigid sense, but I am ‘becoming-lady’.

In ‘becoming-lady’ I expand beyond humancentric constructions of identarian categories to rest on a process ontology of ‘becoming’ through nomadic multiplicities of subjectivities. Starting from an asymmetrical position of minority (female as ‘Othered’) against the majority (male as status quo), I do not seek to transcend male/female difference or to annihilate the female category as blended and absorbed into the dominant male category. Rather, disengaging, defamiliarising, and deidentifying from a unitary identity as ‘Other’, imposed through my opposition to the majority, there is a dissolution of sexed identities as already static, stable, fixed, and rigid (Braidotti 2011). As ‘becoming’ through nomadic multiplicities of subjectivities means that my subjectivities are always changing and transitional, categories of difference do not come under erasure, but the relationships between the categories come into sharper focus (Zink & Burrows 2008).

Although a theoretical understanding of nomadic multiplicities of subjectivities was thought provoking, it was through my (im)migration journey from Australia to Canada, in calling Saskatchewan my new home, that actualised these ideas. In the space between my coast-dwelling self and my prairie-dwelling self, the idea of ‘becoming-lady’ now included Canadian cultural, social, and material influences. Complete with a backpack full of gadgets, tools, props, and provisions, including a passport, multiple credit cards, maps, a laptop, an iPad, my backpack acted as a portable carrying device resembling opportunity and unearned advantage (McIntosh 1988). In this way, I was ‘becoming’ an Australian-Canadian ‘Lady/Backpacker’, which brought its own complex implications towards an understanding of myself with/in the world.
4.3 Wandering, Wanderlust, and the Wayfaring Backpacker

As I left one settler colonial society in Australia and wandered across the Pacific Ocean to make a new home in another colonial settler society, I was filled with romantic notions of a Canadian cultural imaginary. Such imaginaries portrayed a sprawling wilderness of vast, rugged landscapes, full of thick, bottle green forests, and beige sandy beaches fringing aqua flows of meandering rivers and deep inland lakes. I was awestruck and full of wonder as I conjured imaginaries of all the multispecies living within these landscapes: trees of Jack pine (*Pinus banksiana*), white spruce (*Picea glauca*), blue spruce (*Picea pungens*), balsam fir (*Abies balsamea*), tamarack (*Larix laricina*), silver maples (*Acer saccharinum*), trembling aspen (*Populus tremuloides*), white birch (*Betula papyrifera*), balsam/black poplars (*Populus balsamifera*), and wolves (*Canis lupus*), bald eagles (*Haliaeetus leucocephalus*), beavers (*Castor canadensis*), grizzly bears (*U. arctos horribilis*) black bears (*Ursus americanus*), cougars (*Puma concolor*), white-tail deer (*Odocoileus virginianus*), elk (*Cervus canadensis*), moose (*Alces alces*): the hunters and the hunted. While I understand that Canadian flora and fauna hosts many, many more species than what I have included here, these plants and animals were the first species that came to mind. I have thought about editing this list to include a more diverse array of species, for example, ‘annoying’ pests like the maple bug (*Boisea trivittata*). Yet this list including ‘mega-fauna’ (as coined by E.O. Wilson in the late 20th Century with reference to media-popular animals) perfectly demonstrated how my Canadian cultural imaginary was not at all set in the grounded realities of Canada. This became more prominent in arriving to Saskatchewan, one of 13 provinces and territories in Canada, and ‘settling’ into the socio-cultural, political, and environmental context of this prairie province. Allow me to explain.
Not unlike the world over, Saskatchewan bears the effects of globalisation, neoliberalism, and capitalism. For example, the province’s ecological footprint is above the Canadian average (City of Saskatoon 2014), there is evidence of flagrant urban development in Saskatchewan’s major cities, and Saskatchewan is home to the largest potash\textsuperscript{19} miner, \textit{Nutrien}, formally known as the \textit{Potash Corporation} of Saskatchewan before its amalgamation with Calgary-based \textit{Agrium} in early 2018. According to the Western Potash Corp. (2018), as Canada exports 95\% of its potash to over 50 countries around the world, it is literally ‘feeding the world’. While \textit{Nutrien} has an enterprise value of 36 billion US$ (CBC 21 June 2017, n.p.), the widespread and intrusive practices of mining potash are not without environmental impact, including changes to the landscape, water contamination, excessive water consumption and air pollution (UNEP 2001). In this way, economic prosperity is often pitted against these long-term environmental impacts, with media rhetoric spurring public debate regarding pervasive ecological tolls.

Treaties Two, Four, Five, Six, Eight, and Ten encompass the province of Saskatchewan (Government of Canada 2010). Taking place in 1876, these treaties are a formal agreement between Plains Cree (nēhiyawēwin) and the Crown, in which both parties must fulfil obligations and expectations through ‘mutually beneficial arrangements that guarantee a co-existence between the treaty parties’ (office of the Treaty Commissioner 2018a, n.p.). Seventy-two First Nations live within Saskatchewan’s borders, making up five linguistic groups of Cree, Dakota, Dene (Chipewyan), Nakota (Assiniboine), and Saulteaux (office of the Treaty Commissioner 2018b). After Winnipeg in the province of Manitoba, the cities of Regina and Saskatoon in

\textsuperscript{19}Potash is a salt containing potassium, buried deep beneath the Earth’s surface. Extensively mined and manufactured throughout the Canadian Prairies, it acts as an agricultural fertiliser to improve water retention, yield, nutrient value, taste, colour, texture, and disease resistance food crops (Western Potash Corp. 2018).
Saskatchewan are the second and third largest First Nations populated cities in Canada (City of Saskatoon 2014).

In my first couple of months living in Saskatchewan I was drawn to the ‘spiritual’ community, and my new-found friends invited me to many different rituals and events of First Nations, including drum circles, sweat lodges, Powwows, and smudging ceremonies. Yet, what struck me with visceral intensity as I enthusiastically attended these rituals and events, was the idea that they acted as some sort of White, Western fantasy escape, in which First Nations’ ontologies of Land and culture were romanticised through ‘spiritual’ pursuits. Juxtaposed against Saskatchewan’s political, economic, social, and environmental landscape bearing the impacts of globalisation, neoliberalism, capitalism, it became starkly clear that I was, indeed, attributing to the spinning wheels of a commercialised Earth. This came to light through many different conversations I had with people, in which through my White privilege, I was referred to as an expat, not an (im)migrant. I was not inculcated with racial differentials. Rather, I held the necessary currency to (im)migrate from Australia to Canada out of choice, inspired by the romantic notions of a Canadian cultural imaginary. As Peggy McIntosh (1988) wrote with reference to White privilege, ‘Power from unearned privilege can look like strength when it is in fact permission to escape or to dominate’ (p. 34). Within this, because I was outsider with enough White privilege to ‘claim’ Canada as my new home, not only was I enacting forces of globalisation, neoliberalism, and capitalism, but I was also enacting forms of settler colonialism.

Then, upon the Land, where I replaced oceans with grasses and seascapes with skyscapes, I was provided with a fortuitous opportunity to investigate and challenge how such privileges structured my life. This occurred through a chance encounter with a grey wolf, named Buddy, living at the local zoo. Cognisant of my tendencies to define Canada through cultural
imaginaries, I was sceptical to include my encounter with Buddy in this research considering that wolves could be deemed a ‘charismatic mega-fauna’. Following this, I later realised that I was initially drawn to Buddy through his portrayal of Canadian cultural imaginaries. Yet given that I was not interested in replacing old stories, I did not want to escape, transcend, or rebuke the impacts of my Canadian cultural imaginaries, but as intraactions with Buddy ‘marked’ my body with affect, I took advantage of this encounter to challenge and disrupt these imaginaries in (re)storying human/nonhuman relationships.

4.4 Settler/Wolf Story

Western cultural narratives of the wolf are rooted in the Middle Ages of Europe, in which people superstitiously believed in werewolves (Wolfcountry n.d.). Encouraging a fear of wolves, this has been played out in the literature of children’s fairy tales and fables, namely Charles Perrault’s 17th Century publication of Little Red Riding Hood, and The Three Little Pigs, retold in 1922 by Flora Annie Steel. These stories were very familiar to me, growing up with them as a child. However, in meeting Buddy, I immediately (re)conjured a Canadian cultural imaginary of vast wilderness, and romantic notions of these stealthy, majestic creatures, living alongside, and with, the cultural practices of the First People of Canada. As I watched Buddy (shown in Figure 4.4.1) walk the perimetre of his enclosure, he was the epitome of wild to me. I was in awe as I studied his strong paws, gracefully yet purposefully padding the snow, his knowing ears tuned forwards, alert for danger. His eyes were knowing and wise. And his thick coat was bristling and stiffening in the winter wind.

In these moments, I felt inspired and drawn to the often-romantic Western representations of wolves in New Age paraphernalia exploiting First Nations’ cultural and spiritual symbols of the wolf. For example, as howling against the backdrop of a deep yellow moon: as a mysterious
elixir of danger and appeal. This imagery, exciting and magnetic, fuelled my imaginaries. Learning of the wolf’s symbolic meaning in First Nations’ ontology, and how this apex predator was understood as a role model through their demonstration of finely-tuned and complex social systems enabling wise, powerful, and instinctive hunting (Northern Lights Wolf Centre 2017), I witnessed myself living out a settler emplacement story of colonisation. By this I am referring to pursuits of spirituality through First Nations’ ontologies of Land and culture, much like instances previously mentioned in seeking out, and attending rituals and events set within a First Nations context.

Wanting to belong to the wider community of people and Land in Saskatchewan, I desired to find comfort through First Nations’ ontologies of Land and culture in claiming and possessing Indigenous ways of knowing, being, thinking, and doing as my own (Morgensen 2009; Tuck & Yang 2012). Nxumalo and Cedillo (2014) referred to this idea as a ‘colonial
imaginary’, ‘storying place as a mute site awaiting settler inscription and capitalist property-making’ (p. 103). Tracy Friedel (2011) also wrote:

Of the pernicious representations of Indigeneity today, none is more equivocal than the trope of ‘the Ecological Indian’. Borne from nineteenth-century romantic primitivism, this White construction has become a prevalent signifier in the environmental realm, an ideal to which Canadians and others look today for a critique of Western institutions. (p. 534)

As Friedel explained, the White constructions of the ‘Ecological Indian’ are often adopted as a tool to challenge Western discourses set within discursive structures of an anthropocentric and humanocentric universal subject that is dualistically positioned against ‘nature’ (Nxumalo and Cedillo 2017). That is, challenging Western human/nonhuman binary logics exacerbated through modern-day Enlightenment projects of globalisation, neoliberalism, and capitalism, First Nations’ ontologies become (re)appropriated by Western perspectives, given the romantic appeal of First Nations’ cultural and spiritual orientations to Land as typically set in nondualisms (Wildcat 2005). Moreover, as Western perspectives of human/nonhuman relationships are typically set in romantic notions of ‘nature’ that deem ‘nature’ as a source of emotional identification (e.g., Rousseau-ean logics), First Nations’ perspectives of human/nonhuman relationships are typically set in realism (Wildcat 2005). For example, Patricia O’Riley and Peter Cole (2009) suggested that relational entanglements are a worldly given in First Nations’ ontology, as depicted in the following excerpt:

\[
\begin{align*}
\text{curving shapes of canoe and paddle dance} \\
\text{with the reflection of snow-capped mountains} \\
\text{on stillness of water} \\
\text{coyote and raven are exhausted from a long day’s paddle} \\
\text{and head their canoe towards the shore} \\
\text{to rest for a bit on the cool moss} \\
\text{raven fluffs his feathers fluttering sighs} \\
\text{a cedar branch wavers in the last light} \\
\text{after taking a loooong drink of water from the mountain stream} \\
\text{coyote rests against the roots of a thousand year old fir} \\
\text{you know raven we’ve been part of the land and sky} \\
\text{and other scapes so long and so intimately} \\
\text{that we don’t often think about our relationship to them-it-those ones} \\
\text{since them-it-those ones was/is us}
\end{align*}
\]
Within this, acknowledging that Indigenous perspectives of Land are derived from entirely different epistemological and cosmological foundations to that of Western perspectives, they cannot be easily combined or absorbed into Western epistemology (Tuck et al. 2014). Therefore, through my encounter with Buddy provoking a Canadian cultural imaginary, in which I romanticised, idealised, essentialised, and universalised Indigenous cultures from my White, Western perspectives, my White, Western privileges worked to paradoxically supersede and silence Indigenous ways of knowing, being, thinking, and doing. Such co-opting and (re)appropriating of First Nations’ cultural and spiritual ontologies of Land from my White, Western perspectives, reinstates human/nonhuman binary logics through constructing ‘Other(s)’ in dichotomous ways (Tuck & Yang 2014).

Billy-Ray Belcourt (2015), therefore, claimed that any examination of human/nonhuman relationships needs to first understand how these relationships have been colonised by settler practices, in the erasure of differently located Indigenous knowledges as set within intrinsic human/nonhuman relationality. As Belcourt argued, ‘modern human-animal interactions are only possible because of and through the historic and ongoing erasure of Indigenous bodies and the emptying of Indigenous lands for settler-colonial expansion’ (2015, p.3). Matt Hern and Am Johal (2018) also claimed that, ‘linking the domination of land and the other-than-human world is a key to grasping an ecological future [and that] any robust ecological discourses have to start with decolonisation and thoroughly renovated land politics’ (p. 30). Following this, thinking-with/through Belcourt’s and Hern and Johal’s call for decolonisation through posthumanist performativity and new materialism, I acknowledge human/nonhuman knotted pasts, presents,
and futures of colonial legacies through postcolonial ethics (Taylor et al. 2013). In (re)configuring settler/Indigenous relationships, and therefore, human/nonhuman relationships, postcolonial ethics understand that we cannot partition ourselves, as autonomous individuals, away from settler colonised worlds, but that we are all mutually entangled within co-implicated and shared futures (Taylor et al. 2013). I engaged with this attending to affects emerging from my intraactions with Buddy.

4.5 Attending to the Materiality of Mutually Entangled Futures

Postcolonial ethics began for me in first acknowledging the entangled narratives contributing to, and affecting, how I understood myself with the people and Land of Saskatchewan. As Nxumalo and Cedillo (2017) wrote, ‘more-than-human bodies, place-specific stories, ontologies, histories, as well as humans are all lively and entangled participants’ (p. 100) are all active contributors to our understandings of self with the world. Referring to my encounter with Buddy, I understood my intraactions with him as influenced by many narratives, including narratives from Western and First Nations’ perspectives. However, given that narratives are derived from certain discursive positions of power, some narratives will inevitably have a more meaningful sense of validity within specific socio-cultural contexts (Nxumalo & Cedillo 2014). To challenge the discursive positions of power in narratives, therefore, I considered the co-constitutive materiality of my human body and Buddy’s nonhuman natures. As Alaimo and Hekman (2008) wrote, ‘beginning with the co-extensive materiality of humans and nonhumans offers multiple possibilities for forging new environmental paths’ (p. 9), paths in which we are mutually entangled in co-constituting shared futures.

Thinking about my encounter with Buddy this way illuminated the idea that both Buddy and I were implicated, in one way or another, by what it meant to be alive. I could see his
curiosity, his inquisitiveness, as he looked out from his enclosure, like I knew my own. For instance, I was curious about what was beyond the fences of the zoo, as I could see towering trees off in the distance inviting me to explore the Land outside the zoo’s confined spaces. I could see Buddy’s exhalations of breath in the freezing temperatures, like I could see my own. We both needed to inhale and exhale oxygen to survive and we both had cardio-vascular and cardio-respiratory systems to enable this. And I could see him wandering and pacing, looking about for his alpha mate, Zeppelin, like I would look for my own partner’s hand trying to keep warm and connected with my ‘mate’. In these moments, I realised that although social constructs of discursive structures influenced how I understood my encounter with Buddy (i.e., through pervasive socio-cultural narratives), it was the materiality of our existences that connected me to his lively, vibrancy in a profoundly meaningful way. Of course, as a human I am constituted differently to a wolf. Yet affects emerging from my interactions with Buddy prompted me to think beyond my immediate human concerns. In other words, in getting used to thinking about, and living amidst, uncertainty and discomfort regarding my sense of belonging in Saskatchewan (in ‘unsettling’ myself), I was challenged to consider how my settler practices not only discursively reinstated social hierarchies (between settler and Indigenous peoples), but also how settler practices continue to disturb the living materiality of grey wolves (Kuhl 2018).

As a keystone species, wolves play a crucial role in balancing the ecosystem (Smith 2002). However, there is ongoing debate as to how conservation strategies should manage wolves in Western Canada to address their dwindling population. For example, I learned that there are only two wolves remaining in the Banff National Park of Alberta (Northern Lights Wolf Centre 2017). This reminded me of Leopold’s (1949) ‘green fire’ in the wolf’s eyes:

We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes -- something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more
Given that wolves in Western Canada are a vulnerable species and are conceived as something to be ‘environmentally managed’, socio-political regimes pit wolf conversation strategies against practices of logging, hunting, and urban development. In this way, binary logics relating to environmentalism/anti-environmentalism are maintained and the environment is understood as something ‘out there’ as a location external, distant, and outside of humans (Cronon 1995).

Bringing these ideas back to my encounter with Buddy, I considered the implications of his existence at the zoo. For example, through conversations with local zoologists, I learned that Buddy was found alone in the wild as a pup, orphaned from his mother and pack. While intentions underpinning his relocation from the wild to a human-managed, enclosed space might be steeped in care-ethics for Buddy’s longevity, Fawcett (2002) presented a different issue, which perpetuates human/nonhuman relationships as dualistically oriented. Within this, Fawcett suggested that people who visit zoos become negatively influenced by their experience of captive animals, stating that people ‘emerge barely more knowledgeable about animal conservation, biology, or behaviour. People rarely emerge wondering what the animal sees, feels, or needs’ (2002, p. 126). Rather than zoo animals labelled as ‘exotic’, and ‘Othered’ to human inhabitants, Fawcett’s statement illuminates the importance of postcolonial ethics that locates humans and animals, as both, simultaneously, inhabiting the same bioregion.

As Stengers (2005) remarked, through a co-habitation of belonging we stop submitting more-than-human others to ‘human ideas about what would be a better world’ (p. 6). These ideas were also taken up by Opperman (2013):

Differences and distinctions matter in the interconnections of human and nonhuman spheres, not in the sense of accepting the superiority of the human and the devaluation of the nonhuman or of privileging the nonhuman at the expense of the human, but in terms of their complex entanglements. (p. 69)
Braidotti (2013) further examined the socially constructed dimensions of human/animal/earth relationships in her articulations of Deleuzian classifications of animals. In this work, Braidotti suggested there are animals we watch television with (the oedipal), animals we eat (instrumental), and animals we fear (fantasmatic). Braidotti maintained that we cannot escape our humanness (nor do I want to), and therefore, these designations will always remain set within human interests. However, she argued that, in attending to the materiality and vitality of the human/animal/earth bond, well-established dualisms begin to break down to less obvious oppositions within hierarchical anthropocentric and humanocentric positions.

This cross-species kinship is what Haraway (2004) called ‘queer worlding’. Or, in her more recent articulations (e.g., Haraway 2016), this crossing of borders and cultures within material/discursive relationality is a ‘becoming worldly’ practice, in that we acknowledge what it means to ‘to co-exist with difference in ways that allow all to flourish’ (Taylor et al. 2013, p. 50). Continuously in the making with ‘Other(s)’, Massumi (2002) called this relational, transitional field between the parts, the *smudge*. For Haraway (2007), the in-between, creative, overlapping territories of affecting and becoming (Deleuze & Guattari 1987) is called the contact zone. First coined by Mary Pratt as synonymous with the ‘colonial frontier’, the contact zone is the:

> space of imperial encounters, the space in which peoples geographically and historically separated come into contact with each other and establish ongoing relations, usually involving conditions of coercion, radical inequality, and intractable conflict. (Pratt 2008, p. 8)

While the ‘colonial frontier’ is generally associated with European settler expansion, as Pratt (2008) further elaborated,

the contact zone shifts the center of gravity and the point of view. It invokes the space and time where subjects previously separated by geography and history are co-present, the point at which their trajectories now intersect. The term ‘contact’ foregrounds the interactive, improvisational dimensions of imperial encounters so easily ignored or suppressed by accounts of conquest and domination told from the invader’s perspective. A ‘contact’ perspective emphasizes how subjects get constituted in and by their relations to each other. It treats the relations among colonizers and colonized, or travelers and “travelees”, not in terms of separateness, but in terms of co-presence, interaction, interlocking understandings and practices, and often within radically asymmetrical relations of power. (p. 8, original quotation marks)
According to Haraway (2007), the contact zone is the space where ‘most of the transformative things in life happen’ (p. 219), taken up by Somerville (2007) to mean, the ‘concept of emergent relational spaces between self and Other’ (p. 234). Looking at the space between the parts and the margins between the borders as connective (through perspectives of relational agency), rather than as separative (through binary logics), the contact zone acts as a transitional zone. In this way, the contact zone raises new questions about relationality, structures of power, and ethics (Taylor et al. 2013). Yet, as I am seeking to bring commensurate attention to matter and material forces, while notions of the contact zone offer important ways to think about border-making practices, I prefer the term, *ecotone*, given the ecotone’s ecological embeddedness.

### 4.6 Ecotones: Meeting the Edges of a ‘Lady/Backpacker’

In an ecological sense, ecotones are highly productive biological edges and places of meeting. As described by Florence Krall (1994), ecotones are the ecological location where the tensions between diverse ways of being come into effect. Called the ‘edge effect’, biotic communities of ecotones experience change more abruptly than centrally located ecosystems. This is due to the dynamic interchange between ecosystems, and the multitude of tensions between these diverse worlds. However, ecotones are not just the blending of two separate ecosystems. While they include the biological functions of ecology, ecotones also consider the relational constitutions of social, cultural, economic, and political processes (Krall 1994).

As a transition zone between two or more biological communities, ecotones contain species from each community in addition to species unique to any given ecotone. For example, I had lived on the edge as a child, dwelling alongside the multispecies of transitional plants and animals of the edged oceanscape in the Bass Strait ecotone. Facing north to the scrubby heathland, I would often see eastern grey kangaroos (*Macropus giganteus*) grazing at dusk.
amongst coastal banksia woodland (*Banksia integrifolia*). To the south, as I looked out across Bass Strait, I would often see people (*Homo sapiens*) fishing, perched on the Winter shores patiently waiting to catch a feed of salmon (*Arripis trutta*), and surfers (*Homo sapiens*) peering out over the shore-breakers looking for the best line of entry to indulge their recreational delights. And, in the ecotone of the sand dunes, lived hooded plovers (*Thinornis rubricollis*), Australian salt grass (*Distichlis distichophylla*), kidney weed (*Dichondra repens*), amongst other endemic and introduced flora and fauna varieties of this region.

Returning to my opening narrative of this chapter, as affects emerged from my intraactions with this ecotone provided the conditions of possibility for me to work towards the dissolution of gendered categories, it also prompted a sense of environmental activism. Understanding that generative potential for subjectivities to transform is *through* intraactions, I draw upon classical Spinozian meanings of affect, which relates to the body’s capacity to affect something and to be simultaneously affected. As Massumi (2015) noted, ‘although affect fundamentally concerns relations in encounter, it is at the same time positively productive of the individualities in relation’ (p. x). I understand Massumi’s point to mean that through affects emerging from intraactions, individuals are in a state of transformation with ‘Other(s)’. As such, as I am affected by the Bass Strait ecotone, I simultaneously affect it, as I am an entangled part of the intraaction. Following this, there is opportunity for a more profound sense of response-ability to emerge through micro-political accounts of environmental activism. For example, this ecotone was at ecological risk given that only metres from the shoreline a nearby sewerage plant was purging secondarily-treated effluent into the ocean. In 2000, the local community responded to this issue through the inception of the *Clean Ocean Foundation*, rallying against the Eastern Treatment Plant and imploring the political and economic priorities of local and state
governments to amend greywater treatment to tertiary-treated processes (Clean Ocean Foundation 2018). Yet, the paradox set within this is that as humans draw stronger affinities with the environment through experiential relationships with Land (e.g., recreational endeavours), these fragile ecosystems become more susceptible to human-induced destruction, degradation, and fragmentation. Leopold (1949) aptly described this paradox in his statement:

> The life of every river sings its own song, but in most the song is long since marred by the discords of misuse…in wilderness enters a park or forest with roads and tourists. Parks are made to bring the music to the many, but by the time many are attuned to hear it there is little left but noise. (p. 149-150)

Following this, while environmental activism responding to the secondarily-treated effluent pumping out into the ocean is an important and valuable pursuit, the idea that people want to protect what they love, means that these environments will continue to be influenced by human activity. That is, as we value ‘nature’, we spend time with ‘nature’, which then inhibits the original value of ‘nature’ through human-induced impacts.

Highlighting the entangled relationship between environmental destruction, degradation, and fragmentation and human activities in ‘nature’, brings to light the diverse, and often conflicting, aspects of our lives. For example, there is evidence that the breeding patterns of hooded plovers in the Bass Strait ecotone are becoming compromised through direct and indirect human activities. These activities include ‘habitat alteration, predation (by introduced predators or natural predators at artificially high population levels), disturbance and nest crushing’ (Dowling & Weston 1999, p. 255). As a beach recreator, I actively lobbied against effluent discharge and subsequent ocean pollution, proudly sporting the ‘Clean Ocean Foundation’ bumper-sticker on my car, yet paradoxically through my recreation pursuits, I was also implicated within the ecological disarray of hooded plover habitats.

Attending to this paradox through the idea ecotones helps me to shift deeply set boundaries of anthropocentric and humancentric thinking. This is because just as ecotones act as
the meeting place, as a network of relations between ecological worlds, understanding myself through nomadic multiplicity of subjectivities, means that I am also webbed within a complex and mutually dependent co-reality, constituted through intersections of biological, ethical, spiritual, socio-cultural, political, and ecological forces. In other words, just as ecotones are not discreet, bordered, and self-contained, I am not an isolated, independent, and autonomous individual. Rather, we are both in constant negotiation with the material and discursive world around us, through a dynamic, ongoing, continual, and reiterative unfolding. Destabilising the default mode of anthropocentric and human-centric thinking, which tends to categorise and place things into neat boxes according to their static, fixed, and determinate properties, through the idea of nomadic multiplicity of subjectivities, then, I am in constant flux between myself as an ‘environmental activist’ and as an ‘outdoor recreator’, among other multiplicities of subjectivities.

Moving between the relational space through nomadic multiplicity of subjectivities, I am in a constant state of ‘becoming’. Without seeking to reconcile discordant and dissonant natures between things, I acknowledge their differences without resisting, negating, or transcending the present moment awareness of these subjectivities. This is analogous with Braidotti’s (2009), affirmative politics, as ‘a process of engendering empowering modes of becoming’ (p. 45). It is affirmative, because through my relational undertakings, I can mobilise, actualise and deploy cognitive, affective and collective forces of actual material relations, giving rise to the conditions of possibility to transmute values. Moreover, as I am always in a state of transformative ‘becoming’, normative versions pertaining to an ‘environmental activist’ and an ‘outdoor recreator’ fall away because I am disengaging and detaching from discursive categories. However, because each moment is imbued with discursive and material forces, my body is still
‘marked’ with affect. In this sense, I am always response-able for anthropocentric and humancentric destruction of the Earth, irrespective of the category discursively assigned to me.

In this same way, in moving between nomadic multiplicity of subjectivities within the figuration of a ‘Lady/Backpacker’, I undo the common grounds of a unitarian and dualistically opposed identity. In this way, ‘Lady/Backpacker’ detaches from the dominant state of representation, in which power structures of society ‘organise differences according to a hierarchical scale that is governed by the standardised, mainstream subject’ (Braidotti 2011, p. 28). Deleuze referred to this as ‘The Majority subject’ or the ‘Molar Centre of Being’; for Derrida, this is understood as ‘phallologocentricism’; and Irigaray called this ‘the hyperinflated, falsely universal logic of the Same’ (Braidotti 2011). Such detachment from the dominant state of representation is not set within a feminist/decolonising resurgence, in upholding categories of male/female, resident/foreigner, or settler/Indigenous. This is merely generating ‘multiplicities of same’, in maintaining a sense of ‘Otherness’ through structural representations (Braidotti 2011). Rather, reacting and responding to tensions between nomadic multiplicity of subjectivities, as they pull together and push apart, ‘Lady/Backpacker’ generates ‘multiplicities of difference’ in that it is always in a state of transformative ‘becoming’ through dynamic, ongoing, continual, and reiterative material/discursive intraactions with Land and people of Saskatchewan. This is analogous with Deleuze & Guattari’s (1987) dynamic, heterogeneous, and nondichotomous rhizome, in that ‘Lady/Backpacker’ is defined by connectivity, rather than hierarchy, in its implicating relationships, rather than a closed, fixed and essentialised identity as replicating relationships (Gough, N 2009).

What this means for the Researcher World, as one of the intraacting assemblages of this research, relates to Fawcett’s (2009) claim that ‘multiplicities offer a wilder, more ecological
vision of the potential of ecological learning’ (p. 228). This wilder, more ecological vision becomes more readily available within ecological learning, because, when human/nonhuman relationships resist an oppositional and dualistic consciousness, in that oppositions and dualisms are no longer the driving forces comprising difference, we return to Braidotti’s (2009) affirmative politics. Difference understood through affirmative politics is crucial to (re)storying human/nonhuman relationships, because it helps me to understand that of all life on the planet is entangled, yet differentiated, in shared futures. How this is understood in the relational context of my teacher collaborator, Lily, is explored next in Chapter Five.
Chapter Five: Researcher/Teacher Relationships with Land and Pedagogy

Ethics is about the cultivation of affirmative relations. Oppositional consciousness and the political subjectivity or agency it engenders must actualize this ethical urge in the sense that they labour to create alternatives by cultivating the relations that are conducive to the transmutation of values.

Rosi Braidotti (2010, p. 413)

5.1 Chapter Overview

Exploring how I came to give meaning to my relationship with Lily as the Researcher/Teacher Worlds intraacted, I first map differences and similarities between Lily and I in our shared space of entangled existence as a researcher/teacher. Drawing upon two examples from the researcher/teacher enactments, ‘Mindful Walking’ and ‘Mapping Worlds’, I turn to an exploration of affects emerging from intraactions in pedagogical events involving a dead sparrow in the school yard and teacher/learner discussions relating to perfectly imperfect drawings through pedagogies attuning with Land. These pedagogical events are juxtaposed with moments of rupture explored in a journal entry, bringing to light affirmative politics of vulnerability in opening to affect (Braidotti 2009; Despret 2013; Rautio 2017a). I end this chapter with an exploration of material/discursive entanglements within any given (pedagogical) event, helping me to generate the idea of care ethics as relational (Bergman 2004).

5.2 Entangled Researcher/Teacher Relationship

While I came to the researcher/teacher collaboration with my own agenda to trouble deeply structured dualisms of anthropocentric and humanocentric thinking in environmental education, working with Lily in this relational space meant that I was also interested in opening myself to affects emerging from my intraactions with her. Taking up notions of nomadic multiplicities of subjectivities, this involved releasing notions of a static, stable, fixed, and rigid sense of identity associated with normative versions of a postgraduate environmental education researcher. In this sense, I did not intend to collapse my own boundaries, becoming porous and
susceptible to external power differentials influencing how I understood my sense of self in the
world. Rather, this involved being open to how my sense of self with the world might be
*transformed through* my relationship. It was a process of ‘undoing myself’ and ‘becoming
unfamiliar with self’ (Rautio 2017a; Somerville 2007), in ‘becoming-other-to-one’s-self in
research’ (Somerville 2008, p. 209).

To understand the researcher/teacher relationship space, a cartographic and diffractive
mapping practice helped me to attend to the constraining/disciplining and
empowering/affirmative politics of location influencing my ‘becoming-with’ Lily. Through this,
I understood that Lily and I were different in that we came from different geographical
backgrounds, from two different continents in two different hemispheres. Yet, growing up on the
fringe of the Canadian prairies, Lily lived amongst her own ocean of sorts, not of water, but of
grasses, flowing in unison with wind currents resembling a wheat-coloured expanse of a drifting
sea in summer, and a white, frozen-tundra in winter (a picture drawn by Lily depicting her
childhood world is shown in Figure 5.2.1). Lily and I were different in our political dispositions
as I rarely deviate from the liberal left and Lily situated herself somewhere amid liberal and
conservative dispositions, moving between the two depending upon the topic in consideration
(Fieldnotes 2018). Our teaching philosophies in environmental education were also different.
Lily typically approached environmental education from civics and citizenship-type inquiry and I
typically approached environmental education from outdoor education movement-type
pedagogies. Parts of our teaching philosophies were surprisingly similar, however, in that we
both looked for an experiential and multisensory connectivity with Land in creating the
conditions of possibilities for students to develop a more ethically grounded ecocentric narrative.
As such, both Lily and I understood that to know something and to connect to something in
cultivating a meaningful relationship, there needed to be a tactile and embodied engagement with Land.

There were other similarities between us. We were both White, Western women, growing up in middle-class families with our parents working hard to have money. Although, Lily indicated that her community as a child was quite diverse in contrast to my childhood community, which was starkly White (in skin colour and disposition). Lily also told me that her community experienced high levels of racism given that there was a sharp divide between First Nations and Caucasian Canadians (transcribed researcher/teacher meeting notes 2018). And we both identified as spiritual, but not religious, derived from childhoods spent deeply immersed with edged oceanscapes and prairie landscapes. As Lily explained, it was because of her childhood experiences with Land that she adopted Land-based stories in her environmental education-type teaching practices. Lily provided an example of this in the following narrative:
At the right time of year if you go outside and sit and listen, and you’ll hear the sky talking. You'll hear a kind of hissing sound. It is the singing of the Northern Lights [shown in Figure 5.2.2]. That’s why First Nations have a fear of them and a fascination with them. Because they are spiritual. You can hear ‘nature’. Also, when I walk outside I will always whistle and then listen, because there will be a chickadee chatting with me and we have a conversation. They really are the gossips of the forest! (Transcribed researcher/teacher meeting notes 2017, my quotation marks, original emphasis)

Entangling my environmental education philosophy with Lily’s, I understood that we approached Land education through an ecospiritual lens in our adult lives, in which ideas of animism contributed to our ecological worldviews. Animism is a term coined in the 19th Century by anthropologist Edward Tylor that expresses the idea that the world is inspirited, stemming from the Latin word, anima, which means ‘breath’, ‘life’, or ‘soul’ (Greenwood 2005). Offering a path, way of life, or mode of encounter (rather than a doctrine or orthodoxy), Plumwood proposed philosophical animism, which ‘opens the door to a world in which we can begin to negotiate life membership of an ecological community of kindred beings’ (Rose 2013, p 93). Other scholars, namely, MJ Barrett (2011) have described animism as a relational ontology,
epistemically situating 'nonhuman animals and other entities including plant, animal, earth, sky, and in some definitions, spirit “person” as volitional and communicating subjects’ (p. 124, original quotation marks). This means that nonhuman worlds can consciously act through the will of choice and decision. For Lily, she described these ideas as ‘the energy of Land connecting to the energy of a person; the rhythm of the earth influencing the rhythm of the body’ (transcribed researcher/teacher meeting notes 2018). Lily understood Land as the locus, in which she could develop important relationships to emotion, relationships to learning, and relationships to family and friends. As Lily said:

I think for me, Land has a relationship attached to it; be it a learning relationship, an emotional relationship, or a family relationship. It’s full of all these connections. I connect Land with connection of something, some sort of attachment to one of those things - learning, friends, family. But a relationship for sure.

Being on the Land, it also makes me feel a comfort of some sort. Because, some of those times I’ve had in my past, and the connections I had, were those comfort connections. I think there is a big spiritual and emotional connection to the Land for me. For me, being on the Land or being out and about, for the most part, also calms me. It is really a calming force being in the quiet space outside of the city's busyness, or even in a quiet space in the city. Some of these things that have happened in my past have probably moved me to be the teacher that I am today. (Transcribed researcher/teacher meeting notes 2017)

As I learned about Lily’s world and ideas of ecospirituality through the initial researcher/teacher meetings, affects emerging from our intraactions sparked a deep curiosity in me. This was because I acknowledged the importance of postcolonial ethics to ‘unsettle’ a sense of land-based spirituality, understanding that settler emplacement stories of colonisation can work to co-opt and (re)appropriate First Nations’ cultural and spiritual ontologies of Land. In Chapter Four, I suggested that such ‘unsettling’ involved a (re)configuring of settler/Indigenous relationships (and human/nonhuman relationships) through a dissolution of static, stable, fixed, and rigid categories of identification in taking up nomadic multiplicities of subjectivities. In this way, understanding myself through nomadic multiplicities of subjectivities, provided the conditions of possibility for transformation with the world, through affects emerging from intraactions with the people and Land of Saskatchewan. I will now turn to an exploration of how affects emerging
from researcher/teacher intraactions were implicated in teaching practices of the
researcher/teacher enactments.

5.3 Teacher/Crow Story

In my first meeting with Lily, she told me a story about *Mojo* the crow (*Corvus brachyrhynchos*). As Lily explained:

I have a wild crow. His name is Mojo. Five or so years ago, Mojo had hurt himself at the Lake and I found him in the bush. I wouldn't let anyone kill him, because don't you dare - he is a spirit animal too, and you are not killing Mojo. Not on my watch. I don't know why I called him Mojo.

The next morning, he hopped across our lot into the other lot and one of the dogs found him. I wailed, “Leave Mojo alone!” In this time, another crow sat and watched us. Then, two or three of them came and watched and watched.

And the next morning, Mojo made his way to the beach. I saw him in a low branch of a tree. I talked to him every day: “Mojo, what's going on, man. I've got your back. Mojo, it's good!” And I would say to the other crows, “Crow man, its good, he’s safe with me, you just stay there, and I'll keep him safe here. You take care of him at night, I'll take care of him during the day”.

We shared responsibility.

This was when I was 40, not when I was 12, and everybody let me do it! My whole family! And then, Mojo was gone.

I was writing my Masters the next year and low and behold, I am sure it was Mojo. He’d come back and nested in around the trees at the lake. My trees are like, “damn crows!” Mojo brought his family, and while I was writing on the deck, Mojo's babies would be on the back of the chair - they'd talk with me. I would listen to them talk in different voices to their babies. They learned how to fly right in front of me.

Now, every time I am out with the kids, I see Mojo. Well, not really, but this is the story that you tell. And all the kids in my class will know that Mojo is around – “Look! There’s Mojo in the tree!” (Transcribed researcher/teacher meeting notes 2017)

Like my settler/wolf story in Chapter Four, Lily’s ‘Mojo story’ emphasised how she engaged a human/crow relationship through a shared response-ability and multispecies ‘taking care of’ (Rautio 2017a). While we cannot vouch for Mojo, suggesting that he benefited directly from intraactions with Lily (to do this is to slip back into anthropocentric and humancentric exceptionalism and supremacism), from a relational agency perspective, this teacher/crow relationship demonstrated a shared existence of humans/nonhumans within co-implicated existences. In other words, *through* Lily’s intraactions with Mojo, her subjectivity as a teacher
transformed to include stores of human/nonhuman relations, in which she imbued Land and nonhuman ‘Other(s)’ with a sense of liveliness and vibrancy.

Much like wolves in Canada, Western perspectives of crows are often met with a suspicious disregard. While they are not necessarily viewed as dangerous predators (as the wolf might be), Western cultural connotations of the crow often depict these birds as annoying pests or birds of ill omen. For example, crows as mythical characters of death was taken up in mainstream storytelling, namely Stephen King’s, *Children of the Corn* in 1977, which was made into a short film titled *Disciples of the Crow* in 1983. In contrast, crows are prominent figures in First Nations’ ontology, revered as intelligent guardians of the animate world. To illustrate this, Peter Blue Cloud (1989) from the Mohawk Nation tells a story of the Winter Crow:

> I touched the frosted landscape of my windowpane and left a huge dark bird etched there. Winter’s Crow was brother to the moon. He followed the hunters of a people in silence, he was concerned for the hunters. He saw far ahead of them what they sought and gave to them the vision I had borrowed from Creation. Each of us, Crow and myself, were content in our present meaning. (pp. 17-18)

And then, almost serendipitously, at the beginning of our first researcher/teacher enactment, ‘Mindful Walking’, we stumbled upon a dead bird in the school yard. While we could not clearly identify this bird, it resembled the markings and stature of a sparrow. Some of us in the class were curious about this sparrow, some of us were indifferent, and some of us were clearly distressed. As Lily retrieved some newspaper to clean up its remains, I asked her why she did not linger on the topic of death with her students, drawing upon her tales of Mojo as a point of relational connectivity. In her response, Lily was adamant that she would always approach the topic of death from a scientific lens, focusing on the physiology of dying in staunch detachment from any sense of ‘spiritual kinship’ with the bird. That is, she refused to explore any mythical or esoteric worldviews relating to death, commenting that this made it easier for children to socially/psychologically/emotionally/spiritually understand and accept. Yet, more importantly, she was concerned that delving into a pious conversation relating to death with her students
could be problematic for professional ethical standards in the situated context of her school, in which there are a myriad of religious doctrines that the children inevitably subscribed to. As Lily commented:

I think that realistically when you are talking about death, unfortunately in our society death is equivalent to a religion, so, if I go down the path of death, then I would have to then start addressing some religious points. Well, maybe, it’s spiritual, maybe it’s what God says, maybe there’s a heaven, maybe there’s a hell, and maybe there’s purgatory. The kids would have lots of questions. We mostly have a Christian idealism in our school, and a bit of Hindu and Muslim, but I am not in any kind of position to start teaching about the ethics of these religions. There is too much at stake. So, I go to that more scientific thing, because then it eliminates the religious and spiritual part of it, as I don’t believe it’s my duty, or my place to teach the kids or interact with these topics. I’m okay with ideas of spiritualism in terms of who they are as a spiritual being, but not regarding their higher powers. The topic is very tenuous.

Let’s turn this around to Mojo. Mojo is all about life. Mojo is about building relationships. Mojo is about having friends and having people that follow you, who are with you as your people. Mojo is my people and if you talk about an animal - that spirit of life - then you don’t talk about spirituality as in God and Buddha, you talk about the spirit of those relationships. The relationship with Land, and the relationship with animals, and the relationship with ‘nature’, instead of death.

Now you and I both now, and I truly feel, that death doesn’t have to be a difficult, controversial topic, but in our society, that is what it is, so I steer away from that to protect myself. (Transcribed researcher/teacher meeting notes 2018)

Lily and I both acknowledged that teaching practices are indeed socialised by discursive expectations of what was appropriate and that through discipling effects of educational discourse, teachers become constrained and disciplined by ‘normalising’ socio-cultural protocol. Yet, I found myself judging the situation, recognising an immediate and instinctual reaction to label Lily’s decisions in this pedagogical event as positive/negative and right/wrong. Following this, I was perpetuating the very either/or binary logics that I was setting out to (re)configure in this research. Therefore, working to enact a both/and logic, I sought to understand belonging in the common grounds of communities (comprising humans and nonhumans) through the ethics of relation agency, questioning and challenging who gets to decide who is included and excluded from belonging (Taylor et al. 2013).

I understood that Lily’s emphasis on relationships in her teaching practices meant that she knew her leaners in the context of this school enough to protect the integrity of their
social/psychological/emotional/spiritual safety. The bird’s carcass and the visibility of its death was too close, too confronting, particularly given the human/crow relationship they had formed with Mojo through Lily’s storytelling cultivating an interconnectivity with birds. In other words, given that Lily deeply understood her students, she made a proactive and conscious decision not to compromise a vital sense of trust that she had developed with them over the course of the school year(s). She negotiated a sense of openness in tapping into the transformative capacities of vulnerability, demonstrating the micro-politics of teaching practices through the actualising of potential. In this way, I take up Brian Massumi’s (2015) arguments, in that:

To move in an ethical direction, from a Spinozian point of view, is not to attach positive or negative values to actions based upon characterization or classification of them according to a pre-set system of judgement. It means assessing what kind of potential they tap into and express. (p. 11).

According to Massumi, this ‘is an art of emitting the interruptive signs, triggering the cues, that attune bodies while activating their capacities differentially’ (2015, p. 56), meaning that Lily tapped into the transformative capacities of vulnerability (Braidotti 2009). This is not seeking to transcend, escape, or rebuke vulnerability in these Anthropocene times, but is acknowledging the precarious realities of human/nonhumans in the sharing of the planet and activating discomfort as it becomes known. As Massey (2006) wrote:

there is loss, there is loss, as the mobile planet, human and nonhuman, continues on its way. There is material loss (things will disappear as they are reabsorbed into the cycles of destruction and creation); and there will also on occasions be a sense of loss’. (p. 40)

Tapping into the transformative capacities of vulnerability is not dwelling in grief and mourning, but crucially, it means that we remain open to affects emerging from a dynamic, ongoing, continual, and reiterative transformation of self with ‘Other(s)’.

5.4 Moments of Rupture: Finding Meaning in Vulnerability

Journal Entry 28th April 2017
In meeting with Lily in her classroom for the first time, my stomach was roped like a reef knot and I was awash with anxiety. I felt entirely intimated walking into this tightly-knit group that had been together as a class for almost an entire school year. While I was starting to build a trusting relationship with Lily, her students would be curious about me and I was concerned that they might reject me or ‘Other’ me because I didn’t sound like them. As I entered the classroom, there seemed to a restructuring of tectonic plates: a fusing and diffusing of people, as we instinctively assessed where I would fit in. And then, when the Canadian anthem blared across the stereo at 8.45am sharp, I stood mystified, not knowing a single word to sing. I felt myself quiet, reserved, not quite knowing what to say to Lily’s class. I did not want Lily’s class to think I was withdrawn and disinterested, only using them for my own transactional research purposes. In this moment, I felt a wall of defence rising and encasing me whole. I felt entirely separated and detached from their world.

Thinking about this morning’s experience as I write this now, I realise that although I was in a vulnerable position, hoping to substantiate meaningful connections with Lily’s class, my ‘shrinking back’ through feelings of vulnerability was an action set in fear. This was implicated in my larger desire to belong as I was afraid that due to my Australian ‘identity’ I would not be accepted as one of them. In this sense, I understood that an important distinction needed to be made between affects from the ‘fear and vulnerability relationship’- forming a set of rigid boundaries and affects from the ‘fear and vulnerability relationship’- forming an openness to change and transformation. That is, rather than trying to deny that a feeling of fear and vulnerability existed, I acknowledged the need to embrace the lived reality of these sensations without trying to change them, or distance myself from them. I used these moments of discomfort to activate a more profound relationship with Lily and her class in understanding that we were
all in this thing called learning together. This experience, which I could have deemed as
‘negative’ and as something I didn’t want to embrace, presented an opportunity to examine and
transform my relationships into something more meaningful.

(Fieldnotes 2017)

5.5 Affirmative Politics of Vulnerability: Opening to Affect

Through affirmative politics of vulnerability there is opportunity for self-interests to
become entangled within the wellbeing of an enlarged sense of community, understanding co-
made territories of shared existence between humans and nonhumans (Braidotti 2009; Rautio
2017a). For example, Braidotti (2009) understood the importance of vulnerability to be rooted in
affirmative politics, suggesting that a shared unity should not be formed from a deficit
perspective of grief and mourning for personal and collective losses, as this only perpetuates
‘multiplicities of the same’. The power of vulnerability through active transformation of the
negative through to generative potential, was also taken up by Rautio (2013) in her suggestions
that relying on the ‘other’ to generate an understanding of ourselves with the world, means that
the difference of the ‘other’ is affirmative, inspiring ‘multiplicities of difference’. As such,
through affirmative politics of vulnerability that activates negative disposition of vulnerability
towards transformational potential, vulnerability loses its capacity to produce power differentials
(e.g., to be vulnerable is to be less). This is because power differentials are challenged through
the choreography of difference, bringing forth new assemblages and new worlds through
transformations of ‘becoming-with’.

The potential of vulnerability to enact a ‘becoming-with’ not only means looking for how
vulnerability might offer capacities for transformation, but how vulnerability might also open us
to affect in providing the conditions of possibility to be affected and simultaneously affecting. As Barad (2017) explained:

Perhaps it is a way of un/doing the self, of touching oneself through touching all others, taking in multitudes of Others that make up the very matter of one’s being in order to materially transform the self and one’s material sense of self. Perhaps it is about the willingness to put oneself at risk, to place one’s body on this wounded land, to be in touch with it, to have a felt sense of its textures, to come to terms with a shared sense of vulnerability and invisibility, to feel the ways that this land, this void, which marks the colonisers’ continuing practices of avoidance, always already inhabits the core, the nucleus of your being. (pp. 82-83, original emphasis)

Taking up vulnerability through affirmative politics means that there is opportunity to let go of defences and static, stable, fixed, and rigid boundaries defining identity, moving into an understanding of ourselves through nomadic multiplicities of subjectivities. As our subjective ways of being in the world consists of interrelational forces of affectivity, in this way we open ourselves to the capacity to affect and be affected (Braidotti 2009; Rautio 2017a).

The importance of vulnerability in social research is not new. For example, Brene Brown (2006) argued for the power of vulnerability to help people understand and deconstruct notions of shame. Suggesting that numbing vulnerability inhibits any sense of ‘spiritual awakening’, Brown claimed that it is through allowing ourselves to be ‘deeply seen’, that a strong sense of love and belonging can prevail. Brown’s ideas of vulnerability working to promote a sense of being ‘deeply seen’ are useful to this research, in that processes of vulnerability can help us learn what might matter to other kinds of living beings. Vinciane Despret (2013) called this an ‘embodied empathy’, which ‘describes feeling/seeing/thinking bodies that undo and redo each other, reciprocally though not symmetrically, as partial perspectives that attune themselves to each other’ (p. 51). As Myra Hird (2013) also noted, an ethic of vulnerability is sensitive to both ‘human and nonhuman asymmetrical vulnerability to an unknowable future’ (p. 105).
Interested in affirmative politics of vulnerability as implicated in our capacity to be affected and to simultaneously affect, I asked Lily how she might understand the importance of vulnerability in relationships in her own teaching practices. As Lily said:

The biggest thing that you need to do is to build the culture of your classroom. Once you have kids with you, you have them. If you have that relationship, growth is going to come regardless of what you are doing. So, the first month, I really am a team builder. We build the team. We talk team, we talk circle, what we are, what we expect, and I have clear lines of my expectations.

I have a metaphorical ‘box’ that we (the kids and me) will go to for time-out. But, we never stay there for long, because the very idea of the ‘box’ is just what I need to bring us back to a cohesive community of learners. Once we come out from this ‘box’, we are ready to learn - to go off and do something else. I give the kids, and myself, the space we need to learn.

If you look in the classroom, there is a circle in the middle of the room. In the middle of the circle are all our faces that the kids drew on the first days of school. I am in the middle and all you can see are my eyes. Because I must be the eyes. It’s about safety, right. I am the one who is responsible, the one who is looking out for everyone, so I am in the middle of the circle. But we are in the circle and the circle isn't perfect. It’s a perfectly imperfect circle.

We all have a relationship and we're a team. Like our circle shows, we talk lots about the meaning of a circle, and relationships, and what this means at school. This promotes a lot of respect, and responsibility. Some of the questions I ask are what kind of decisions are you going to make to be in this classroom? Who are you going to be? How are you going to make those decisions? Safety decisions. Another activity that I do to build trust is I giving the kids three sticky notes. On these sticky notes they must write one thing they want to tell me about themselves, one thing they want me to know, and one thing they want to do/learn in the year. It becomes evident that the kids learn about their vulnerabilities over time and really learn how to work with them.

But we have that core relationship that helps explore these vulnerabilities. And through clear expectations, students understand that if they can't live with these expectations, then we can actively sort through it. I build this ethic through relationships and deeply knowing the kids. Not just being their teacher, but deeply knowing them and calling them on their behaviour - having those hard conversations if need be. Sometimes being that mean teacher, perhaps saying I don't accept that from you. Period. I have a strong voice in that, and kids know that I am not going to brush them off. (Transcribed researcher/teacher meeting notes 2017, original emphasis)

I also queried whether Lily shared her own vulnerabilities with her students in the same manner that they confronted their own through these activities. To this, Lily replied:

All the time. I am a teacher, but do I really need to be perfect? If you are going to have a relationship with somebody, to connect with them, you need to be able to tell them that you can't do something. It is important to be real. To not try to be something that you are not. (Transcribed researcher/teacher meeting notes 2017)

These conversations with Lily further prompted me to inquire how she might expand ideas of affirmative politics of vulnerability beyond relationships with each other (as humans) to include relationships with Land. As Lily said:
Because you are building that relationship with the kids and then I am going out and talking about Land in a passionate way, the fact that they have a relationship with me, they are more likely to say, “she’s right!” They are in a space of comfort, care, and connectedness with me. Then we go outside and in connecting with Land, a deep learning is going to happen because they trust me.

They trust that I am telling the truth. They trust that what we are doing is deep learning and that it is an important thing, because I don’t give them things that aren’t important in their mind. Because I have a relationship with the kids and I share with them, these Land experiences are credible and trustworthy.

(Transcribed researcher/teacher meeting notes 2017)

Lily’s narratives point to the idea that sense-making is co-constituted through researcher/teacher/student/Land relational entanglements. This approach to sense-making is not determined through the cause and effect of teaching and learning within representational forms of knowledge acquisition (e.g., Cartesian representational knowing), in which a subject and object of learning interact as detached and separate. Rather, sense-making is the reiterative, open-ended, random, chance consequences of affects emerging from interactions with the world. In this way, Somerville (2007) suggests ontologies of ‘becoming’ rather than an ontology of ‘being’, highlighting that, ‘new knowledge cannot be generated in the logic of cause and effect…[rather it emerges] …from the space in between elements in complex dynamic systems’ (p. 237).

As Lily’s educational philosophies regarding the importance of relationships influencing how learning would be approached became entangled with my own personal environmental education teaching philosophy, the researcher/teacher enactments evolved from question/answer type pedagogical approaches to know about Land, taking up pedagogies attuning with Land.

5.6 Pedagogies Attuning with Land

Pedagogies attuning with Land in the researcher/teacher enactments prioritised a deepening and widening of self, in slowing down through quiet stillness with Land. As Lily and I embraced silence between questions and stillness between movements, using these spaces to inspire a deeper awareness of how learners might be emplaced with the world, the researcher/teacher enactments provided opportunities for myself and Lily, and Lily’s students to
enact a ‘becoming-with’ Land. As previously mentioned these approaches were derived from Lily’s overarching environmental education philosophy, as she mentioned:

I believe that the kids are too activated in our society and in school. The school runs at a high level and kids need to know how to have that mindful discussion with themselves. I think it’s important that kids know how to be mindful of quietness, because I think our Land needs us to be quieter. I think our world needs us to be quieter.

Don’t get me wrong you can be loud and crazy too, but I think we need to slow down and be in that still place, in peace, so that we can look upon the Land, look at what we’re doing, and make decisions about these things.

I want to be the teacher that goes to the Land with Grade 4/5s and helps them learn how to quiet themselves on the Land, to see the seasons change and count the geese, to talk about how we are infringing on their territory.

One of the things that we do when we go out to a quiet space - I don't care if it is winter or summer, or spring or fall - they go and lay in the grass. And they would do art or write.

I don't believe that my voice is going to change development. But, I do believe that my voice will help kids think in a different way. At least giving them a baseline opportunity to rethink things that they are seeing, doing, and hearing around them. To give them another way to think, and another way to look, and another way to sit upon the Land, and to not always rush and run to the next thing. (Transcribed researcher/teacher meeting notes 2017)

Lily’s focus on quiet stillness could be looked upon as resembling ecospiritual undertakings of deep ecology, as pioneered by Arne Naess in the 1970s. Spurred by the ‘Age of Ecology’ (Sessions 2014) or the ‘Ecological Turn’ (Tinnell 2012), deep ecology acts as a return to planetary holism, and notions of the earth as a single, sacred organism (Braidotti 2013). At its fundamental level, deep ecology calls for individuals to expand via self-realisation and an identification with ‘nature’, laying foundations for the development of an ‘ecological identity’ (e.g., Thomashow 1995) and spiritual solutions to modernist worldviews and the anthropocentric mastery of ‘nature’. Yet, limitations of deep ecology have been illuminated by some ecofeminists, namely Plumwood and Salleh. For example, Plumwood (1991) argued that, however well-meaning it appears to be, deep ecology enlarges humanist self-interests. Salleh’s (1992) critique of deep ecology emphasises its focus on rationalism and technicism in its objectifying of ‘nature’ as a disconnected abstraction. As Salleh rhetorically states, ‘Surely, we want reintegration with our natural, material base, not abstract, disembodied, transcendence out
of it?’ (p. 213). In this sense, although deep ecology is committed to ecocentric narratives, it relates to ‘nature’ in a way that perpetuates the very dualisms that it opposes, given that it sees ‘nature’ as a ‘lost part’ of one’s self that needs to be re-claimed (Sessions 1991). Further, as deep ecology is opposed to the industrialisation of the earth and tenacious global developments of technology, it is not a particularly helpful perspective to challenge and respond to ecological disarray, given the reality of our technologically-mediated, globalised, neoliberal, and capitalist world of today (Braidotti 2013).

Within the ecocentric turn of the environmental education field, Lily’s practices could also be analogous with Payne and Wattchow’s (2009) conceptualisations of ‘slow pedagogy’. In their call for an increased means to alternative styles of reflection, including the poetic and silent, ‘slow pedagogy, or ecopedagogy, allows us to pause or dwell in spaces for more than a fleeting moment and, therefore, encourages us to attach and receive meaning from that place’ (Payne & Wattchow 2009, p. 16). The focus on embodied practices working towards unifying mind and body in environmental education are typically grounded in philosophical positionings of ecophenomenology, as pioneered by Edmund Husserl. For example, phenomenologist, Maurice Merleau-Ponty, argued for the reorienting of ontological dualisms, claiming that we are our bodies, and that lived experiences unite mind and body towards a Body-subject (Reynolds 2004). However, while the Body-subject is conceived of as enacting dynamic interactions in many directions within the ‘flesh’ of the world, this idea prioritises human perception, with a focus on how the human is positioned in the world. Within this, although discursive understandings of human/nonhuman relationships are important, I am not only interested in the socio-cultural positioning of bodies in ‘nature’, but also, how materiality (re)configures subjective ways of knowing, being, thinking, and doing with the world.
Taking up Deleuze and Guattari’s (1987) idea that the body is understood through what it can do, its performances, in the processes of becoming, therefore, I understand Lily’s approaches to ecospirituality as an ‘outward bound’ expression of nomadic multiplicities of subjectivities. As Braidotti (2002) described, an ‘outward bound’ expression is not characterised by ‘the expression of in-depth interiority, or the enactment of transcendental models’ (p. 70), but expression is evoked through intraactive relationships with ‘Other(s)’. In (re)configuring subjects at their relational level, this is not an enlargement of self-hood (Braidotti 2013), rather, it is asking how our subjective ecologically-centred selves might look, if we can know ‘Other(s)’ through ourselves (Rautio 2017a). Following this, pedagogies attuning with Land are not set within a phenomenological undertaking, but they work towards an expanded sense of relational subjectivity through an ‘affective entering’ of ‘Other(s)’. Departing from anthropocentricism and humanancentricism, pedagogies of attuning take up an intuitive knowing of ‘Other(s)’ from within. Enacted through proximity and direct experience, Rautio (2017a) described this is as ‘knowing a way or a joy of life other than one’s own as to how it feels—not to the other, but to oneself’ (p. 7, original italics). Haraway (2008) called this the practice of ‘otherworldly conversations’, in which nonhumans are not objects, but subjects differentiated through ethical relations.

These ideas were actualised during the second research/teacher enactment, ‘Mapping Worlds’, in which students were invited to lie on the grass with their eyes closed and with a piece of paper resting on their chests/stomachs, they were asked to map the world around them. In discussions following this activity, Lily asked her class to look closely at the world around them, prompting her students to note how the material aspects of Land seemed to appear as perfectly imperfect. As Lily reminded her class:

Why are people worried about the perfection of their picture? What else around us might be perfectly imperfect? The trees are lopsided, the clouds are messy, the benches over there are symmetrical, but they have graffiti on them, and the metal poles have chips in them. Even this hill is lopsided and there are
different colours in the grass. Do you think the Land out here speaks a different language to us and that the clouds bumping into the sun might be their way of greeting, of relating to each other? (Fieldnotes 2017, original emphasis)

Pedagogies attuning with Land in the researcher/teacher enactments did not intend to anthropomorphise Land in assigning humancentric narratives to understand experiences of/in Land, as we look upon Land from a detached distance (Haraway 2016). Positioning ourselves this way maintains subject (human)/object (‘nature’) binaries, in that we act out our teaching intentions through the idea of humans as active and Land as passive in the background (Hultman & Lenz Taguchi 2010). Within this, I acknowledge that we, as humans, are fundamentally different to earthly materiality, as Richard Grusin (2015) claimed, likeness-in-human terms might work to form correlational resemblance between humans and nonhuman ‘Other(s)’, ‘but it can never actually attain the inner being of those other entities’ (p. 25). Yet, acting as a boundary-making practice between humans and Land, ‘Mapping Worlds’ challenged a foundationally divided and distinct border between human/nonhuman differences (Opperman 2013). Bringing to life vital human/nonhuman entanglements, pedagogies attuning with Land, therefore, provided opportunities for affect to ‘mark’ bodies with vibrancy and liveliness (Bennett 2010; Jones & Hoskins 2016; Rautio 2013). In other words, acknowledging that existences in the world are relational, pedagogies attuning with Land facilitated an understanding of ourselves, and our own patterns of thinking, knowing, being, and doing, to be intraactively entangled with Land.

Emphasising notions of relational agency, this (re)working of self with/through intraactive relationships with Land offers a different pathway to longstanding educational priorities. By this, the model, in which an individual child demonstrates cognitive development (e.g., Piaget 1928, 1952) and agency through actions of competency, strength, independence, and autonomy, albeit within social constructs of education (e.g., Rogoff 2003; Vygotsky 1978), is
challenged, because relational agency does not already depict the learner as ‘lacking’. In other words, relational agency broadens the model of children as discreet beings empowered with agency when provided the right tools for learning, to embrace the idea that they are *already* complete beings. In this way, children (and adults and nonhumans) *emerge* through their entangled intraactions *with* the world (Hultman & Lenz Taguchi 2010). As Karin Hultman and Hillevi Lenz Taguchi (2010) suggested:

> Instead of debating whether children are in fact incomplete beings who should be socialised into competent and independent adults or whether they in fact already are competent and independent…we should turn our attention to the supplements and extensions that the children, just as adults, constantly connect to in different ways. (p. 531)

Taking up the affectivity of materiality, teaching endeavours within the researcher/teacher enactments were not interested in obtaining specific objectives somewhere out in the future, focusing on child-centred development. Rather, through ideas of relational agency, in which material and discursive forces are entangled in sense-making, teaching and learning practices are grounded in the lived, embodied, and embedded present moment (pedagogical) events of intraactions with the broader ecology of the world (Bertelsen & Murphy 2010; Nxumalo & Cedillo 2017; Taylor & Pacini-Ketchabaw 2015). This idea implicates environmental education, because the focus on homogenous social relationships shifts to include heterogenous relations *between* species (Taylor & Giugni 2012). Illuminating the question of how we can learn to live together with other humans and nonhumans, I take up an understanding of heterogeneous relations between species, through the idea of *relational care ethics* in the *pedagogical event*.

### 5.7 Relational Care Ethics in the Pedagogical Event

The *pedagogical event* is important to this research (e.g., pedagogical events pertaining to the dead sparrow in the school yard in ‘Mindful Walking’ and the conversations that Lily had with her class in ‘Mapping Worlds’), because the idea of pedagogical events draws upon
‘complex entanglements between bodies, natures, and discourses’ (Opperman 2013). That is, because pedagogical events are an entanglement of agentic assemblages, which are relationally inclusive of all bodies (the materiality of humans and nonhumans) and discursive practices (social, legal, and linguistic constructions) (Bennett 2010), care ethics become relational. Care ethics as relational are different to:

- a care ethic of self (e.g., Foucault’s Technologies of the Self’);
- a care ethic for other as separate entities (e.g., Emmanuel Levinas’s ‘care ethic for others’); or,

- a care ethic for the externalised environment (e.g., Leopold’s ‘land ethic’).

For example, drawing on ecofeminism as set within critical theory and/or poststructuralism, the focus is typically on human categories (e.g., male/female and human/nonhuman relationships). Pursuing democratic citizenship and social and ecological justice, (eco)feminism might seek to deconstruct systems of hierarchy (Gaard 2011) to inspire politicised care ethics (e.g., Noddings 2013; Russell & Bell 1996). Grounded in the rights of the oppressed, politicised care ethics assimilate a performative affinity from caring to activism (MacGregor 2004; Warren 2000, 2002).

Expanding beyond politicised care ethics that work to maintain ‘multiplicities of the same’ (e.g., ecofeminist resurgence acting from positions of oppression), relational care ethics, however, advance ecofeminist schools of thought as set within critical theory and/or poststructuralism. This is because, when caring is understood as relational and comprised of discursive and material forces within any given pedagogical event, gender is not the central focus. In this way, females are not the only actors within ecological claims of social-ecological
justice. This vision of ecology without gender is reflected in Opperman’s (2013) new ecofeminist settlement that:

Can be read as an emergent configuration that debunks the objectification of the natural world, women, matter, bodily natures, and nonhuman species, and opens new eco-vistas into exploring the dynamic co-extensivity and permeability of human and nonhuman bodies and natures. (p. 68)

In other words, because relational care ethics is differentiated from caring as a virtue or as agent-centred (Bergman 2004), universal and essentialist care ethics typically associated with females are subsequently dismantled (Kirby & Wilson 2011).

Returning to the pedagogical event of the dead sparrow, it could be argued that Lily’s approach to this event was set within care ethics for her classroom community (e.g., Levinas’s ‘care ethic for others’), given that she was concerned with how her students might be socially/psychologically/emotionally/spiritually impacted by the death of the bird. Through an anthropocentric and humancentric gaze, I might, therefore, examine this idea to account for how the teacher and/or learners experienced this event. However, moving away from an analysis of human experience through cartographic approaches to understanding, I mapped how subjectivity is relationally situated and contextualised within the grounded, lived, embodied, and embedded politics of location in teaching practices (Braidotti 2011). Moreover, through diffractive approaches to understanding, I revealed entangled differences illuminated through affects emerging from intraactions in this pedagogical event. That is, while Lily was concerned with protecting the social/psychological/emotional/spiritual integrity of her students in attending to discursive tensions relating to the topic of death, while she did not directly confront her students with pious topics of death, the topic of death was inadvertently attended to through a grounded materiality in conversations involving the entangled composing/decomposing of flesh (through her scientific and physiological accounts of death). Therefore, as discursive and material forces were both imbued in sense-making of this event, caring was understood as relational, because the
event accounted for how affects implicated *all* bodies (human and nonhuman). Further, while the pedagogical event in ‘Mapping Worlds’ could be looked upon from anthropocentric and human-centric gaze, to understand the researcher/teacher relationship with Land and pedagogy, I was not interested *how* Lily (or her students), or myself, *experienced* Land and pedagogy, upheld binary logics. Rather, exploring affirmative politics of vulnerability through pedagogies attuning with Land, I was able to challenge trouble human/nonhuman categories and subject/object boundaries highlighting relationally entangled, yet differentiated, worldly existences. What this might mean for the broader context of environmental education, as set against Saskatchewan curriculum policy mandates will be explored next in Chapter Six.
Chapter Six: Negotiating A Lived Curriculum

The idea of subjectivity as an assemblage that includes non-human agents has a number of consequences. Firstly, it implies that subjectivity is not the exclusive prerogative of anthropos; secondly, that is not linked to transcendental reason; thirdly, that it is unhinged from the dialectics of recognition; and lastly, that it is based on the immanence of relations.

Rosi Braidotti (2013, p. 82)

6.1 Chapter Overview

Expanding upon the researcher/teacher relationships with Land and pedagogy, this chapter is an exploration of micro/macro spheres within practice/policy relationships of environmental education and wider curriculum policy goals of the Saskatchewan Ministry of Education. As such, this chapter explores affects emerging from intraacting Researcher/Teacher/Environmental Education Worlds. To begin, I include a journal entry written after a pedagogical event with Lily’s class, demonstrating how my body was ‘marked’ with affects emerging from my intraactions in this pedagogical event, transforming how I understood curriculum policy. I then proceed to map Lily’s approach to curriculum in her uptake of environmental education-type teaching practices, setting this against Saskatchewan curriculum policy mandates for environmental education. Turning to an exploration of how the researcher/teacher enactments approached environmental education teaching-type practices through transdisciplinary teaching, I discuss ecosophical (re)orientations of curriculum in environmental education teaching practices to engage in a pedagogy/curriculum ‘becoming-with’. I then explore Aoki’s (1993) notions of ‘curriculum-as plan’ and ‘lived curriculum’, to provide a contextualised example of how Lily and I enacted a lived curriculum in dwelling in the tensions of difference between a policy-driven discourse and living/teaching in the present moment politics of location.
6.2 Moments of Rupture: Tools, Toys, and Friends in the Pedagogical Event

Journal Entry 17\textsuperscript{th} January 2018

As I travelled to meet with Lily for the first time in 2018, Saskatchewan had plunged into the depths of winter. The trees stood in solid defiance, stark and naked against quiet skies. There was no sound of Canada Geese (\textit{Branta canadensis}), mallard ducks (\textit{Anas platyrhynchos}), robins (\textit{Turdus migratorius}), finches (\textit{Haemorhous mexicanus}), sparrows (\textit{Zonotrichia albicollis}), or flapping aspen (\textit{Populus tremuloides}) groves; just the occasional coo and caw of the crow (\textit{Corvus brachyrhynchos}). The only other sign of wildlife was the odd white-tailed jack rabbit (\textit{Lepus townsendii}) footprint, leaving traces across the snowy yards of smoke-billowing homes as they roamed local neighbourhoods. The Land was quiet. Frozen in silence (shown in Figure 6.2.1).
Lily and I attempted to engage our fourth and final multisensory researcher/teacher enactment, Eco-Art Installation, today, but temperatures were hovering at -30 degrees Celsius. I, for one, was grateful for the School Division’s policy mandating schools to remain indoors in temperatures below -27 degrees Celsius (including wind chill). Some schools implemented the Polar Bear Club, meaning that children equipped with adequate clothing could play outside at recess and lunchtime, of course with parental approval and consent. Yet, today, it was far too cold to be trekking across town on a local bus, even in my sleeping bag-sized puffa jacket, rendering me completely unrecognisable. As such, Lily and I mused over alternatives, and through Lily’s initiative as a keen improviser, we made other plans for her class. This reminded me of the dynamic, messy, contingent, and contextualised space of the classroom in that change was imminent at every moment. And was I ever grateful for this rupture of events, causing a fissure in the scheduled plan for the ‘Eco-Art Installation’, re-routing us to a new line of flight that proved to inspire new growth in my understanding of environmental education curriculum.

As the class settled on the rug, away from more formal structures of chairs and tables, Lily talked with her students about different tools that they might use for their learning - pens, paper, and books being obvious choices. Lily asked her students to think creatively about other tools that they might adopt and use for learning, inviting them to gather in pairs to explore the school for other types of learning tools. Through a conversational approach with her children, the dialogue moved from discussion of how these materials can be used as tools for learning, to a discussion differentiating tools from toys. Lily further inquired with her students how they related to, and understood, their pets at home (if they had any), and whether they categorised

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20 The average temperature for January in the city of Saskatoon, for example, is -17.9 degrees Celsius. The coldest day of January 2018 was on the 12th of January, with temperatures falling to -32 degrees Celsius (Government of Canada 2018).
them as a tool or a toy. Watching Lily converse with her class, I was intrigued by where this discussion might lead. And then something wonderful happened! Lily turned the discussion relating to the instrumental utility of things for learning to a discussion infused with ideas of relationality. She illuminated the idea that pets and plants in our homes might not be a tool, or a toy, but a friend. As an inroad to further discuss ideas of kinship with Land, the affects emerging from Lily’s conversation with her class prompted a sense of wonder, amazement, and delight in me, as I thought about what it might mean for environmental education teaching practices, if we saw curriculum policy as imbued with a lively vibrant materiality – as something that is relationally (re)configured, rather than as something that is impersonally and politically prescribed to teachers.

This sense of relationality might help teachers to engage with policy in a generative way, because, as I understood it, so many teachers, including myself, were incessantly frustrated with their teaching practices being constrained and disciplined by a policy-driven discourse of instrumentalist, technicist, and mechanistic teaching practices. This inspired a deep sense of curiosity to further think about what could happen to our teaching practices, if curriculum policy was not just another educational discourse that demanded our entire attention in an already over-crowded curriculum, but if it was understood relationally - as a ‘friend’ in the ‘making-with’ of ourselves as teachers in ‘becoming-with’ curriculum.

(Fieldnotes 2018)

6.3 Teacher Approaches to Curriculum in Environmental Education

Lily’s commitment to relational connections in environmental education was substantiated through curriculum applications of civics and citizenship, as demonstrated through community engagement with diverse socio-cultural and material communities (people and Land)
Chapter Six: Negotiating a Lived Curriculum

(Transcribed researcher/teacher meeting notes 2017). For example, cultivating an extended classroom to include settler/First Nations reconciliation and community activism, Lily and her class regularly attended First Nations community events and collaboratively engaged with teachers and students from schools with significant First Nations students. As Lily commented:

I come from a very strong First Nations way of thinking. Yet, I don't believe it is only a First Nations way of thinking, I think it is a thinking of Land. I believe that you need to give kids more space and time, and not sit them in a classroom, at a desk, in a row - they're kids! They need to grow, they need to be there on the Land, in the sunshine, in the snow. (Transcribed researcher/teacher meeting notes 2017)

As Lily clarified, forming relationships with First Nations people helped to enact culturally responsive pedagogy, in which she could experientially attend to Saskatchewan’s mandatory treaty education (Government of Saskatchewan 2008). Following this, through her ongoing commitment to exploring and cultivating a diverse community of learners (comprising people and Land), Lily was anchored to a holistic, systemic, and ecological integration of Saskatchewan curriculum policy mandates, which prioritised the teaching and learning relationships between disciplines.

Discipline divisions, in which subjects of inquiry are separate and discreet are rooted in Aristotelian philosophy and motivated by the idea that separating knowledge is a more efficient way of learning in its systematic attention to progressive mastery of skills (Jacobs 1989). In contrast, interdisciplinary approaches to curriculum stem from Platonian ideals of unity as the highest good in all logic (Jacobs 1989). According to Heidi Jacobs (1989) interdisciplinary is ‘a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience’ (p. 8), as taken up by Lily in the example of her ‘Mining Project’. As Lily said:

I don't look at curriculum first, I look at a project, then I find the links – that backward linking. Some of the things that I do is to engage project-based work and to think through connections. I look through a lens of ‘nature’, through a First Nations’ lens, or a community lens. And I find ways that I can connect the kids with what we're learning through a book, or what we're learning through an idea to the reality. For example, in my ‘Mining Project’, instead of teaching rocks, minerals, and mining out of a text book, dictated by what the curriculum prescribes to me, I look at it more holistically.
The project will involve cooking together to make a cake. Inside the cake is going to be the things that the kids are going to ‘mine’. I will bring in community members to talk with the kids. For example, someone from BHP Billiton, and North Rim Mines will come to talk about rock and geology. The Saskatchewan Environmental Society will come and talk about rehabilitation of Land and discuss some prevailing environmental concerns A First Nations leader will visit with us to talk about the connection of First Nations with Land, and with mining. And I will also have someone from the local government come and talk with the kids about policy-making on these matters. Then, we will go outside to Land and go on a rock-hunt to find rocks. We will then use my rock tumbler and try to identify some of the rocks.

We are looking at human relationships and relationships with the Land. Community building. Because all these people are members from our community, bringing ideas of connections to Land. We will ask questions like, “What are we doing to our Land?” Through the ‘river of knowledge’, this Mining Project will then bring us right into First Nations/Indigenous Day, which is the 1st Day of summer [June 21]. For me, that's how I engage the whole structure, because the kids are not just engaged in that paperwork stuff, but they are engaged with their community. They will notice what they see and hear in the news and be able to connect that information to the time they sat on the Land. (Transcribed researcher/teacher meeting notes 2017, my quotation marks)

This backward linking that Lily described resembles a constructivist type pedagogical approach, in that learners construct their own knowledge and understanding of the world through an experiential praxis. In this sense, as constructivism acknowledges the complexity and uniqueness of learners, it attends to a diverse range of socio-cultural backgrounds in any given classroom influencing the learning process (Jacobs 1989).

As Lily explained, what is also pertinent to note is that the term, ‘sustainability’ was not well-adopted in her environmental education-type teaching practices. According to Lily:

I think [sustainability] is more infused through specific teacher autonomy than [policy] directed. Yet it is still not in a bright light. I think it is coming in with some teachers, because whenever we think of Land, we inevitably come back to sustainability. There are projects that some teachers have, but we're still living in oil country after all.

In my teaching over the last few years I have certainly tried to teach the kids how to be thinking in a sustainability frame of mind or thinking about how we are connected to the earth and affected by it. I try to give them at least some baseline stuff, as best I can - to get them out to the Land and have them see that, “this is you, and this is where you live. This is what’s happening; how do you feel about that?” But, I am not out there to teach kids to ‘rage against the machine’. I just want them to look at Land, perhaps how our ancestors looked upon Land, or how First Nations people looked upon the Land. How to love the Land. How to listen to the Land.

Stewardship, sustainability, and community building are all linked, because if you are a steward, you're going to have more ideas relating to sustainability, and that is going to build community. And people talk about the 3R's [reducing, reusing, recycling]. And they do projects on carbon, and electricity and water use, which are all greatly important and we need to have a baseline knowledge of these things. But, I think it is more important to link this back to practices of touching, listening, feeling, and living Land. I think we’ve gotten away from this in our culture. I mean we were Land-driven people in Saskatchewan and now with all these easy lifestyles that we’ve got. (Transcribed researcher/teacher meeting notes 2017)
While Lily commented that ideas of sustainability were somewhat pertinent to comprehensive environmental education teaching practices, she emphasised the importance of a multisensory and embodied teaching and learning practices with Land through ideas of touching, listening, feeling, and living Land. Such environmental education teaching philosophy, as taken up through holistic, systemic, and ecological integration of Saskatchewan curriculum policy mandates, expanded beyond common practices, which typically take up environmental education-type teaching through sustainable development as depicted in the Resources and Wealth goal of the Social Studies framework (Transcribed researcher/teacher meeting notes 2017, 2018). The aims/goals and learning outcomes of the Social Studies: Resources and Wealth goal for Grade 4/5 are highlighted in Table 6.3.1.

Table 6.3.1 Aims/goals and learning outcomes of the Social Studies: Resources and Wealth Goal

<table>
<thead>
<tr>
<th>Aims/Goals</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine various worldviews about the use and distribution of resources</td>
<td>RW4.1 Analyze the strategies Saskatchewan people have developed to meet the challenges presented by the natural environment;</td>
<td>RW5.1 Explain the importance of sustainable management of the environment to Canada's future;</td>
</tr>
<tr>
<td>and wealth in relation to the needs of individuals, communities, nations,</td>
<td>RW4.2 Investigate the importance of agriculture to the economy and culture of Saskatchewan;</td>
<td>RW5.2 Hypothesize about economic changes that Canada may experience in the future.</td>
</tr>
<tr>
<td>and the natural environment, and contribute to sustainable development.</td>
<td>RW4.3 Assess the impact of Saskatchewan resources and technological innovations on the provincial, national, and global communities.</td>
<td>(Saskatchewan Ministry of Education 2010ab).</td>
</tr>
</tbody>
</table>

The goals/aims and learning objectives of the Social Studies: Resources and Wealth goal, as depicted in Table 6.3.1, are certainly important with a comprehensive approach to environmental education. Yet, as environmental education scholars have suggested (e.g., Hart 2002; Sauve et al. 2005), sustainable development’s focus on social and economic development
is often to the detriment of environmental/ecological outcomes. Following this, the researcher/teacher enactments sought to implement a broad view of environmental education, which was not set within any one restrictive or reductive approach, avoiding, as Sauve (1999) wrote, ‘environmental education as an instrumental strategy for implementing sustainable development’ (p. 11). Drawing upon Lily’s priorities relating to project-based inquiry through interdisciplinary learning, therefore, we included a variety Saskatchewan curriculum policy learning outcomes, taking up Arts Education, English Language Arts, Health Education, Science, and Social Studies in our environmental education-type teaching practices. Implementing environmental education in this way enabled us to adopt a holistic, systemic, and ecological integration of Saskatchewan curriculum policy, as highlighted in Table 6.3.2.

**Table 6.3.2 Grade 4/5 Saskatchewan curriculum policy taken up with/through the researcher/teacher enactments**

<table>
<thead>
<tr>
<th>Arts Education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Contexts:</strong> Creative/Productive (CP) and Critical Responsive (CR)</td>
<td></td>
</tr>
<tr>
<td><strong>Grade 4 Outcomes</strong></td>
<td><strong>Grade 5 Outcomes</strong></td>
</tr>
</tbody>
</table>
| CP4.7 Create visual art works that express own ideas and draw on sources of inspiration from Saskatchewan  
  ‘Mapping Worlds’  
  ‘Photographic Encounters’  
  ‘Eco-Art Installation’ | CP5.8 Create art works using a variety of visual art concepts (e.g., organic shapes), forms (e.g., kinetic sculpture, mural), and media (e.g., wood, wire, and found objects)  
  ‘Eco-Art Installation’  
  ‘Mapping Worlds’  
  ‘Photographic Encounters’  
  ‘Eco-Art Installation’ |
| CP4.8 Create art works using a variety of visual art concepts (e.g., positive space), forms (e.g., graphic design, photography), and media (e.g., mixed media, paint)  
  ‘Eco-Art Installation’ |  |
| CR4.1 Analyze how dance, drama, music, and visual art works represent unique ideas and perspectives  
  ‘Mapping Worlds’  
  ‘Photographic Encounters’  
  ‘Eco-Art Installation’ |  |

<table>
<thead>
<tr>
<th>English Language Arts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Contexts:</strong> Comprehend and Respond (CR) and Compose and Create (CC)</td>
<td></td>
</tr>
</tbody>
</table>
### Grade 4 Outcomes

CC4.2 Create a variety of clear representations that communicate straightforward ideas and information relevant to the topic and purpose, including short, illustrated reports, dramatizations, posters, and other visuals such as displays and drawings
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

CC4.3 Speak to present and express a range of ideas and information in formal and informal speaking situations (including giving oral explanations, delivering brief reports or speeches, demonstrating and describing procedures) for differing audiences and purposes
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

### Grade 5 Outcomes

CC5.1 Compose and create a range of visual, multimedia, oral, and written texts that explore identity (e.g., What Should I Do), community (e.g., This is Our Planet), social responsibility (e.g., Teamwork), and express personal thoughts shaped through inquiry
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

CC5.2 Demonstrate a variety of ways to communicate understanding and response including illustrated reports, dramatizations, posters, timelines, multimedia presentations, and summary charts
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

CC5.3 Speak to express and support a range of ideas and information in formal and informal speaking situations (e.g., giving oral presentations and reports, retelling a narrative, explaining a display to others, working in groups) for particular audiences and purposes
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

### Health Education

#### Learning Contexts: Understanding, Skills, and Confidences (USC)

**Grade 4 Outcomes**

USC4.3 Examine healthy interpersonal skills and determine strategies to effectively develop new relationships and/or negotiate disagreements in relationships
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

USC4.4 Determine basic personal responsibility for safety and protection in various environments/situations
- ‘Mindful Walking’
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

USC4.5 Examine how identity (i.e., self-concept, self-esteem, self-determination) is influenced by relationships that are formed with others
- ‘Mindful Walking’
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’

**Grade 5 Outcomes**

USC5.7 Assess the importance of self-regulation and taking responsibility for one's actions
- ‘Mindful Walking’
- ‘Mapping Worlds’
- ‘Photographic Encounters’
- ‘Eco-Art Installation’
Chapter Six: Negotiating a Lived Curriculum

<table>
<thead>
<tr>
<th>Grade 4 Outcomes</th>
<th>Grade 5 Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science</strong></td>
<td><strong>Learning Contexts</strong>: Scientific Inquiry (SI), Technological Problem Solving (TPS), STSE Decision Making (DM), and Cultural Perspectives (CP)</td>
</tr>
<tr>
<td><strong>Life Science: Habitats and Communities (HC)</strong></td>
<td><strong>Earth and Space Science: Weather (WE)</strong></td>
</tr>
<tr>
<td>HC4.1 Investigate the interdependence of plants and animals, including humans, within habitats and communities (CP, SI)</td>
<td>WE5.1 Measure and represent local weather, including temperature, wind speed and direction, amount of sunlight, precipitation, relative humidity, and cloud cover (CP, SI, TPS)</td>
</tr>
<tr>
<td>‘Mindful Walking’</td>
<td>‘Mindful Walking’</td>
</tr>
<tr>
<td>‘Mapping Worlds’</td>
<td>‘Mapping Worlds’</td>
</tr>
<tr>
<td>‘Photographic Encounters’</td>
<td>‘Photographic Encounters’</td>
</tr>
<tr>
<td>‘Eco-Art Installation’</td>
<td>‘Eco-Art Installation’</td>
</tr>
<tr>
<td>HC4.3 Assess the effects of natural and human activities on habitats and communities, and propose actions to maintain or restore habitats (CP, DM)</td>
<td></td>
</tr>
<tr>
<td>‘Mindful Walking’</td>
<td></td>
</tr>
<tr>
<td>‘Mapping Worlds’</td>
<td></td>
</tr>
<tr>
<td>‘Photographic Encounters’</td>
<td></td>
</tr>
<tr>
<td>‘Eco-Art Installation’</td>
<td></td>
</tr>
<tr>
<td><strong>Earth and Space Science: Rocks, Minerals, and Erosion (DM)</strong></td>
<td></td>
</tr>
<tr>
<td>RM4.1 Investigate physical properties of rocks and minerals, including those found in the local environment (CP, SI)</td>
<td></td>
</tr>
<tr>
<td>‘Mindful Walking’</td>
<td></td>
</tr>
<tr>
<td>‘Photographic Encounters’</td>
<td></td>
</tr>
<tr>
<td>‘Eco-Art Installation’</td>
<td></td>
</tr>
<tr>
<td><strong>Social Studies</strong></td>
<td><strong>Learning Contexts</strong>: Interactions and Interdependence (IN), Dynamic Relationships (DR), and Resources and Wealth (RW)</td>
</tr>
<tr>
<td><strong>Grade 4 Outcomes</strong></td>
<td><strong>Grade 5 Outcomes</strong></td>
</tr>
<tr>
<td>DR4.1 Correlate the impact of the land on the lifestyles and settlement patterns of the people of Saskatchewan</td>
<td>IN5.1 Demonstrate an understanding of the Aboriginal heritage of Canada</td>
</tr>
</tbody>
</table>
It is important to note that within the scope of this research I did not inquire how the researcher/teacher enactments might attend to assessment, relating to how students might address learning outcomes (as depicted in Table 6.3.2) through strategies of diagnostic assessment,
assessment for learning, and/or assessment of learning, for example. While I recognise that there were many opportunities for the researcher/teacher enactments to attend to assessment strategies in different ways, I am not seeking to demonstrate how students explicitly address learning outcomes, but to demonstrate how the researcher/teacher enactments resembled a sense of relationality between disciplines. Moreover, as the researcher/teacher enactments sought to create meaningful and relevant connections between disciplines through discursive and material forces of sense-making across disciplinary practices, the researcher/teacher enactments departed from interdisciplinarity to be situated in transdisciplinary pursuits of environmental education. This is because the researcher/teacher enactments did not only draw from different disciplines in linking different fields of knowledge, but they sought to make sense of this linking through grounded, lived, embodied, and embedded practices. I explore this idea in the next discussion.

6.4 Transdisciplinary Researcher/Teacher Enactments

Enacting a rhizomic embrace of contextual diversity, a transdisciplinary approach to the researcher/teacher enactments accounted for high degrees of hybridisation of teaching and learning. In this sense, the researcher/teacher enactments sought to deterritorialise habits of thought within ‘normalising’ socio-cultural protocols of education (i.e., grand narratives housed within discursive structures of what counts as important knowledge). In this sense, the researcher/teacher enactments did not rely upon a formulised way of learning through intellectual pursuits of knowledge acquisition, but sought to ‘enter into modes of relation, to affect and be affected’ (Braidotti 2013, p. 170). This approach differentiates from universal essences through linear realisations in learning (i.e., Cartesian representational knowing that ‘knowledge’ is out there to be discovered). Alternatively, sense-making through affect takes up processes of
actualisation of virtual possibilities through zigzagging between branches of thinking in philosophy, science, and arts.

Generating different insights from different disciplines is at the core of Barad’s (2007) agential realism, in that this relational ontology transcends the divisions of categories and boundaries between the natural and the social, enabling ‘a critical rethinking of science and the social in their relationality’ (p. 93). Therefore, (re)uniting art/science binaries through their intraactions, the transdisciplinary nature of the researcher/teacher enactments meant that teaching approaches facilitated an inquiry into the subject of scientific knowledge (e.g., Life Science, and Earth and Space Science, as depicted in Table 6.3.2) and creative arts-based practices (e.g., Arts Education and English Arts Education, as depicted in Table 6.3.2). Further, as transdisciplinary approaches do not merely draw from an array of disciplines and institutions of knowledge (i.e., as taken up through interdisciplinary approaches) (Barad 2007), but work to make connections across practices, the unit of analysis becomes the grounded, lived, embodied, and embedded account of the individual, as relationally constituted with the broader ecology of the world (Bertelsen & Murphy 2010). As such, transdisciplinary approaches to teaching and learning emphasise individual subjectivities in relation to the composite material/discursivities of humans and nonhumans in sense-making (Braidotti 2013). Bringing the unit of analysis back to the relational individual through transdisciplinary approaches is important when considering some limitations of interdisciplinarity. By this, I am referring to tensions within interdisciplinary teaching, in that through discursive structures set within power differentials, one discipline might co-opt the other, limiting commensurate contributions to learning outcomes from each discipline in their uniquely different ways (P White, Personal Communication, 12 August 2018).
Given that sense-making is derived from material/discursive forces, means that there is also opportunity to see curriculum policy, not as an abstract, absent, and distant force for teachers to adhere to, but rather, as one of the vital threads entangled within environmental education worldmaking. In this way, teaching practices are not only about the ubiquitous role of curriculum policy done to teachers, but are a multimodal and polyvocal enactment, in that curriculum policy is taken up as another material/discursive force in worldly intraactions. Moreover, approaching curriculum policy through its material/discursivities does not disassociate from or transcend assumptions, practices, and outcomes taken for granted in environmental education. Nor does it act against the disciplinary and oppressive elements of environmental education, examining how, or what might be silenced, hidden, and/or constrained in the field. That is, curriculum is not held as superior in suggesting that it transcends the grounded issues in environmental education relating to equality, equity, and socio-ecological justice. In the same way, curriculum is not critiqued as deficit in identifying how it fails to account for polyvocal stories in environmental education. These examples are set within discursive narratives of what curriculum should and should not look like. Rather, in bringing commensurate attention to curriculum policy’s materiality, means to engage in an ecosophy exploring how individuals at their subjective level might be relationally (re)configured with/through practices. This illuminates materially affective intraactions between pedagogies in environmental education and Saskatchewan curriculum policy. To understand this in more detail, I take up Deleuze and Guattari’s (1987) ‘ecosophy of becoming other’, understood by Stengers (2005) as an ‘ecology of practices’, by Haraway (2007) as ‘becoming-with’, and, by Massumi (2015) as ‘belonging-together’.
6.5 Ecosophical (Re)Orientations of Curriculum Policy

‘Ecosophy’ is not to be confused with ‘ecophilosophy’, with the latter thinking about human/nonhuman and ecological crises/globalisation-technological convergences (Tinnell 2012). Ecophilosophy in environmental education relates to environmental and sustainability discourses projecting how humans might live more sustainably, in which sustainability narratives are the central focus of inquiry as derived from discursive structures (e.g., curriculum policy). For example, an ecophilosophical approach to this research might have examined teacher(s)/learner(s) experiential engagements with Land through the uptake of the Social Studies: Resources and Wealth goal, seeking to understand how such engagements might prompt a more sustainable living practice. Alternatively, an ecosophy is not an examination of education for, about, and in the environment as typically prescribed by curriculum policy, but an ecosophy actively explores the (re)configuring of the subjective self, in that the idea of an autonomous and individualised self dissolves through notions of ‘becoming-with’. This idea expands beyond inquiry of sustainable living practices and the cultivation of environmental ethics, to explore how individuals, namely myself and Lily as a researcher/teacher in this research context, are relationally (re)configuring with the world, through dynamic, ongoing, continual, and reiterative material/discursive intraactions in worldmaking.

These ideas were alluded to in the opening journal entry of this chapter, ‘Tools, Toys, and Friends’, in which I described affects emerging from this pedagogical event to prompt a (re)thinking of curriculum policy as relationally entangled with teaching practices. Demarcated through relational constituencies of ‘friendship’, I began to think about curriculum policy not only as a discursively oriented tool that is ‘done’ to teachers, as something that is ‘outside’ of teachers, but as something that is co-made between teachers and students. This idea of ‘teaching-with’ became evident in further conversations with Lily after this pedagogical event, in which
she confirmed that this was something she already attended to in her teaching practices. As Lily said:

I know the curriculum well. This is crucial. And then I look for connections, seeing the curriculum as a living body, as an ever-changing, ever-moving kind of thing, instead of looking at it as static - what does my text book tell me to do next for example. When I look from this perspective, the connections come very, very naturally.

Curriculum is addressed in everything that we’ve done in our work together, and in everything that I do. But this is one of those ‘rubs’. When you do work like this, people are always questioning curriculum connections and asking how it can be connected to curriculum. Yet, Saskatchewan curriculum is based upon a very open way of thinking. Although there are indicators, it is this wrong idea that teachers have that the curriculum means that you must ‘get all’ the indicators that are suggested.

The indicators in our curriculum are suggestions of how you could achieve the outcomes. Yet, the curriculum outcome is the goal. I probably only touch on one or two of the indicators, but because people think you must check mark all these indicators, they believe that I am not doing curriculum, and my credibility as a teacher becomes diminished through this lens. (Transcribed researcher/teacher meeting notes 2017, original quotation marks and emphasis)

As Lily’s teaching practices connected dots to curriculum with/through teaching and learning processes, she enacted a performance-causality relationship. A performance-causality relationship involves a mutual and co-implicated transformation through the relationship between subject and object. For example, as Lily’s teaching was affected by curriculum policy, she simultaneously affected how curriculum policy would be understood and taken up within her classroom community. Crucially, this was accounting for the lived experiences of her learners, in that Lily’s subjective actions as a teacher were co-constituted with objective changes in the classroom environment, through a dynamic, ongoing, continual, and reiterative unfolding of intraactions in the pedagogical events of the present moment. This is different to a trigger-causality relationship, as set within cause and effect of curriculum policy determining teaching practices. Through a trigger-causality relationship, a teacher’s subjective perception and the subsequent construction of reality is ‘triggered’ by environmental objects. For example, as curriculum policy determines how a teacher might teach in any given education context, the teacher might adapt their teaching to rigorously meet curriculum indicators (more specific accounts of what students who have achieved outcomes should be able to do) and curriculum
outcomes (broader accounts of what students are expected to know and be able to do). Such adaptations might be irrespective of the lived experiences of learners.

Rather than projecting a self-defined, centrally controlled, homeostatic, autonomous, and predictable unit of ideas into the future through a trigger-causality relationship (e.g., ‘planning for’), a performance-causality relationship enacts a ‘planning with’. This is understanding that as the body is engaged with affective, worldly intraactions, a multiplicity of outcomes is always immanent. As Snaza alongside John Weaver (2015) wrote,

the posthuman challenge is to give up on planning in order to actualise the kinds of potential... We don’t know yet what a body can do, nor do we know what we beings who are used to thinking of ourselves as “human” are capable of. (p. 4, original quotation marks)

As such, performance-causality relationships challenge hierarchical tensions between what ‘should’ happen later (e.g., outcomes-based discourse of curriculum policy) and what ‘is’ happening right now (e.g., the grounded, lived, embodied, and embedded experiences in any given pedagogical event). Aoki (1993) conceptualised this as a ‘lived curriculum’, a ‘belonging togetherness’ of teaching practices that subscribed to curriculum policy mandates through micro-narratives of a lived curriculum. For Aoki, a lived curriculum involved narratives of ‘poetic, phenomenological and hermeneutic discourse in which life is embodied in the very stories and languages people speak and live’ (1993, p. 261). This is opposed to teaching practices as prescribed by curriculum policy mandates, the meta-narratives of curriculum-as-plan; narratives in which teaching practices become homogenised, institutionalised, generalised, and outcomes-focused.

6.6 Curriculum-as-Plan/Lived Curriculum: Living at the Borders of Difference

Aoki (1993) suggested that to dwell in the tensions between the opposing discourses of the curriculum-as-plan and a lived curriculum, we must live at the borders of difference; finding a ‘place in the middle—in the midst of a multiplicity of curricula, between and among
curriculum-as-plan and the lived curricula’ (p. 260). Living in this place of difference, in the multiplicity of the in-between, as Massumi (2015) described, is the political act of affect, as contrasting alternatives are held together, without needing to exercise power differentials in attempts to colonise the other. It is political because there is not one ‘correct’ answer, elicited through a cause and effect of teaching to curriculum indicators and outcomes. As Springgay (2008) argued, embedded within cause and effect models of teaching are certain moral codes that discipline students to learn, live, and act in a certain way. Following this, when there is an implied set of rules for practices in how we relate to ‘Other(s)’, ethics is reduced to an act of domination, because there is an appropriation of what is right, and an erasure of what is wrong.

Lily worked to destabilise right/wrong approaches to teaching, and subsequent teacher/learner power struggles, as she elaborated:

I want kids to be part of their learning, and to be able to have a voice, and to be party to the expectations. So, if I give them a piece of paper and they fill it in from a text book, then this is half the piece. But if I then make them accountable to their own thinking, or to be physically a part of touching their learning, then this generates a deeper engagement.

They also must work as a team. For example, in the ‘Mining Project’, they were to discuss issues and challenges as a group before coming to me. I will not speak to them unless every person in their team is together. At first, this is frustrating for them, but then a deeper learning happens. They must use their understanding together. I force them to think of things outside of their linear perspective. This also removes me as an ultimate authority - as the only source of knowledge.

If this doesn't work for the kids, then next year they will move onto a different space of learning. And that is okay. Because I think that people can have successes and failures and learn how to get around success and failures with teachers. But, if we’re all the same, then how does a kid even know about success and failure. If some kids work well with pen and paper, then they are a success, but some a failure, then that is not fair.

And it is important not to teach kids to stall. I think as teachers, we stall: this is what a teacher should look like, this is what a classroom should look like, this is what a school should look like. It brings up issues like the idea that this is what we’ve always done, so this is what we’ll always do. (Transcribed researcher/teacher meeting notes 2017, 2018)

Lily’s philosophy relating a lived curriculum informed and influenced the researcher/teacher enactments, in that sense-making relating to ecocentric and ecological worldviews was not seen in an absolute sense. Rather, sense-making emerged through a performance-causality
relationship, in that we were *influenced* by curriculum indicators, but not *controlled* by them. As we worked our way towards curriculum outcomes, questions were left open and without solution. In this way, questions were often replaced with provocations designed to elicit further curiosity, inquisitiveness, and wonder. As such, the researcher/teacher enactments did not resemble a homogenised, tidy, fixed, closed, or linear trajectory, from ‘not knowing something’ to ‘knowing something’ through the cause and effect of student ‘discovery’ of knowledge. Alternatively, in the researcher/teacher enactments, knowledge was generated through a dynamic, messy, layered, chaotic, noisy, and differentiated intraacting of relationships between individuals/communities, cultures/species, and matter/discourse.

The researcher/teacher enactments, therefore, also moved away from binary logics of ‘speaking subjects’ and ‘mute objects’, giving rise to relational agency through the destabilising of subject/object binaries. This is because there was no ‘object’ to learn in the researcher/teacher enactments, in which Lily and/or myself acted as a teacher authority probing, prodding, testing, manipulating, and giving voice and/or silencing ways of knowing, being, thinking, and doing, derived of social priorities in education (Snaza & Weaver 2015). For example, it is not unusual for environmental education pedagogies to draw upon a landscape and/or upon another species as an object for inquiry. This demonstrates an anthropocentric and human-centric instrumental relation of use, in that there is an asymmetry of human/nonhuman relations perpetuating human/nonhuman binaries (Taylor et al. 2015).

Alternatively, approaching human/nonhuman relations through their generative affects, as generatively dependent in understanding the co-constituted shaping of a nomadic multiplicities of subjectivities (Jones 2014), helps to ‘produce awareness of the fundamentally interconnected, non-dissociable nature of these relations’ (Snaza & Weaver 2015, p. 8). This means that there is
not only an appreciation of how we might differ from ‘Other(s)’, but a deep acknowledgement of how we are shaped by ‘Other(s)’. Therefore, the researcher/teacher enactments did not attempt to step outside of normalising practices of environmental education discourse pertaining to sustainable development outcomes of Saskatchewan curriculum policy (as depicted in Table 6.3.2 through our inclusion of the Resources and Wealth goal). Drawing on Snaza and Weaver’s (2015) claim that, ‘one must always inhabit the discourse one wishes to throw into question’ (p. 3), we did not critique sustainable development models and agendas from a distance. Rather, we acknowledged the transformative space of ‘becoming-with’, in being inside the system and changing the system from within through micro-political intraactions.

Drawing upon the implications of homogenising and institutionalising constructions of prescriptive a policy-driven discourse in environmental education (Jickling & Wals 2008), enacting a lived curriculum did not ask us to dismantle our bounded neoliberal and capitalist subjectivities. Given that Lily and I are two White, Western women, living in a developed and consumeristic society of Canada, it is not realistic or helpful to transcend, escape, or rebuke these realities. Rather, enacting a lived curriculum meant that, as we were relationally co-constituted with Land and nonhuman ‘Other(s)’, we could accept and engage with Land and nonhuman ‘Other(s)’ away from external and outside mechanisms of control (e.g., through extrinsic parameters enforcing an ecocentric consciousness or ecology identity). In this way, responsibility for acting in a globalised, neoliberal, and capitalist world was entirely derived from our own grounded, lived, embodied, and embedded actualisations of accountability. Bringing to light Barad’s (2007) ethico-onto-epistemological orientations of ‘exteriority-within-phenomena’, this is understanding that it is through our situated entanglements that we cannot detach from the world that we are co-creating and co-constituting. This brings forth an intrinsically derived sense
of ‘response-ability’ to change the story as set within socio-ecological crisis narratives, through a (re)storying of human/nonhuman relationships as set within ethically grounded ecocentric narratives.

With this being said, however, given the explicit orientation of environmental education-type teaching to be taken up through sustainable development in the Saskatchewan curriculum policy’s Social Studies: Resources and Wealth goal, critiques of the sustainable development agenda are important. This is because they draw crucial attention to the implications of a universal, outcome-focused approach to learning, bounded in abstract globalisation, neoliberal individualism, and capitalist consumptive behaviours and attitudes. Yet, changing the story is about active transformation, rather than ‘raging against the machine’. As Lily said, it is more important that we can work affirmatively, co-creating a loving and listening relationality with people and Land in our teaching endeavours. Within this, Lily did not deny or ignore her frustrations with extensive development and associated environmental destruction, degradation, and fragmentation in parts of her local neighbourhoods, in Saskatchewan, in Canada, and on a global scale. Nor did she rally against her school community and the constraining and disciplining forces of dominant discourse promoting an academically progressive organisation of outcomes-focused ideals. Stories that are so deeply etched within socially constructed models of teaching and learning (Dewey 1997). Rather, well-attuned to competing tensions, Lily activated her displeasures and her discomfort transforming her vulnerabilities through affirmative politics. As Lily explained:

Within the structure of the school, limitations are many:

Sometimes it makes me mad thinking that the community can dictate what the kids need to learn. Am I not a teacher? Am I not there to teach to what we need to know about the realities of our community around us? You and I have talked about people who teach differently - they live on the edge.
Kids nowadays are also a factor that stop the types of things I want to do with my class, because they don't have the gear! They show up to school without the right clothes to go outside, or they say no to this, no to that. They demonstrate a sort of privilege at times.

I have also been called mean because I was holding the child accountable for what they were doing. I am not okay with this in my classroom culture. So, I will continue to address it, and address it, and address it. But I haven't buckled. I have compromised a couple of things that really matter to me, in the language that I use and in the expectations that I have, but I want to give kids the ability to be accountable and strong leaders.

I talk about these things with the kids. For example, calling them on what they did, and that I am not okay with it. Asking them why they think I am not okay with it. And I will shut my classroom down and get together on the carpet in a circle and we will talk before we do any academic learning.

If you are going to be a strong leader, you must know what strength looks like. When you mess up, what does that look like? This needs to be done in safety. And that’s where problems come up, when people don't feel safe to mess up and learn from their mistakes. They just continue down a path of destruction, without any sense of direction.

And if I get my hand slapped, then I guess I deal with consequences. Because I also mess up and I want to be held accountable - just like my kids. (Transcribed researcher/teacher meeting notes 2018, original emphasis)

Crucially aware of the tensions in working with difference between a lived curriculum and the curriculum-as-plan (as prescribed by Saskatchewan curriculum policy mandates), in the researcher/teacher enactments, Lily and I gathered our own stories and mapped our own way towards curriculum outcomes. This was not through a rebellious anarchy pitting ourselves against the system, but through a careful critical engagement and continual negotiation of teaching with the conditions of the present moment politics of location. In this sense, proposing new stories of living together with difference and with tensions, is enacted through modulating these tensions into a symbiotic relationship (Haraway 2016; Massumi 2015; Stengers 2005). Stengers (2005) understood ideas of togetherness through symbiosis, as ‘a relation between two heterogeneous ways of being, both needing the other because without the other none of them would be able to achieve its own pathways and goals’ (p. 5). In biological, material terms, Dempster (2000) understood this as sympoiesis, derived from Greek words collective and production.
6.7 Sympoietic Systems Attending to a ‘Togetherness’ Relationship

In 1921 Boris Kozo-Polyansky conceived of the biological concept, symbiogenesis (sym: bringing together, bio: life, and genesis: to produce or create), later taken up by Margulis (e.g., Margulis & Sagan 1997; Margulis 2010). As a theory of evolution, symbiogenesis proposed that neo-Darwinist conceptions of individual competition and natural selection should be replaced by stories of co-evolution within sympoiesis, which means ‘making-with’ in that nothing makes itself (Adsit-Morris 2017). As Haraway (2016) noted, sympoiesis ‘is a word for worlding-with, in company’ (p. 58). In Dempster’s (2000) understanding, ‘systemhood’ in sympoietic terms, does not:

depend on the production of boundaries, but on the continuing complex and dynamic relations among components and other influences. The concept emphasises linkages, feedback, cooperation, and synergistic behaviour rather than boundaries. (p. 4)

Following this, sympoietic systems differ from Humberto Maturana’s and Francisco Varela’s (1980) explanations of the phenomena of living organisms, conceived of as autopoiesis (Greek auto- meaning self, and poieses meaning creation or production) in the 1970s. Autopoietic systems are organisationally closed in their internal reproduction of the same patterns of relations, through a continual recursive re-creation of self in determining their own autonomous spatial and temporal boundaries (Haraway 2016; Mingers 1991). Because autopoietic systems are self-organising and contain their own patterns of organisation through boundaries of organisational closure, they restrict adaptation.

Conversely, sympoietic systems are organisationally ajar, in that they do not have self-defined boundaries, but are complex, boundaryless, collectively-producing systems, in their ‘making-with/becoming-with’ (Haraway 2016). As such, sympoietic systems have a degree of uncertainty as to when a system might change and to what it might change into, particularly given that external sources influence the organisation of the system, but as the system acts in a
self-determined manner, external sources do not determine the organisation (Dempster 2000). Following this, ‘sympoieses en folds autopoiesis, and generatively unfurls and extends it’ (Haraway 2016, p. 58), helping to understand different aspects of system complexity ‘in generative friction, or generative enfolding, rather than opposition’ (Haraway 2016, p. 61).

Therefore, thinking/doing-with/through sympoietic systems in the context of environmental education teaching-type practices, in keeping an organisationally ajar approach to intraacting relationships (e.g., between a lived curriculum and curriculum-as-plan), means that there is an openness to evolutionary and transformative change in any given moment.

Evolutionary and transformative change was understood by Massumi (2002) as an ‘involution of subject-object relations’ (p. 57, my emphasis), with the term involution (different from evolution) also brought to the fore by Barad (2012) as she questioned a discreet and separate ‘self’ or ‘unit’. As Barad (2017) argued:

all ‘selves’ are not themselves but rather the iterative intraactivity of all matter of time-beings. The self is dispersed/diffracted through being and time. In an undoing of the inside/outside distinction, it is undecidable whether there is an implosion of otherness or a dispersion of self throughout spacetimemattering. Hence, matter is an enfolding, an involution: it can’t help touching itself, and in this self-touching it comes into contact with the infinite alterity that it is. Ontological indeterminacy, an unending dynamism of the opening up of possibilities, is at the core of mattering. (p. 80, original emphasis)

In opening to all possibilities through an involution of subject-object relations, therefore, solid and concrete forms of meaning-making and knowledge acquisition fall away. This is because there is no one fixed and complete ontology or epistemology in sense-making, if sense-making is understood to be derived from discursivities and the affectivity of materiality. Therefore, as teaching practices enact a mutating, lively, vibrant, flowing, and dynamic momentum with various intensities (Springgay 2008) derived of the intraacting relationship between lived curriculum and curriculum-as-plan, a ‘togetherness’ relationship emerges. As Deborah Bird Rose (2012) suggested, looking for the life-affirming qualities of this ‘togetherness’ relationship,
means holding ‘difference and similarity in dialogical relationship rather than as opposites’ (p. 104).

As difference becomes necessary in this ‘togetherness’ relationship (Rose 2012), we depart from the need to capture a unified whole in environmental education, which fails to acknowledge and actualise situated differences in any given teaching context. As such, through a lived curriculum and curriculum-as-plan ‘togetherness’ relationship, environmental education is presented with a pertinent opportunity (Snaza & Weaver 2015). For example, dominant discourses in these Anthropocene times that emphasise the importance of cultivating certain cognitive, social, and moral abilities (Lloro-Bidart 2015), manifests in a policy-driven discourse of sustainable development. In this way, environmental education curriculum policy is typically ‘done’ to teachers, working to limit the capacity for teachers to attend to the unique learning strengths, needs, limitations, and vulnerabilities of individuals, as situated within any given educational and socio-cultural context.

Moving between the borders of curriculum-as-plan and a lived curriculum through politics of affirmative difference in this ‘togetherness’ relationship, however, presents opportunities for teaching practices to enact an assemblage of heterogenous relations. This means that teachers can more actively cultivate a rich and fluid dialogue between diverse epistemic worlds, simultaneously challenging the homogenising and institutionalising of environmental education. Drawing on Juanita Sundberg’s (2014) concept of ‘pluriversal’, teaching approaches that activate different epistemic, ethical and political approaches to sense-making, transform an ‘either/or’ logic into a ‘both/and’ or ‘and, and’ logic. Crucially, modulating tensions between opposing forces through a ‘both/and’ or ‘and, and’ logic means that a lived curriculum in environmental education type-teaching practices, with its diverging qualities, is not
competing with, nor subdued by, broader policy objectives of curriculum mandates. Rather teaching practices are producing the collective goals of both. What this ‘togetherness’ relationship means for environmental education enmeshed within broader educational discourses will now be explored in Chapter Seven.
Chapter Seven: Agential Worlds Outside the Classroom

What happens when human exceptionalism and the utilitarian individualism of classical political economics become unthinkable in the best sciences across the disciplines and interdisciplines? Seriously unthinkable: not available to think with.

Donna Haraway (2016, p. 57)

7.1 Chapter Overview

Exploring environmental education as set within wider discourses of education, this chapter is interested in the affects emerging from intraacting Researcher/Teacher/Environmental Education Worlds. I begin with a journal entry written after the third researcher/teacher enactment, ‘Photographic Encounters’, to explore how affects emerging from intraactions in this pedagogical event ‘marked’ my body with discomfort, illuminating the problematic discursive construction of indoor/outdoor binaries in environmental education. I then digress to map some educational theorists’ critiques of the institutionalisation of schools, namely Dewey, Freire, Fromm, Foucault, and Postman, to provide examples of the assimilative effects of globalisation, neoliberalism and capitalism on education. In this way, I discuss ‘normalising’ practices of education to include the indoor classroom as dualistically set against the outdoor classroom, in which practices of environmental education are deemed ‘deviant’. Troubling this, I explore how imbuing Land with relational agency dismantles social constructions of the outdoors, drawing upon important perspectives of social ecology, as rooted in posthumanist performativity, to discuss the idea of individuals intraacting with broader ecologies of the world. Providing a journal entry to prompt a discussion as to how I understood myself as relationally entangled with the world, I end this chapter discussing conceptions of myself/Lily as a holobiont environmental education researcher/teacher, acknowledging that life on the planet is an entangled, yet differentiated, ‘becoming-with’.
7.2 Moments of Rupture: Recurring Tensions in the Pedagogical Event

Journal Entry 30th June 2017

The third researcher/teacher enactment, ‘Photographic Encounters’, was designed as part of a pre-planned outdoor learning experience that Lily had already arranged for her class, in which she had engaged a local conservation officer to facilitate educational activities exploring the ecology of a local ecology site. This researcher/teacher enactment was co-designed to open to new ways of thinking, not only about self on the Land, but self with the Land. Starting with a short visualisation activity sitting in a circle, the students were invited to close their eyes and start following their breath. They were then invited to visualise their inhalations from the Land around them, taking this deep inside their bellies, and then visualise their exhalations from their bellies to meet the Land around them. The intentions of this were to generate an affective understanding of how breath might become a part of the surrounding prairie vegetation, and simultaneously, how the surrounding prairie vegetation might become a part of breath as it is (re)inhaled. They were invited to visualise roots extending from underneath them deep down into the earth below and to visualise an invisible string extending all the way up through the clouds into the atmosphere. In groups of 4-5, students were then given disposable cameras and were invited to look for any examples of how the Land might show them similar emotions that they might be feeling in that present moment. For example, were they feeling excited, nervous, fearful, hopeful, and how might these sorts of emotions be reflected by the Land.

I wondered how students as ‘digital natives’ would grapple with the logistics of the camera, although most had likely used digital cameras on their smart phones often before.

Sitting amongst brilliant greens of prairie grasses dotted with wolf willow (Elaeagnus
commutate), I noticed the piercing sun in the luminous eastern sky, thunderous storm clouds brewing upon the northern horizon, a bright yellow school bus parked in the dusty gravel carpark to the west, and, the square grey architecture of encroaching housing development to the south. Ducks (Anas platyrhynchos) and Canada geese (Branta canadensis) floated by in a nearby pond, seemingly blissfully unaware of the advanced capitalism of urban expansion (shown in Figure 7.2.1).

Looking at these sights, I saw photo opportunities at every turn as I was full of wonder, inspiration, guilt, curiosity, sadness, and joy, amongst an array of other emotions burbling beneath the surface. Yet, the joy that I felt in these moments dwelling with Land seemed to be tinged with a burgeoning sense of discomfort. I found myself continually questioning the meaning of learning in this task and how this learning might contribute to wider educational purposes. Similar feelings emerged from previous researcher/teacher enactments we had co-
implemented, ‘Mindful Walking’ and ‘Mapping Worlds’, except my discomfort struck me as much more intense this time. Was it because I was working with these students without Lily in this researcher/teacher enactment, as Lily was busy with another activity with another group? In this sense, I was returning to the idea that without a trusting relationship already built with these students, would – could – they take the activity seriously? Had I gone in too ‘emotionally deep’ with students, given that we had not really had a lot of time to know each other in meaningful ways? All these questions were buzzing around my thoughts as I watched a flock of Canada Geese take flight and swirl gracefully through the sky.

The whole meaning and purpose behind this work was to engage pedagogies of attuning with Land, providing the conditions of possibility for a grounded, lived, embodied, and embedded intraaction with the world. While both Lily and I believed in these teaching and learning approaches, working to instil a sense of amazement, wonder, and delight with nonhumans and Land, it seemed like I was constantly pushing against an opposing force of resistance in myself. The idea that we needed to provide rigorous forms of academic achievement in every given moment was so deeply entrenched in my understanding of the meaning and purpose of teaching, and this continually challenged me in the researcher/teacher enactments. By this I am referring to the disparate nature of the researcher/teacher enactments when cast against more traditional types of knowledge acquisition of the world (e.g., Cartesian representational knowing). For example, I imagined that the local conservation officer working with the other groups would be exploring local flora and fauna varieties, imparting some form of ecological knowledge upon the students. I couldn’t help but think that this was more important than ‘Photographic Encounters’. At least then, students could scientifically and rationally identify the world in which they were dwelling. They could point to prairie sage (Artemisia
ludoviciana), to creeping juniper (Juniperus horizontalis), to Western Wheatgrass (Agropyron smithii), and trust that they ‘know’ something for a fact.

So, I was left questioning what this was all for. Did there need to be a more instrumentalist, mechanistic, and technicist focus on teaching and learning outcomes? Yet, this confounded me because the very meaning of this work was to challenge these ideals in (environmental) education. Concerned with how other teachers and educational administrators might question the meaning and purpose of these researcher/teacher enactments within the wider discourses of education, this gnawing sense of agitation would not subside. The social world, in which I was so firmly attached to, had overwhelming momentum of incredible magnitude. Matter needed to matter, but did it? Could it?

(Fieldnotes 2017)

Despite my research endeavours attempting to bring commensurate attention to matter through multisensory researcher/teacher enactments with Land, this journal entry highlights that I was still very much caught up in humanist ‘knowing subject’ of the socialised world. That is, discursive structures of teaching, as controlled and ordered through globalising, neoliberal, and capitalist forces set within human exceptionalism and supremacism, still worked to arrest and distort how I understood environmental education-type teaching practices in the outdoors/with Land. In conversations with Lily about these uncomfortable and disconcerting feelings that become known through ‘Photographic Encounters’, she confirmed that these tensions were very well-known in her own teaching practices. Discussing her frustrations, Lily said:

When we go outside, other teachers don’t think I am teaching. There are also tensions between myself and administrators. Some administrators don’t believe in what I do as a teacher. They want me to always be making curricular connections in the classroom and I am constantly having to justify why I teach through the outdoors. They think that sometimes the risk is too high in having kids out and about. All the ‘what ifs’ and ‘what ifs’ and more ‘what ifs’. And sure, there are risks to the outdoors - think about the weather here in Saskatchewan! If I am out and about somewhere, am I prepared? Well of course. Unfortunately, teachers in the past have not been prepared and they have kind of ruined it for me. We have policies in place in our
school system, because of people who haven’t done it the right way and have caused us to have policy problems.

I get frustrated when fieldtrips are seen as learning ‘outings’, because it is not just a fieldtrip to me, it is a learning adventure. We never just get on a bus and come back like it is an escape from learning. I see the outdoors as a critical part of the learning journey, just as the classroom is.

There are also parent tensions, in that some parents don’t understand what we are doing and sometimes they don’t understand that their kids are learning something in a different way. They want them to remain in their classroom roles, because they know what education was like for them and they want it like it was, because ‘they all know education’, because they all were educated. So, there are certainly tensions in having to continuously explain what I am doing, finding research that backs what I am doing, so that when I explain it, I have it explained with research.

There are tensions within myself. Sometimes I think it would just be easier to sit in the classroom and do whatever out of the book, because it takes way less energy to do things like that, than it does me being outside, and ‘on’ at all times, giving up my preparation time, giving up my lunch hour, and for what? For people to judge me, every time I go outside? (Transcribed researcher/teacher meeting notes 2018, original emphasis)

Lily’s comments here point to discursive structures that draw dissonance between teaching practices that occur indoors and outdoors. As Lily highlighted, she often experienced tension in the school community, in which people perceived her teaching practices that included an active engagement with the outdoors as deficit. Lily emphasised that people were concerned about a heightened sense of physical risk imminent in an outdoor context away from the more ‘controlled’ confines of the school ground. Yet, these narratives also alluded to the idea that her teaching practices, which valorised outdoor experiences, were criticised because of perceptions that outside teaching practices do not adequately attend to academic rigour and subsequently fail to adequately attend to curriculum outcomes.

The tensions that Lily described relate to Foucault’s ‘Regime of Truth’ (Foucault 1988), in that practices of teaching indoors have become so ‘normalised’ in the Western education model, that when teaching practices deviate from such ‘normal’ practice, they are perceived of as ‘less-than’. Subsequently, teaching indoors, in the school classroom, is dualistically pitted against teaching outdoors/with Land. Before I return to an exploration of indoor/outdoor binary logics in the institution of schooling, setting environmental education apart from wider discourses of education, I first discuss how prominent educational theorists of the 20th Century
have both sought to trouble the institutionalising of schools, while also working to maintain humancentric thinking perpetuating binary logics in education.

7.3 Meaning(s) of Education: An Environmental Education/Education Disjuncture

The meaning of education has been debated for centuries (e.g., Noddings 2015; Changing education paradigms 2010), with a wide array of educational theorists attempting to make sense of the socio-political complexities that reside within education, schools, teaching, and learning. For example, Dewey (1997) explored the traditional and progressive education binary, suggesting that traditional purpose of schools:

> is to prepare the young for future responsibilities and for success in life, by means of acquisition of the organised bodies of information and prepared forms of skill which comprehend the material of instruction. (p. 18)

Dewey contended that schools were traditionally designed to convey an understanding of society, and how the individual student should function within it, through skill development relating to reading, writing, and arithmetic. Arguing that education should be based upon personal experience in response to traditional doctrines of education imparting ‘objective knowledge’, Dewey understood the role of social factors within environmental affordances to influence and inform meaning-making and knowledge acquisition of the individual. Reflecting upon Dewey’s earlier work, Democracy and Education from 1916, Michael Peters (2017) wrote that Dewey’s pragmatism, ‘is a form of naturalism that holds knowledge arising from the experience of the human organism in the process of adapting to its environment’ (p. 11). Therefore, if progressive education according to Dewey is a constant reorganising or reconstructing of experience, it is critical to acknowledge the interconnection between the individual and their contextual environment, exemplifying the role of the broader social, cultural, and institutional contexts within grand narratives disciplining individual experiences and meaning-making in schools.
For Freire (1972), education was about the achievement of liberation of the oppressed ‘Other(s)’, as oppositionally separate to society’s status quo. Freire’s *Pedagogy of the Oppressed* revolved around the idea that oppressive realities absorbing men’s [sic] consciousness could be transformed through the means of praxis (action and reflection upon the world). Freire, interested in the capitalist divisions of labour and how this works to create social stratifications forming class structures, argued that through critical thinking that challenges power hierarchies, individuals could transcend the constraints of socio-economic positions.

Fromm (1956) understood the larger structures of education to teach learners to uncritically adhere to capitalist societies, as they internalise its dominant values and become part of the wider system alienated from life-affirming qualities (Kopnina 2015). For Fromm, we either love life or we love death and as our love of life becomes stunted through diminished biophilia (see Chapter Two), the alternative is psychological destruction that manifests through consumptive, exploitive, and oppressive behaviours steeped in necropolitics (Belcourt 2015; Braidotti 2013). For Braidotti (2009), necropolitics in contemporary social landscapes refers to perspectives of decay, dying, and death elicited from government sovereignty fuelling society’s negative passions and, as such, necropolitics is subsequently responsible for ‘the perennial warfare of our times’ (p. 42). Belcourt (2015) claimed that necropolitics is implicated in settler colonialism, suggesting that it is ‘through purposeful and ignorant misrepresentations of Indigenous cosmologies’ (p. 8) that Indigenous erasure on stolen lands is legitimised.

Moving away from ideas relating to individual emancipation, through his ‘technologies of power’, Foucault (1988) critically examined power in knowledge discourse. Arguing that discourse transmits and produces power, Foucault claimed that the homogenisation and institutionalisation of schools served to legitimise, rather than challenge, educational practices.
Further examining the relationship between truth, power, and self, Foucault’s critiques of the positivist/scientific paradigm were theorised through his ‘Regime of Truth’. For Foucault, this was the ambiguous and obscure productions of truth, in which practices that are privileged and normalised transform themselves into factual systems of discourse (Foucault 1988; Markula 2004; Zink 2010; Zink & Burrows 2008).

I do not intend to reduce these complex and in-depth theoretical perspectives to simplified, static, and unitary visions of education, but, I draw attention to elements within their overarching accounts, given that Dewey, Freire, Fromm, and Foucault are influential Western educational theorists of the 20th Century. Moreover, they provide important examples of well-trodden binary narratives in Western education: Dewey’s (1997) traditional versus progressive education, within narratives reflecting technicist, mechanistic, rational, and reductionist practices in traditional education models versus the importance of a democratic education that draws upon the experience of the learner within their contextualised environment; Freire’s (1972) oppressed versus oppressor, within narratives highlighting educational inequities and inequalities through divisive socio-economic structures; Fromm’s (1956) individual versus society, and life and death politics, within narratives of neoliberal and capitalist politics that absorb the school community through structures that prevent critical forms of learning; and Foucault’s (1988) structure versus freedom, within his ‘Regime of Truth’ suggesting that governmental biopowers control, regulate, and monitor the individual.

These theoretical perspectives, therefore, demonstrate how schools can be dangerous melting pots of political agendas that inevitably prepare children for competent entry into the economic life of a community (Postman 1995). As Postman stated, the ‘vitality of any nation’s economy rests on high standards of achievement and rigorous discipline in schools’ (2005, p.
29). Within this, Postman contended that schools worship a particular ‘God’ under the guise of education: the ‘God of Economic Utility’, the ‘God of Consumership’, and the ‘God of Technology’. In an educational sector whose ontology advocates for knowledge to be presented as a commodity to be acquired through the doctrines of achievements rather than journeys; outcomes rather than processes; competitive drives within interpersonal victories rather than intrapersonal awareness of self; and, standardisation of curriculum, students are expected to fit the mould or be left behind (Postman 1995). That is, as discursive structures of education function through norms of globalising, neoliberal, and capitalist agendas (McKenzie 2012), these norms become further homogenised and institutionalised through social conformity, as individuals (e.g., teachers) aim to establish a sense of belonging and social utility within their school community (Blenkinsop & Egan 2009).

Bob Lingard (2018) argued that the pervasive testing and datafication in Anglo-American school systems and schools bring ‘palpable tensions between systemic curriculum prescriptions and teacher professional mediation of curriculum enactment’ (p. 56). In this sense, over-emphasising scientific and quantifiable ideologies associated with objectives, outcomes, standards, high-stakes testing, competition, achievement, performance, and accountability (Gidley 2010; McInerney et al. 2011) means that the pressure to conform within institutional expectations becomes the normalising socio-cultural protocol for schools. These ideas were well understood by Lily, and she expressed tensions in the broader educational policy’s need to obtain student data through standardised testing. As Lily said:

I am a teacher, so don’t even talk to me about data not being important. You need to know your kids and know where they are at. And you need some sort of formulised way of doing that. But, all this obsession with so much data, and so much of this test and that test. I know my kids. So, it’s a lot of time, and a lot of energy, and a lot of space that is being used for these types of thinking - the more traditional ways of thinking. (Transcribed researcher/teacher meeting notes 2017)
Dewey, Freire, Fromm, Foucault, and Postman all pointed to the homogenisation and institutionalisation of schools as derived from pervasive ideologies prioritising the autonomous liberal humanist subject, as discursively normalised within policy-driven discourses of instrumentalist, technicist, mechanistic teaching practices.

Given the purposes and meanings of environmental education, which typically seek to understand local and global interdependence, through organic, systemic, holistic, and ecological approaches to teaching (and learning) (Steen 2003), then environmental education is both constrained and disciplined by the homogenisation and institutionalisation of schools and by broader educational discourses. These tensions were taken up by Robert Stevenson (2008) in his critique of the dualistic and oppositional difference between environmental education and broader Western models of education. As Stevenson argued, schools are structured to enable ‘the practice of routine skills, and to maintain existing social conditions and relations’ (p. 144), and therefore they inadequately consider critical thinking skills, problem solving, or the development of active socio-political decision makers, as important to the field of environmental education. As he further elaborated:

environmental education is concerned not only with social reconstruction to alleviate exploitation of the environment, but also with the avoidance of social injustices in the process of that reconstruction…ecological harmony and social justice suggest the need for an interdependent community (at both global and local levels), rather than the liberal, capitalist notion of a community of free or autonomous individuals without collective responsibility (which may demand forgoing certain individual interests). Invariably, both tasks undermine social stability by creating conflict, since they challenge dominant interests and different value systems…Contemporary environmental education, therefore, has the revolutionary purpose of transforming the values that underlie our decision making, from the present ones which aid and abet environmental (and human) degradation to those which support a sustainable planet in which all people live with equal human dignity… This contrasts with the traditional purpose of schools…of conserving the existing social order by reproducing the norms and values that currently dominate environmental decision making. (Stevenson 2008, p. 145)

Drawing upon Stevenson’s comments, what is of concern is how teaching practices in environmental education are mediated by broader policy discourses of education and how this in turn further mediates educational processes towards normative ideologies (Lloro-Bidart 2015). In
other words, as micro-political teaching practices become constrained and disciplined by systemic governmental macro-politics, the division between normal and deviant teaching practices come into sharp focus. For Stephen Ball, Meg Maguire, and Annette Braun (2012) different kinds of policy discourses:

position and produce teachers [and students] as different kinds of policy subjects… policy makes sense of teachers [and students], makes them what and who they are in the school and the classroom, makes them up, produces them, articulates them and what or who they can be. (p. 92)

Within this, outdoor pedagogies become discursively categorised as different to that of ‘normal’ everyday classroom practices, because as Robyn Zink and Lisette Burrows (2008) elaborated:

The process of categorisation does more than signify difference; it also establishes relationships between categories. Categories do not denote a priori forms of knowledge; rather the processes of categorisation and the relationships between categories are embedded in relations of power. (p. 256)

Therefore, through ‘deviant’ acts of stepping outside, away from ‘normal’ indoor practices, the credibility and integrity of outdoor learning in the field of environmental education becomes compromised (Preston 2014).

7.4 Troubling Indoor/Outdoor Binaries in Environmental Education

Implications of indoor/outdoor binary logics are further set within discourses of settler colonialism, in which the indoors are understood as *socially constructed* and the outdoors, by inference, are understood as *natural* (Bennett 2010; Zink & Burrows 2008). As such, when the outdoors is (re)appropriated as a ‘natural’ space *not* ‘marked’ by culture, it is seen as a context-free, empty site of learning (Brookes 2002; Preston 2014; Zink & Burrows 2008). Through this logic, the indoors is understood as *culturally* superior, while the outdoors is deemed *morally* superior. It then follows that the ‘natural’ constitutions of the outdoors are associated with romantic visions of a pristine and untouched landscapes, in which there is opportunity for the outdoors to initiative redemptive qualities for people through their experiences (as explored in Chapter Four) (Nxumalo & Cedillo 2017; Zink & Burrows 2008).
Understanding the outdoors as a blank slate awaiting cultural inscription, teachers (and students) often privilege the outdoors as a more significant learning space, in its capacity to provide new and better ways of being (Preston 2014; Priest & Gass 2005). Highlighting intersections between the outdoors, relations of power, and identity (Preston 2014), this is problematic, because if the outdoors is valued as a space to remove layers of social conditioning, through assumptions that in going to the outdoors humans will discover who they really are in finding their true ‘nature’, then we promptly return to an anthropocentric and humancentric discourse. In other words, enacting a heroic quest to ‘find ourselves’ in the outdoors (Zink & Burrows 2008) suggests that individuals are free, independent, and autonomous (Braidotti 2013; Butler 1993; St. Pierre 2000), and as socio-culturally constructed. This defies the idea that matter is an active force intraacting moment to moment with discursive processes in sense-making with the world.

Moving away from the idea that the outdoors is something that is continuous and given, as a neutral site in which culture acts itself out (Massey 1999), and imbuing the outdoors with lively and vibrant materiality, however, new understandings of the indoor/outdoor binary come to light. As Bennett (2010) argued, ‘if matter itself is lively, then not only is the difference between subjects and objects minimized, but the status of the shared materiality of all things is elevated’ (p. 13). Following this, Lou Preston (2014) wrote:

[places within the outdoors will not] provide the ultimate ‘experience’ in which somebody might participate; rather, these are places that are influential in enabling embodied experiences; experiences of being in relation to one’s self, others and the world. (p. 175)

In this way, the outdoors is not defined by social descriptions, but, it is constituted through social relations (Massey 2006). Moreover, as bodies become ‘marked’ with vibrancy and liveliness through affects within any given pedagogical event, we simultaneously affect the outdoors in a dynamic, ongoing, continual, and reiterative co-constituted worldmaking. These ideas were
highlighted in further conversations with Lily, in which we discussed discursive tensions impacting upon her teaching practices, as also encountered in the researcher/teacher enactments. Within this, Lily suggested that because she takes up people and Land in her conceptions of community in environmental education-type teaching practices, then it follows that through the outdoors, through affects emerging from intraactions with Land, she was able to interrupt discursive tensions. As Lily said:

> The more confident and rebellious that I become about the structures of education, the more I get outside, and the more I do with the connections I make within our city. And, therefore, it becomes more accessible for me to go and do things with more connections, and on, and on, and on we go. (Transcribed researcher/teacher meeting notes 2018)

In this way, rather than seeing the outdoors/Land as a place to ‘find’ herself, or as a place for her students to ‘find’ themselves, Lily taught with Land as a strategy to proactively challenge norms of policy-driven, instrumental, technicist, mechanistic, rational, and reductionist teaching practices. Her perspectives meant that she did not conceive of Land as an ‘empty signifier’.

An ‘empty signifier’ refers to environmental education’s elusive identity causing the meaning of Land to be taken up in different ways, as per privileged signs in discourse working to order other signs (Laclau & Mouffe 2001; Gonzalez-Gaudiano and Buenfil-Burgos 2009; Van Poeck & Vandenabeele 2014). For example, as McKenzie (2012) commented, ‘education for sustainable development can demark environmental sustainability for some, while very comfortably maintaining a neoliberal trajectory of individualism, free market economics, and continued western style development’ (p. 173). However, given that Lily thought and acted with Land through grounded, lived, embodied, and embedded teaching practices, she moved away from the idea that Land was awaiting a socio-cultural stamp of meaning through discursive practice (i.e., Land taken up as a resource in these Anthropocene times). In this sense, Lily understood Land as an integral part of the relational community that she was seeking to cultivate
with her students, moving through a ‘me’ to ‘we’ mindset to an understanding of an intraacting ‘me/we’ relationship, as I will now explain.

7.5 Moving through a ‘Me’ to ‘We’ to an Intraacting ‘Me/We’

For Lily, a relational community was first demonstrated in her articulations of the importance of challenging a ‘me’, individualistic mindset, to a ‘we’, community-oriented mindset. As she articulated:

We need to be informed and make decisions about economics, and futures. It’s giving away the egocentricism...not the ‘me’, but the ‘we’. Yet, I am not interested in the ‘cheerleading bullshit’ of ‘we-day’. This started off as a gracious, lovely thing where this young boy decided that he wanted to do a lot of work with helping people all over the world and then it became this big social media event. Meanwhile, I teach kids who struggle with food every day. And as the ‘we-day’ campaign talked about global struggles with food, I looked upon the kids sitting next me who struggled - the very kids who were being asked to give food and money to others. Sitting next to me were the people in my community that needed help. It made me feel really sad.

We need to rethink these things. So, for me, the ‘we’ is about starting with ‘no place like home’. We should not forget about the world, there are a lot of global issues that we need to think about, but we need to think about how our community might be suffering, engaging more with local issues, right at our feet. And, the biggest connection to community that you are going to have is the connection with Land, the ‘ass on grass, feet on sand’ kind of thing. (Transcribed researcher/teacher meeting notes 2018, original quotation marks)

Lily’s statement highlights the importance of locally embedded approaches to rethinking socio-ecological justice pursuits, acknowledging that a universal ‘we’ fails to consider the contested nature of practice towards ‘good’ local citizenship. That is, given the value-laden and political nature of environmentalism, a universal ‘we’ forges an instrumental relationship between learning, citizenship, and democracy (Van Poeck & Vandenabeele 2014). This is because the effects of homogenisation and institutionalisation, as set within a colonial universe, sustain ‘performances that tend to suppress and or contain the enactment of other possible worlds’ (Sundberg 2014, p. 38). As Annette Gough (2012b) argued:

Given that there is growing recognition that there is no one way of looking at the world, no “one true story”, rather a multiplicity of stories, then we should look at a multiplicity of strategies for policies, pedagogies, and research in environmental education. These strategies should be strategies that are neither universal nor part of the dominant discourse, but strategies that are from the lives of the colonised and marginalised, including the lives of women (p. 376, original quotation marks)
Bearing relevance to Warren’s (2002) ecofeminist notions of ‘situated universals’, as a useful theoretical concept to interrogate local/global dynamics and reveal implications of normative orthodox and co-opted practices in education (Lloro-Bidart 2015; McKenzie et al. 2015; Sund & Ohman 2013), it is important to ask who is the ‘we’ in these Anthropocene times. That is, through the double-bind of the Anthropocene, we are both response-able for socio-ecological crisis narratives and implicated in creating alternatives to these narratives. As Braidotti (2017) argued, ‘posthuman subjects are a “we-are-in-this together-but-we-are-not-one-and-the-same” kind of subjects’ (p. 23). In this sense, there is no universal sameness, but we are all vulnerable through the effects of the Anthropocene, meaning that we must be ‘determined to adopt a critical and creative stance towards the great opportunities, but also the injustices and threats of present times’ (Braidotti 2017, p. 17).

These ideas have roots in Bookchin’s (1962) social ecology as conceived in the mid-late 20th Century. Understanding the ecological crisis as derived from a social crisis and that the roots of ecological problems are sourced from a dislocation in society, for Bookchin, the focus moved from the individual to a commitment to social freedom through the development of an ecological consciousness as a grounded and rational critique of neoliberal and capitalist regimes (Bookchin 1982). In this way, Bookchin’s ecological consciousness was different to that of the transcendental nature of deep ecology, cautioning against notions of romantic ‘nature’ worship within mystical approaches (Greenwood 2005). Calling deep ecology as a flippant abstraction of human individuality, Bookchin (1987) admonished the ‘we are all one’ bumper sticker slogan, stating that:

this all-encompassing definition of community erases all the rich and meaningful distinctions that exist not only between animal and plant communities but above all between nonhuman and human communities. (n.p.)
Through his anti-capitalist movements, Bookchin’s (1971) critiques of industrialism, emphasised that the laws of the market place should reflect those of ecological systems integrating all living beings and their relationships within the biosphere. In his arguments that disastrous environmental consequences would inevitably prevail through the market place reducing the world to merchandise, Bookchin contended that decentralisation was crucial to deconstruct and overturn social hierarchies that gave rise to the domination of ‘nature’. Bookchin synergistically integrated liberal and socialist political understandings, drawing upon the importance of individual freedom within societal constructs (liberalist position) and equality within these social constructs (socialist position). In his later writings, Bookchin broke away from anarchistic positions, settling upon ideas of communalism through ideas of libertarian municipalism.

Finding affinities with Bookchin’s libertarian municipalism and Lily’s approaches to environmental education-type teaching practices, in which she sought to empower individuals as set within their local social economies, inspiring an intraacting ‘me/we’ relationship, through a relational agency lens, I understand the ‘me/we’ relationship as an entangled, yet differentiated, ‘becoming-with’ the world. In the following journal entry, I demonstrate how I understood my own sense of ‘becoming-with’ the world as an Australian/30-something/White/Western/female/backpacker/environmental education researcher/teacher/socio-ecological activist.

7.6 Worldly Nomads: A Sandhill Crane, a Potash Mine, and Me

Journal Entry 12th May 2018

When the light became bright near midnight as Saskatchewan opened to the bloom of Spring, we would often drive out into the prairies. Roaming, wandering, and gathering new adventures, there was no set agenda for these missions, just an exploration of these vast plains.
Although I do admit that I hoped to stumble upon Canadian critters entirely novel to my Australian experiences of bush-going marsupials. On this particular evening, we were bound for Rice Lake, which, according to Google Maps was only about a half an hour drive due west of Saskatoon. Leaving the city limits and the gliding comfort of highway travel, we took a bumpy turn along a dirt road, bounded by the grids of private property. It was windy outside, and I had to hold onto my hat and keep my mouth closed, as the mid-west squalls and dust gusts whipped through the car. In joyful anticipation that this lake might yield a refreshing swim, our hopes were quickly dashed when we saw grey-tinged waters up ahead, awash with yellowy-brown shore waves and plenty of dirty looking foam lining the banks. In the same moment, as I pointed to the South and the monstrosity that represented a local potash mine, my partner slammed on the brakes and slowly backed up the car gleefully pointing to small object in the ecotone of Rice Lake. Blinking to clear dust from my eyes, I squinted to recognise this small object darting along the shore as a mid-continent sandhill crane (Grus canadensis)!

(Fieldnotes 2018)

I had only just learned about these migratory birds, known to travel over 400 miles per day across the Central Flyway of the Great Plains of North America (The Nature Conservancy 2018). Sandhill cranes are highly territorial, wintering in western-Texas and eastern-New Mexico, and often stopping in Saskatchewan and Alberta on their north-westward migration to Alaska or the north slope of western Canada (Tacha, Vohs & Iverson 1984). David Abram poetically pondered the allurement of these migratory patterns, in his curious and inquisitive questioning of how and why sandhill cranes have such precise seasonal memory that rises in their muscles, calling them skyward, and then:

drawing them back, and back again to the place of one’s beginning, to that precise blend of wind and rock, and glistening water; the irresistible draw of the bustling and clamorous crowd, now giving way, as it
always has, to the imperatives of solitude, and intimacy, and home. (*Creaturely migrations on a breathing planet* 2018, n.p.)

As we sat and watched the sandhill crane mosey along the shoreline, seemingly unaware of our presence, I looked back towards the southern horizon, captivated by the sight of the potash mine. From this distant vantage point, the cutting tunnels of the mine, used to extract the ore to a production hoist on the surface for processing, almost looked like a small city. Bemused, I imagined this site to be speckled with exclusive lakefront dining and promenade shopping. But I knew it was not a cosmopolitan metropolis, but a globalised conduit of production. It signified its own nomadic (im)migration patterns of sorts, through a neoliberal chain of capitalism and enterprise, sending Saskatchewan far out into the world, and back again. This potash mine, while almost as spectacular as the sandhill crane’s line of flight reclaiming territory year after year, was not nearly as aesthetically or morally appealing. It was a stark reminder that we were, indeed, living in times of the Anthropocene.

Perched on the grass overlooking the sandhill crane and the potash mine, I (re)considered my own ‘Lady/Backpacker’ (im)migratory patterns (as explored in Chapter Four), as I returned time and time again, mapping the same line of flight from south-eastern Australia to the mid-west of Canada. Just as the sandhill crane was intelligently encoded to perform particular behaviours, like resting awhile in the marshes of Saskatchewan, the economic and financial codifying of commodities in global trading routes of *Nutrien* also worked to transport Saskatchewan potash to the world. Trade liberalisation and corporate globalisation enacting portable solutions to ‘feeding the world’, demonstrates the vast effects of planetary engineering through ‘mechanistic “solutions” to problems caused by the mechanical age’ (Shiva 2008, p. 30, original quotation marks).
Similarly, these algorithmic scripts also governed my nomadic wanderings, as I ventured back and forth, and back again, across the Pacific Ocean. Through Darwinian process of variation under natural selection, algorithms are repeated sets of mechanical calculations, in which appropriate responses are generated under any given environmental circumstance (Ingold 2000). As Timothy Morton (2010) stated, ‘an algorithm is a script -- a text – that automates a function, or functions, and in this case, the script is encoded directly into matter’ (p. 4).

Following this, because text is interwoven in all bodies, and therefore, entangled across all modes of knowledge and being, there is the collapse of the text/world distinction (Opperman 2011). This idea is imperative to understanding my sense of self with the world through its capacity to bring commensurate attention to matter in its entanglement with semiotics (and larger structures of discursive practices).

Moving away from linguistic understandings of the ‘empty signifier’, as previously explored, N. Katherine Hayles (2010) conceived the ‘flickering signifier’, which interrogates the ‘dance’ between code and language. Drawing upon the cultural and political contexts of cybernetics (the science of communication in its control and regulation of machines and living things), ‘flickering’ for Hayles meant that the linguistic and material form is not stable, and these surface manifestations always depend upon underlying processes of codes, hardwires, and infrastructures to transmit the code. For example, algorithms were materially arranged in the structuring of my biological configuring, most likely spawned from my intrepid Mother, inevitably bestowing me the ‘travel bug’ inspiring my relocation to Canada. Algorithms further ‘marked’ my body through airline encryptions, signalling my travel route from Australia to Canada, and back, and forth, and back again, and, whether I would transit in Vancouver, Calgary, Los Angeles, Honolulu, Auckland, or Sydney, or a combination of any of these. Not to
mention the materiality of mechanical and electrical engineering codes of an Airbus A380 enabling up to 560,000 kilograms of grounded matter to thrust into the air and travel vast distances at 35,000 feet (Hughes 2011). These codes were the workings of commerce in the online banking systems that conveniently allowed me to plug in my credit card details to purchase an e-ticket for travel. And they were the workings of information-communication technology, mobilising myself as an off-campus student to ‘work on the go’, attached to my laptop and smartphone like they were an inherent extension of my body as I (im)migrated across the globe.

While certainly not exhaustive, these few examples demonstrate the microscopic domain of algorithmic scripts comprising material/discursive ‘things-in-phenomena’, or the materiality of things enacted (Barad 2007). These examples demonstrate that as I am entangled within a complex web of interrelations that bind me to multiple ‘Other(s)’, my humanness is materially/discursively made up of animal and machine. I was akin to Haraway’s (1985) figuration of a cyborg, in which the technological/organic and human/nonhuman are infoldings of the flesh. According to Haraway (2016):

Cyborgs are not machines in just any sense, nor are they machine-organism hybrids. In fact, they are not hybrids at all. They are, rather, imploded entities, dense material semiotic “things” …Particular sorts of historically situated machines signaled by the words information and system play their part in cyborg living and dying. Particular sorts of historically situated organisms, signaled by idioms of labor systems, energetics, and communication, play their part. Finally, particular sorts of historically situated human beings, becoming-with the practices and artifacts of technoscience, play their part. (p. 104)

In this sense, algorithms do not unfold as static, stable, fixed, and rigid coding systems that cause autonomous behaviours through closed systems of organisation (autopoiesis), but they work as a vector, or mixity, of material/discursive entanglements. This suggests that adaptation, transformation, and in/evolution occur through intraactions with the world, through organisationally ajar sympoietic systems that produce change. As Barad (2012) proposed:
electrons, molecules, brittlestars, jellyfish, coral reefs, dogs, rocks, icebergs, plants, asteroids, snowflakes, and bees stray from all calculable paths, making leaps here and there, or rather, making here and there from leaps, shifting familiarly patterned practices, testing the waters of what might yet be/have been/could still have been, doing thought experiments with their very being. (pp. 207-208)

In the same way, objects of knowledge are agential in the production of knowledge causing subject/object boundaries to be unstable (Haraway 1985). Therefore, to distinguish something from something else is not returning to static, stable, fixed, and rigid categories of dualistic and oppositional difference, as situated in the world, but to discern changing and relational realities, through dynamic intraactions with the world. To bring to light agential worlds outside the classroom in dismantling indoor/outdoor binary logics, therefore, I understand myself/Lily as a holobiont environmental education researcher/teacher, as I will now explore.

7.7 Holobiont Environmental Education Researcher/Teacher

Holobionts, according to Haraway (2016), mean ““entire beings” or “safe and sound beings”” (p. 60, original quotation marks), rather than discreet ‘units’ or ‘beings’. Yet, holobionts are not just biological configurations, but through our lived realities, they are also a material/discursive entanglement. According to Haraway, holobionts are not the same thing as an individual, or one, but:

in polytemporal, polyspatial knottings, holobionts hold together contingently and dynamically, engaging other holobionts in complex patternings. Critters do not precede their relatings; they make each other through semiotic material involution, out of the beings of previous such entanglements... I use holobiont to mean symbiotic assemblages, at whatever scale of space or time...[to not] designate host + symbionts because all of the players are symbionts to each other, in diverse kinds of relationalities and with varying degrees of openness to attachments and assemblages with other holobionts. (2016, p. 60)

Understanding myself/Lily as a holobiont environmental education researcher/teacher affords the opportunity to understand our relations with ‘Other(s)’ in a productively heterogenous manner. This is because holobionts challenge Cartesian dualisms and binary logics through their capacity to draw out notions of ourselves as hybrid beings. In this way, agency emerges through intraactions, in that ‘all the actors [situated within naturecultures] become who they are in the dance of relating...redone through the patterns they enact’ (Haraway 2007, p. 25).
It is important to note that hybridity in this sense is not a mixture of two pure forms, in what Sarah Whatmore (2002) called ‘one plus one’ logic. Drawing upon Latour’s claim that a ‘one plus one’ logic of hybridity begins with the separation of extremes down the middle, Whatmore suggested that this divide inevitably silences and denies the middle space, reifying categories and their hierarchical positions based upon power differentials. For example, given that in the hyper-modern age of advanced capitalism propagating an ever-increasing faith in science and technology, human/nonhuman connectives become radically disrupted through advances in cloning, genetic modification, and artificial intelligence. As Braidotti (2013) explained, techno-military proliferation means that animals become embalmed as living material for scientific experiments, resulting in a perverse form of posthumanism. Exploring the examples of ‘Dolly the Sheep’ and ‘OncoMouse™’, Braidotti (2013) wrote:

Animals like pigs and mice are genetically modified to produce organs for humans in xenotransplantation experiments. Using animals as test cases and cloning them is now an established scientific practice: Onco-mouse and Dolly the sheep are already a part of history…In advanced capitalism, animals of all categories and species have been turned into tradeable disposable bodies, inscribed in a global market of post-anthropocentric exploitation. (p. 70)

In attempting to (re)configure these dualistic categories, therefore, the hybridity that I take up as a holobiont environmental education researcher/teacher, is a valorising of the border culture of the in-between (Massumi 2002). In other words, as two categories relationally interact, they do not blur into each other diluting the other to become a hybrid form of two different things, in which power relations will inevitably structure dualistic and hierarchical configurations (Fine

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21 In 1999, ‘Dolly the Sheep’ was the first mammal cloned from an adult somatic cell, at the Roslin Institute, as part of the University of Edinburgh in Scotland. This successful xenotransplantation paved the way for the cloning of many other large mammals, including pigs, deer, horses, and bulls.

22 ‘OncoMouse™’ is a Harvard University laboratory mouse, genetically modified to carry an activated oncogene increasing the mouse’s susceptibility to cancer, thus, making it useful for cancer research. As Haraway (1997) described, ‘OncoMouse™’, as a cultural actor, an ‘Enlightenment figure who belongs in the genre of Scientific Revolution narratives…of legitimate corporate issue rather than unauthorised natural offspring’ (p. 83).

23 Xenotransplantation is the transplantation of living cells, tissues or organs from one species to another.
1998). Rather, hybrid is understood through the lens of ‘becoming-with’, drawing upon affects emerging from two categories interacting.

Conceiving myself/Lily as a holobiont researcher/teacher in environmental education demonstrates sympoietic arrangements of ‘becoming-with’, in that an ecological understanding of self, acts in favour of the collective and not in favour of a narrow set of self-interests. In this way, it is only through our relationships with ‘Other(s)’ that we develop a sense of ourselves as individuals (Burns 2008; Diehm 2002). As Deleuze and Guattari’s (1987) claimed:

We know nothing about a body until we know what it can do, in other words, what its affects are, how they can or cannot enter into composition with other affects, with the affects of another body, either to destroy that body or to be destroyed by it, either to exchange actions and passions with it or to join with it in composing a more powerful body. (p. 257)

Following this, through my intraactions with Lily it could be suggested that both of us transformed together through the researcher/teacher enactments. While I cannot speak on behalf of Lily, interpreting how she might adjust her environmental education-type teaching practices to take up practices as derived from the researcher/teacher collaboration in the future, she did allude to how the researcher/teacher enactments affected her. In Lily’s words:

These ideas worked [within all four researcher/teacher enactments] and will certainly show themselves again in time. The pictures were a beautiful way of expression, and in fact, we are using this activity in our community building, thinking around the work that I am doing with reconciliation.

I think the way that we gathered material things and built an Eco-Art Installation, and then had the kids explain why they chose those things, I liked that. We didn’t just make an Eco-Art Installation, but it was purposeful connection building, and a very easy way for kids to be able to show their connections. It could also be something you could describe to parents, to use as an assessment tool.

I think the conversations that we’ve had have been beneficial and to see what is being written about how I am affecting kids is powerfully humbling. It is intriguing to look at myself through your lens, and to understand myself through what you notice in my teaching, and what you are pulling out from this stuff. It’s confirmation of the things that I do within my teaching, because we don’t get a lot of handshakes, because people don’t understand, don’t believe, or don’t know how to do these things in environmental/outdoor education. Anything that is new and scary, they will not look at. So, that has been very powerful for me.

I think it’s also powerful in how easily the students connected and accepted our relationship. They have accepted you, and worked with you, so that makes my heart full, because I can see that I am helping them to be good citizens and I recognise the connections that we’ve made as a team of learners; so that when people join our team, they are welcome. For me, that is community. (Transcribed researcher/teacher meeting notes 2018)
These narratives demonstrate how the researcher/teacher enactments were foundational in how Lily and I understood our collaborative relationship. That is, as I was affected through my intraactions with Lily, this caused me to simultaneously affect the relationship through a dynamic, ongoing, continual, and reiterative unfolding of co-constituted sense-making.

Moreover, as our relationship was influenced through how our bodies were affected by our common understanding of pervasive issues and tensions in (environmental) education, this in turn affected how we understood and responded to such issues through these researcher/teacher enactments in Land education. In this way, although I continually felt tensions in the researcher/teacher enactments, given the constraining and disciplining nature of discursive structures in education perpetuating indoor/outdoor binary logics, through affects emerging from my intraactions with Lily, I was able to transform myself into a (relational) agent of change. This is not saying that Lily solely dictated how I would experience these researcher/teacher enactments, enacting a kind of power differential because she was the teacher. Nor did my proposal and co-implementation of the researcher/teacher enactments dictate how she would practice environmental education-type teaching practices explicitly attuning to my research needs. Rather, through intraactions with each other, with the Grade 4/5 students, with the wider community of people and Land, with environmental education curriculum policy, and with broader discourses of Western education models, affects emerging from intraactions generated transformational and generative change for both of us within a ‘togetherness’ relationship. This is what Barad (2007) meant when she discussed the idea of ‘cutting together-apart’, as I explored through diffractive ways of understanding in Chapter Three.

When binaries are no longer understood through categorical dualisms of dualistic and oppositional difference, but, through an entanglement of difference assimilated through relational
agency, there is nothing *outside* of us. This is what Braidotti (2002) referred to with the ‘outward bound’ expression of nomadic multiplicities of subjectivities (as discussed in Chapter Five), in which ‘The universe is agential intraactivity in its becoming’ (Barad 2007, p. 141). Following this, if ‘nature’ is not *outside* of us (Kirby & Wilson 2011), and if human/nonhuman relationships are understood as an entanglement of all life on the planet, then ideas of indoor/outdoor binary logics are no longer credible, giving rise to what I understand to be agential worlds outside the classroom. In this way anthropocentric and humancentric agendas of (environmental) education are challenged to bring commensurate attention to the material world as an active part of sense-making *with* the world. Before moving onto the final cluster and chapter of this thesis, in considering the possibilities for agential worlds outside the classroom for your teaching practices, on the next page, I propose my third provocation to you.
Research Understanding: Provocation Three

What would it mean if you understood your (environmental education) teaching practices as entangled with material/discursive unfoldings in every given moment?

To understand your response through affects emerging from intraacting with this provocation, I invite you to ponder, journal, draw, discuss, move with/through your ideas, thinking/doing these thoughts/actions with the world.
Chapter Eight: Becoming (Partially) Posthumanist

*Good stories reach into rich pasts to sustain thick presents to the keep the story going for those who come after*


8.1 Starting in the Middle of Things

Enacting relational research and teaching practices in the simultaneous thinking/doing-with/through a posthumanist performativity and new materialist methodologies, this thesis is an assemblage of four intraacting clusters: Research Inspiring, Research Performing, Research Understanding, and Research Becoming. In Cluster One: Research Inspiring, I introduced my research question, designed to help understand how affects emerging from relationally intraacting Researcher/Teacher/Environmental Education Worlds might work to (re)story human/nonhuman relationships. This research question was:

*How might affects emerging from Researcher/Teacher/Environmental Education relationships (re)story human/nonhuman relationships?*

Cluster One also comprised Chapter Two (Research Context), in which I mapped a range of theoretical perspectives and practices from environmental education scholarship. Then, in Cluster Two: Research Performing, comprising Chapter Three (New Materialist Methodologies), I explored the research assemblage, research apparatuses, and how a cartographic and diffractive storytelling praxis would be taken up in following chapters. In Cluster Three: Research Understanding, comprising Chapter Four (‘Lady/Backpacker’ Storytelling), Chapter Five (Researcher/Teacher Relationships with Land and Pedagogy), Chapter Six (Negotiating a Lived Curriculum), and Chapter Seven (Agential Worlds Outside the Classroom), I worked to make sense of my research question, exploring entangled Researcher/Teacher/Environmental Education Worlds. This brings me to Chapter Eight, which is situated in Cluster Four: Research Becoming. Enacting a thinking/doing with/through ‘Stories in the Present’, in this chapter I
demonstrate how ‘Stories of the Past’ (as presented in Chapters One, Two, Three, Four, Five, Six, and Seven of this thesis assemblage) are entangled towards a ‘research becoming’, in inspiring new and different ‘Stories for the Future’ for/with/in the field of environmental education. My conceptual understanding of this thesis assemblage is highlighted in Figure 8.1.1.

In this chapter I first explore how I understand the concept of ‘Stories in the Present’, demonstrating that the past and future are enfolded within present-moment politics of location (Mazzei 2016). I then explore a theoretical conversation regarding what it means to be becoming
a (partially) posthumanist researcher. Delving into ‘Stories of the Past’ and the moments of 
rupture in (pedagogical) events of Chapters Four, Five, Six, and Seven, I then turn my attention 
to how these stories might inspire new and different ‘Stories for the Future’ in environmental 
education policy, practice, and research.

8.2 Thinking/Doing-With/Through ‘Stories in the Present’

Considering how this research might contribute to policy, practice, and research in the 
environmental education field is not derived from a cause and effect of actions pursued in this 
research working to determine an answer to a research question(s). This suggests that in 
commencing, conducting, and concluding this research through a start/middle/end type scenario, 
that I might be able to draw definitive summaries to answer my research question in an absolute 
and complete way. As such, my intentions of this research are not to postulate a more ‘correct’, 
or ‘better’, method of environmental education policy, practice, or research, but to expand on 
socio-ecological crisis narratives through a (re)storying of human/nonhuman relationships. 
Moreover, through posthumanist performativity theoretical resources and new materialist 
methodological approaches, I (re)emphasise that transformational change is not something out in 
the future, as something to aspire to in achieving a distant outcome. Rather, change occurs 
through agential intraactions within a worldmaking that is continually and reiteratively in a state 
of becoming in the present moment politics of location (Barad 2007; Braidotti 2013).

As Mazzei (2016) wrote, ‘Time is not to be thought as a connection of instants that can be charted and placed on a timeline relative to one another in an ordered fashion’ (p. 156)24.

24 Also challenging Western constructs of time, Indigenous ontologies of time is brought forward by Wildcat (2005), in his commentary highlighting that, as the Western mind looks backwards and forwards along a linear continuum to get a sense of themselves within history, First Nations people literally get a sense of their history from looking around the natural world. As he wrote, ‘The significance of invoking the four winds or directions, the sky, and the earth, widespread throughout many tribal traditions, is more profound than any New Age guru can imagine’ (Wildcat 2005, p. 432).
Following this, because voice is not a thing, but an attribution of the forces running through it, in a dynamic, ongoing, continual, and reiterative unfolding of bodies, places, spaces, times, utterances, and becomings, this ontological voice does not speak of my/our/your past, but the past (Mazzei 2016). Therefore, I am not trying to articulate what I know about myself, or what I know about Lily with/in environmental education, through fixing chapters in a past location or position. Rather, I am attempting to convey how affects emerging in my present-moment intraactions with this thesis assemblage, help me to make sense of my research question. Acknowledge the unity of past, present, and future, in that the past and future are entangled within the present-moment politics of location (Mazzei 2016), this chapter, therefore, enacts a thinking/doing-with/through ‘Stories from the Past’ in ‘Stories in the Present’. My hope is that these ‘Stories in the Present’ will become a part of a dynamic, ongoing, continual, and reiterative unfolding of new and different ‘Stories for the Future’. Stories that are kept alive, vital, and vibrant through intraactions with this research, albeit, in different iterations and contexts of environmental education policy, practice, and research.

8.2.1 Thoughts on Becoming (Partially) Posthumanist

Given that this thesis assemblage has challenged and moved away from a discursive de/construction of anthropocentric and humancentric logics to include stories comprised of discursive and material forces, this thesis assemblage already expresses a posthumanist logic. In other words, because sense-making in this research has been affected by discursive and material forces of humans and nonhumans, through this research I am already more posthuman than human. The idea that we are already posthuman was understood by Hayles (2006) as she suggested that because we are inhabitants of a globally interconnected network of machines and other biological species that we share the planet with, then this assumes that ‘we are joined in a
dynamic co-evolutionary spiral’ (p. 164). While Hayles wrote that the posthuman is not a stable ontology, she regarded it like the human, as a ‘historically specific and contingent term’ (2006, p. 160). That is, the present moment is already posthuman, because as soon as the human is viewed as a part of a complex global system, living with other agents within that system, then the human subject automatically becomes decentred (Hayles 2010).

For Haraway (1988), however, one cannot be posthuman within a static definition, but, one can be in a state of ‘becoming posthuman’, through a dynamic, ongoing, continual, and reiterative unfolding of events. Haraway attested to the difference between a fixed representation of a concept (i.e., myself as posthuman), preferring the performances of ‘living something’ (i.e., myself ‘becoming’ posthuman). However, drawing on boundaries of the Anthropocene/Capitalocene in her more recent work (e.g., 2016), Haraway contended that she was not a posthumanist, but a compostist. Acknowledging the immense, irreversible destruction of the Earth through the effects of the Anthropocene/Capitalocene, she explained that:

> responsibility must be cobbled together, not in the existentialist and bond-less, lonely, Man-making gap…inoculated against human exceptionalism, but rich in humus, ripe for multispecies storytelling.

(Haraway 2016, p. 11)

In this way, Haraway departed from the story of humans made in the image of God to understand humans as *humus*, as ‘beings of the mud more than the sky’ (p. 11), as the decaying and dead plant and animal matter that forms in soil.

In their differentiations between ‘posthumanism’ and a ‘posthumanist viewpoint’, Snaza and Weaver (2015) suggested that a posthumanist viewpoint is important, because it asks how one relates to the pervasive and deeply seated humanist thought prompting an understanding of *relationships* between beings and the things that make up the world. As Haraway (1985) also argued, the smallest unit of analysis is always the *relation*. This means that reality should be understood through its different contexts, ‘as “made” but not necessarily “made up”’ (Hayles...
2006, p. 161, original quotation marks). Bringing attention to the importance of discerning exactly what relations should be foregrounded, Hayles suggested that:

there is no way to know the world except through the subjectivity that precedes and grounds our objective accounts. We are home in the world… because the world we understand is also the world we make, in both literal and figurative senses. (2006, p. 163)

Analogous with Haraway’s (1988) ‘situated knowledges’, therefore, sense-making can only ever be temporary and partial, because without fixed, solidified essences, knowing is contingent within the present moment intraactions of any given situated context. Threading these ideas through each other, I am, therefore, always in a state of becoming (partially) posthumanist. I now turn to the moments of rupture in the (pedagogical) events of this thesis assemblage to explore what this means in attending to my research question.

**8.2.2 Moments of Rupture: Attending to my Research Question**

Bringing forth a multitude of stories derived of biological, spiritual, ethical, socio-cultural, political, and ecological forces within, and between, Researcher/Teacher/Environmental Education Worlds, has been made possible through affects emerging from their intraactions. In *Chapter Four* (Researcher World), through exploring the relationship between my nomadic multiplicities of subjectivities, as a ‘Lady/Backpacker’, moments of rupture demonstrated how the lively, vibrancy of the ocean’s materiality, in its constant and dynamic forms of motion and change, helped me understand and release discursive structures of gender normativity. Then, (im)migrating to Canada and my new home in the prairies, affects emerging from my intraactions with Buddy the grey wolf, grounded my understanding of a co-constituted and co-implicated existence in these Anthropocene times. This helped me to address ongoing settler emplacement stories of colonisation, challenging and (re)configuring my Canadian cultural imaginaries to take up postcolonial ethics. In *Chapter Five* (Researcher/Teacher Worlds), through exploring the researcher/teacher relationship with each other, and with Land and
pedagogy, moments of rupture highlighted how vulnerability could be understood through affirmative politics, in opening to affects immanent in any given intraaction. This was grounded through pedagogies attuning with Land, which further sparked an understanding of the pedagogical event to promote the idea of care ethics as relational. In Chapter Six (Researcher/Teacher/Environmental Education Worlds), through exploring the lived curriculum/Saskatchewan curriculum policy relationship, moments of rupture were generated in the pedagogical event, ‘Toys, Tools, and Friends’. In conversations with her class, as Lily turned to notions of ‘friendship’ to imbue the material world with liveliness and vibrancy, this prompted me to (re)consider how I understood curriculum policy. Following this, the function of static, stable, fixed, and rigid learning outcomes within policy mandates changed from a pre-conceived discursive tool ‘done’ to teachers, to a material/discursive force within a co-constituted ‘teaching-with’ in environmental education-type teaching practices. In Chapter Seven (Researcher/Teacher/Environmental Education Worlds), through exploring the environmental education/education relationship, moments of rupture in a pedagogical event in ‘Photographic Encounters’, demonstrated discursive tensions relating to a policy-driven discourse of instrumentalist, technicist, and mechanistic teaching practices. Prompting an exploration of the indoor/outdoor binary in environmental education, I came to understand that imbuing Land with relational agency through affects emerging from intraactions with Land, outdoor teaching practices are brought in commensurate attention with discursively ‘normalised’ indoor teaching practices.

As these moments of rupture intraact with each other in my present moment politics of location, I begin to map how I make sense of my research question. And what is starkly illuminated, is that through intraacting Researcher/Teacher/Environmental Education Worlds, a
(re)storying of human/nonhuman relationships has been made possible through the materiality of affects inspiring a wordly (re)enchantment of amazement, wonder, and delight generated with ‘Other(s)’. Understanding that a wordly (re)enchantment is relationally co-constituted and co-implicated, I will now explain this in more detail through an exploration of a worldly (re)enchantment in antihumanist thinking (e.g., poststructural deconstructivism), transhumanist thinking (e.g., deep ecology), and posthumanist performativity and new materialism thinking/doing (e.g., relational agency).

8.2.3 Co-Constituted and Co-Implicated Worldly (Re)Enchantment

I am the first to admit that I will often experience a deep need to fight for socio-ecological justice, in which the environmental activist in me wants to take a stand and rage and rally against what appears to be a very unjust and unbalanced world. In these moments of what Braidotti (2013) called negative bonding with ‘Other(s)’, I want to plunge into antihumanist protest. Challenging socio-ecologically destructive forces of these Anthropocene times, I cannot help but want to make a difference in my contributions to tearing down the structures that oppress ‘Other(s)’ through the staunch identification of dualistically positioned allies and enemies in identifying all the things I love/stand for and all the things I despise/won’t stand for.

Often bowled over by the relentless and ongoing devastations to our planet, these feelings also prompt the disembodied fantasy of transhumanist escape. In these moments, I seek to become more animal than (capitalist) machine, denying all evidence that I am too a consumptive cog in the globalised, neoliberal, and capitalist spinning wheel of a commercialised Earth. This was a lived experience for me through my Canadian cultural imaginaries of Chapter Four, in which I sought to transcend the effects of a globalised, neoliberal, capitalised, and colonised world. In this way, I became dislocated and distanced from difficult and uncomfortable realities
of the world, enshrining myself within discursive orientations of amazement, wonder, and delight that resisted the grounded, material tensions of present-moment and present-location realities. In this sense, I place socio-ecological crises as a threat somewhere out in the future, in another part of the Earth, rather than as something very real in the present-moment of my present location.

A worldly (re)enchantment of amazement, wonder, and delight has been something that I have grappled with for some time, and in the past, I have associated these ideas with environmental stewardship derived from experiential, directly infused, place-based encounters (e.g., Leopold’s ‘land ethic’ and Wilson’s biophilia). Yet, as I cultivate environmental stewardship from place-based pedagogies, I promptly return to anthropocentric and humancentric thinking, and deeply structured habits of binary logics. In this sense, my capacity to relate to ‘Other(s)’ becomes diminished and I end up standing apart from, rather than a part of, what it is I am trying to understand (Haraway 2008). The work of this doctoral research, however, has illuminated to me, that in attending to the materiality of affects generating amazement, wonder, and delight with ‘Other(s)’, anthropocentric and humancentric understanding of human/nonhuman relationships, in which humans are set apart from nonhumans, fall away. This is because understanding a worldly (re)enchantment as a co-constituted and co-implicated force generated with ‘Other(s)’, moves away from a worldly (re)enchantment as set within a Land ethic of environmental stewardship for ‘Other(s)’.

Presenting an interesting paradox, I acknowledge that ideas of wonder, and delight could also be conceived through binary logics, in that their dialectical opposite might be indifference, disinterest, and discontent. Yet given that affects emerging from intraactions are not judged or labelled as good or bad, but they highlight productive (potentia) and restrictive (potestas) forces
(Braidotti 2013) and ethics of potential (Massumi 2015), any affects provide the conditions of possibility to transform towards a worldly (re)enchantment. That is, when a worldly (re)enchantment is acknowledged as a co-constituted and co-implicated force, then a worldly (re)enchantment becomes the response-ability of the individual as they are understood as interdependent and interconnected with ‘Other(s)’. As such, I become more ethically inclined and morally obligated to enact in an affirmative way with ‘Other(s)’, because it is through any given intraaction with ‘Other(s)’ that I garner an understanding of myself with the world. In this sense, a worldly (re)enchantment is still oriented for ‘Other(s)’, but (re)configured through relational agency.

While I am not in any kind of position to account for anyone/anything else’s story but my own, in that I cannot speak for how someone/something else might understand themselves with/in the world, for me, it is crucial that my story is set within affirmations of an interdependent and interconnected ‘togetherness’ relationship. Therefore, as my story is mutually imbricated with ‘fermenting critters of many genders and kinds, i.e., companion species, at table together, eating, and being eaten, messmates, compost’ (Haraway 2016, p. 170), I do not turn away from socio-ecological crisis narratives through escape, transcendence, or rebuke. Rather, in becoming (partially) posthumanist I actively embody the decision to remain grounded and open to a worldly (re)enchantment in these messy, confusing, and often terrifying Anthropocene times. Within this, I also understand the paradox in remaining ‘grounded’ in a world that is unstable through constant and dynamic flux and change. Just like my first encounters with the vast prairies of Saskatchewan, in which the lack of ‘handrails’ caused a disorienting dislocation of my sense of self in the world, remaining ‘grounded’ is not relying on any external world for a sense
of stability. Rather, it is turning inwards to go outwards in (re)configuring how we might choose to relate with ‘Other(s)’. As Rautio (2017b) articulated:

> What if you defined who counts as your family by including all who eat from the same fridge? What if you defined your kin by thinking about who share and get by with the particular environmental conditions in your neighbourhood (in my case the harsh winters and darkness)? What if you bonded with all who have garlic breath? (p.97)

I am becoming (partially) posthumanist, therefore, in acknowledging that we are all in this together (Braidotti 2017), yet this understanding has been generated through my first-hand accounts with the world, through my grounded, lived, embodied, and embedded politics of location.

### 8.3 Inspiring New and Different ‘Stories for the Future’ in Environmental Education

Given that this research is contextualised and situated in my own grounded, lived, embodied, and embedded politics of location, this research can only work to inform other situated contexts of environmental education. Moreover, given the dynamic multiplicities of difference that emerge from any given contextualised relationship, I am wary to capture this research into a unified whole and distil it into a static representation. However, I also seek to make this research as practical and tangible as possible, in considering Gough and Gough’s (2016) provocation, ‘what do we, as becoming-posthumanist educational researchers do?’ (p. 1). Therefore, in the following discussion, I offer a mapping of what I have learned through engaging and entangling myself with this research, hoping to inform new and different ‘Stories for the Future’ in environmental education policy, practice, and research.

#### 8.3.1 New and Different Stories for Policy in (Environmental) Education

As Tara Fenwick and Richard Edwards (2011) highlighted, educational policy-makers are situated in ‘well-recognised ambiguities and contradictions of [policy] processes’ (p. 709), also drawing attention to Stephen Ball’s (1994) ‘policy as wild profusion’. For Ball and co-
authors, Annette Braun and Meg Maguire (2012), ‘policy is done by and done to teachers; they are actors and subjects, subject to objects of policy. Policy is written into bodies and produces particular subject positions’ (p. 3). As I explored in Chapter Six, implicated within globalising, neoliberal, and capitalist forces, this is problematic for grounded, lived, embodied, and embedded teaching practices that prioritise the lived stories of learners. Following this, Fenwick and Edwards (2011) argued that educational policy needs to be enriched with “new tools” to ‘break free of conventional ways of framing problems, such as the ascribed power of dominant ‘“paradigms”’ and political ideologies, or the emphasis on human actors, their meanings, and interpretations’ (p. 710, original quotation marks). Moving policy-making away from anthropocentric and human-centric thinking in taking up materiality in its enactment, I draw upon the capacity of a political ecology of education to understand how power dynamics inevitably privilege certain forms of knowing, being, thinking, and doing in environmental education.

A political ecology of education can help to (re)configure how environmental education is understood in wider educational discourse, through its critique of human/nonhuman dichotomies that currently exists in pervasive humanist models of education (Henderson & Zarger 2017; Lloro-Bidart 2015; Meek 2015). Differing from classical ecology, which explores the relationships of organisms within ecosystems, political ecology is an ‘interdisciplinary sub-field that explores the relationships between environmental change and political, economic, and social processes’ (Meek 2015, p. 448). Crucially, a political ecology of education attends to the educational ‘politics of scale’ (‘scale’ describing the extent, or size of a length, distance, or area studied), challenging neoliberal and capitalist global expansions obscuring the complexity of human/nonhuman relationships (Lloro-Bidart 2015; Meek 2015). As David Meek (2015) described, a political ecology of education is a:
framework for understanding how the reciprocal relations between political economic forces influence pedagogical opportunities – from tacit to formal learning – affecting the production, dissemination, and contestation of environmental knowledge at various interconnected scales. (p. 448)

Within accounts of political ecology in education, Meek amongst other scholars, namely McKenzie (2012), suggested that a politics of scale is crucial in continuing locally relevant education in the face of globalisation. As McKenzie noted:

In Saskatchewan, as in so many other places around the world, in order to enable ethical educational policy and practice that is not imposed on but driven by local histories and diverse possible futures, the embedded logic of neoliberal globalization must be made visible and thus possible to critique. Rather than an assumed global ‘common sense’, this requires local ‘good sense’ enabled through a more careful exploration of the interscalar relationships of people to place/space. (2012, p. 171)

Challenging globalising trajectories that purport an instrumentalist view of education within predetermined universal aims, McKenzie called for ‘bottom-up’ (rather than ‘top-down’) approaches to educational policy implementation. Within this, ‘bottom-up’ approaches provide opportunities to attend to specific localised ways of life in different spaces and times, promoting a polyvocality that closes the gap between diverse everyday practices in any given classroom and government policy action. This is acknowledging how ‘globalised localities’ are relationally constructed through grounded, lived, embodied, and embedded material accounts of the individual with their community.

To provide examples of how a political ecology of education could be adopted by policymakers in (environmental) education, I draw upon Saskatchewan’s ‘Re-Imagine Education’ initiative. As a coalition of educational partners working to Re-Imagine Education, ‘Re-Imagine Education’ is interested to challenge ‘views of what education looks like, imagine what its future could look like, and create a plan for that vision’ (Re-Imagine Education 2018, n.p.). As such, my research could contribute to this initiative, in suggesting that policy-making in (environmental) education might include a (re)thinking of who, what, why, where, and how, education might be simultaneously geared towards an ‘education with the environment’ and an ‘environment with education’. For example:
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- **Who**: involves engaging in processes of polyvocality, more rigorously considering the teaching *and* student voice of local people, including First Nations teaching and learning communities. This was demonstrated by Lily in *Chapters Five and Six*, as she consistently made references to the idea that her environmental education-teaching type practices were set within a First Nations’ lens, also pursuing an active engagement with First Nations community members in her classroom teaching and learning endeavours;

- **What**: considering that a key focus of ‘Re-Imagine Education’ is to develop and enhance socio-cultural and economic constituencies within the province (Re-Imagine Education 2018, n.p.), it is crucial to bring commensurate attention to human/nonhuman relationships with natural ecologies in Saskatchewan curriculum policy. That is, as these Anthropocene times suggest the need for the development of an ethically grounded ecocentric narrative, this cannot be easily achieved through social and economic development (in science, technology, and economic advances, for example). Rather, an ethically grounded ecocentric narrative is set within creative and collaborative approaches to understanding human entanglement with the broader ecology of the world, *including* active collaboration with nonhumans. This focus on the human *with* natural ecologies was demonstrated in the researcher/teacher enactments, and specifically attended to by Lily in *Chapter Seven* in her inclusion of Land as part of her learning community;

- **Why**: global issues relating to social justice, solidarity with Indigenous land protection and sovereignty movements, wildlife and biodiversity protection, climate action, energy transitions, and food security (as examples) *will* continue to affect local and global socio-cultural and economic development. For example, as I explored in *Chapter Four*, settler
colonialism perpetuating First Nations dispossession\textsuperscript{25} of Land is an ongoing structure with ongoing consequences for First Nations people (Belcourt 2015). Working to promote a more ethically grounded ecocentric narrative in the face of these global tensions is understanding that these global tensions are not a threat in the future, but they are problems happening right now;

- **Where:** it is not practical to suggest that provincial policy could be more locally designed, but what could be of priority is a more explicit depiction of policy that might be enacted through the situated contexts of specific teaching and learning communities. This refers to Lily’s comments in *Chapter Seven* relating to localised practices. For example, the teaching and learning needs of an inner-city school are going to be different to the teaching and learning needs of schools located in farming communities, as they are going to be different to schools located in remote areas, such as the boreal forests;

- **How:** consider the role of transdisciplinary curriculum design. For example, as I explored in *Chapter Six*, this is not only looking at how teaching and learning expands across disciplinary boundaries and borders, but also how the unit of analysis is the individual, as entangled within the broader ecologies of the world. Such focus on the individual is not set within neoliberal agendas, in which the individual is autonomous and free, but it considers how the individual is both response-able for socio-ecological crisis narratives for/with/in these Anthropocene times and response-able for creating new and different stories grounded in more ethically grounded ecocentric narratives.

\textsuperscript{25} I understand that First Nations relationships with Land are not set within possession, rather a *living-with*, and that by association the term *dispossession* is more of a Western term. Without intending to trap Indigenous ontologies in Western humanist premises, I deliberately use dispossession to highlight White settler’s response-ability to reconciliation.
8.3.2 New and Different Stories for (Teaching) Practices in (Environmental) Education

Relational agency dismantles the pervasive human-centric stronghold that agency is self-determined (e.g., social constructivist theories of Piaget 1928, 1952; Rogoff 2003; Vygotsky 1978), to suggest that agency is a co-constituted force emerging from intraactions. As such, through notions of relational agency, there are opportunities to move from the humanist education model, which suggests that, ‘Education will make the kind of human who can…’ (Snaza & Weaver 2015, p. 2), to take up an alternative perspective, which suggests that, *as education makes me, I make education*. Moreover, as teaching (and learning) practices are typically situated *with* Land/Place/the outdoors/the environment in environmental education, it therefore follows that, *as education with Land/Place/the outdoors/the environment makes me, I make education with Land/Place/the outdoors/the environment*. Illuminating a co-constituted and co-implicated worldly (re)enchantment through affects emerging from intraactions with ‘Other(s)’, one of the most important contributions of this thesis assemblage to (environmental) education (teaching) practices is evident by the way it has challenged and dismantled the idea that Land is something to teach and learn *about*. Rather, it offers new and different stories for (teaching) practices in (environmental) education that consider teaching and learning *with* Land through mutual (re)configurings.

As demonstrated through the relational (re)configurings throughout this thesis assemblage, what is crucial to this understanding is that there is an inherent response-ability to ‘world making’, if we are so entangled with the making of the world (Haraway 2016). Drawing upon entanglements as relations of obligation, in that any given individual is indebted to ‘Other(s)’ because of an irreducible and materially bounding to, and threading through the ‘self’, Barad (2012) wrote:
Crucially, there is no getting away from ethics on this account of mattering...The very nature of matter entails an exposure to the Other. Responsibility is not an obligation that the subject chooses but rather an incarnate relation that precedes the intentionality of consciousness. Responsibility is not a calculation to be performed. It is a relation always already integral to the world’s ongoing intraactive becoming and not-becoming. It is an iterative (re)opening up to, an enabling of responsiveness. Not through the realization of some existing possibility, but through the iterative reworking of im/possibility, an on-going rupture. (p. 217)

In understanding relational agency as a causal enactment, therefore, opportunities for a different dynamic of environmental education are inspired, because ‘knowing’ in environmental education is then derived of understanding self with the world, rather than as something extrinsically derived through grand narratives and social/cultural/political/economic influences regarding ‘best practice’.

This does not usurp scientific evidence, and social rhetoric of a global environmental catastrophe urging us to take immediate action in ‘bettering’ our lifestyles towards more sustainable futures, inevitably an important focus of teaching practices in the field of environmental education. That is, we still need tangible and pragmatic strategies of how to attend to global effects of socio-ecological crisis narratives, given well-documented evidence that ‘feedback loops are driving ecological systems out of balance, with potentially catastrophic consequences for humans and other species’ (Hayles 2010, p. 325). However, this sympoietic arrangement of ‘becoming-with’ through ideas of relational agency, forges a more ethically grounded ecocentred narrative, because it suggests that we are living an entangled, yet differentiated, existence with other humans and other nonhumans, in the sharing of a finite planet.

I can appreciate that not all forms of anthropocentric and humancentric thinking/doing fuel exploitive pursuits upon nonhuman ‘Other(s)’, in that many people certainly do have good intentions towards socio-ecological justice from humanist perspectives. However, a relational understanding of the world is built upon a different rationality. It does not insist that we enact a
negative bonding through grief, sadness, guilt, fear, and hopelessness for the losses of past/present/future on Earth (Braidotti 2009) or that we enact a transcendental escape of reality. Rather, becoming (partially) posthumanist asks us to produce ‘a more adequate cartography of our real-life conditions…[focusing] with greater accuracy on the complexities of contemporary technologically mediated bodies and on social practices of human embodiment’ (Braidotti 2013, p. 104). In this way, I draw attention to the importance of continually questioning how we might inadvertently define ‘nature’ as a separate and discreet entity through stories of human exceptionalism and supremacism in environmental education teaching and learning practices, always working to bring the question back to the nature of the ‘human’ in its different constitutions (Barad 2017).

In bringing the question back to how ‘human life involves an ongoing immersion in different expressions and experiences of reciprocal relatedness’ (Nxumalo & Cedillo 2017, p. 102), pedagogical approaches turn to how teachers and learners in school communities might generating sense-making in transformation with more-than-human worlds, rather than produce knowledge in/about/for the environment. Moreover, as teaching practices move away from the temptation to ‘try to “skip ahead” to some neutralised ahistorical, guilt-free, pain-free, “romanticised” version of environmental education’ (Tuck et al. p. 14, original quotation marks), they take up present-moment accounts of lived stories of humans and earthly critters in ‘Staying with the Trouble’ (Haraway 2016). This draws an active awareness of our personal response-abilities to live and die well together, given that all our lives are encumbered at the hands of neoliberal euphoria as inextricably bound to this Anthropogenic, techno-cultured, and consumer-oriented globalised world, often without consent. That is, we are all vulnerable, because we all share the same planetary threats of cross-species extinction, environmental destruction,
degradation, and fragmentation, or what Vandana Shiva (2008) called the ‘triple crisis’ of climate, energy, and food. To practically engage with these ideas in environmental education-type teaching practices, I include a 12 Point Assemblage for Environmental Education (Teaching) Practices in Figure 8.3.2.1.

Cognisant that these terms/concepts presented in the 12 Point Assemblage for Environmental Education (Teaching) Practices of Figure 8.3.2.1 might be, or might not be, relevant to any given situated teaching and learning context, I elaborate on each of the meanings presented here to demonstrate examples of how they might be taken up in these Anthropocene times:
Chapter Eight: Becoming (Partially) Posthumanist

- **Activating Vulnerability**: exploring both strengths *and* limitations in capacities for teaching and learning (with Land/Place/Outdoors) in celebrating strengths and actively attending to limitations in bringing them to light to generate transformation. For example, in *Chapter Five*, I demonstrated how both Lily and I attended to vulnerability through affirmative politics, working to inspire deeper, more meaningful relationships with ‘Other(s)’;

- **Attuning**: paying vigilant attention to how sights, smells, sounds, intuition, and tactile experiences in teaching and learning (with Land/Place/Outdoors) can leave traces, ‘marking’ bodies with affect. While all the researcher/teacher enactments were set within pedagogies of attuning with Land, I provided an explicit example of this in *Chapter Five*, as Lily discussed with her class how students might transform their understanding of self with Land;

- **Co-Creating**: teaching and learning (with Land/Place/Outdoors) that facilitates working together to produce a desired outcome in the actualising of collaboration *and* understanding self *with* the world through nomadic multiplicities of subjectivities as transformed through intra-actions *with* ‘Other(s)’. An example of this is shown in *Chapter Five*, in which I demonstrated how the researcher/teacher transformed together in co-create and co-implementing the researcher/teacher enactments;

- **Collaborating**: joint discussions and conversations exploring any given topic of inquiry of teaching and learning (with Land/Place/Outdoors) together. Lily provided examples of this in *Chapter Six*, in which she invited an array of community members from different sectors into her classroom to explore a common topic (e.g., in her ‘Mining Project’). Lily
also worked to make her students accountable to their learning through collaborative efforts as a group, before enlisting her guidance as a teacher, as explored in Chapter Six;

- **Contextualising:** acknowledging the dissolution of local/global dynamics in teaching and learning (with Land/Place/Outdoors), in understanding that we are all in this together, yet socio-ecological equity and justice must start from the (micro) politics of location (Braidotti 2017). For example, in Chapter Seven, I discussed Lily’s conceptions of a ‘me/we’ intraacting relationship, set within a grounded, lived, embodied, and embedded teaching and learning context that is locally oriented and globally aware;

- **Embedding:** acknowledging the dissolution of subject/object binaries in teaching and learning (with Land/Place/Outdoors), in that teachers and learners co-constitute sense-making with the world through intraactions. For example, in Chapter Four, I discussed how I made sense of myself with the world through the materiality of oceanscapes demonstrating to me the nature of dynamic change and transition;

- **Embodying:** the active materialisation of thinking/feeling in making teaching and learning encounters (with Land/Place/Outdoors) tangible. In Chapter Seven, I provided examples of this through the ‘Photographic Encounters’ researcher/teacher enactment, in that students were given the opportunity to explore their feelings and create tangible evidence of this through their photographs of the Land;

- **Living Stories:** drawing upon the lived stories of teachers and learners (with Land/Place/Outdoors) as they understand the world with/through their intraactions with ‘Other(s)’. I provided examples of this in Chapter Five, in the Teacher/Crow story that Lily told about Mojo, and in Chapter Six, in my exploration of a lived curriculum;
• **Multisensory**: adopting practices that explore sights, smells, sounds, intuition, and tactile experiences in teaching and learning (with Land/Place/Outdoors). This formed the basis of the researcher/teacher enactments, yet this idea was actively taken up by Lily in her own (environmental) education teaching philosophy, as highlighted in discussion of *Chapter Five’s* ‘Pedagogies Attuning with Land’;

• **Relating**: looking for opportunities in teaching and learning (with Land/Place/Outdoors) to interact with ‘Other(s)’. Examples of relating are threaded through this thesis assemblage, as this formed the basis of this research. However, explicit examples are provided in *Chapter Six*, demonstrating how Lily opened to a conversation about ‘Tools, Toys and Friends’ to inspire notions of friendship with the material world;

• **Situating**: an experiential type focus on teaching and learning (with Land/Place/Outdoors), based upon ‘real-life’ environments and scenarios. I provide examples of this in *Chapter Four*, in which I challenge settler emplacement stories of colonisation taking up the idea that colonisation is not an event conveniently located in the past, but a structure that still works to marginalise and subjugate ‘Other(s)’ (Tuck & Gaztambide-Fernandez 2013);

• **Transdisciplinary**: teaching and learning (with Land/Place/Outdoors) that crosses many disciplinary boundaries, accounting for the dissolution of individual/collective binaries, in that the individual teacher and learner is relationally co-constituted with the broader ecology of the world. Examples of this are evident within the researcher/teacher enactments, yet in *Chapter Six*, I attend specifically to transdisciplinariness.
8.3.3 New and Different Stories for Research in (Environmental) Education

To explore how this research might generate new and different stories for research in environmental education, I entangle future directions of this research with philosophical and methodological tensions that become known to through this research. This is to generate an understanding of what needs further attention regarding posthumanist performativity and new materialism research in environmental education. In this way, I am not suggesting that these ideas are the overarching trends in environmental education research, but that they are some trends that I have identified in relation to this research’s situated context. In the following discussion, these trends include: attending to apathy and indifference, providing conditions of possibility for affirmative politics of vulnerability, and grappling with posthumanist performativity and new materialism at the vanguard.

8.3.3.1 Attending to Apathy and Indifference

Indifference and apathy regarding socio-ecological concerns are problematic to ideas of relational agency, because through apathy and indifference, there is little capacity to be affected by, and simultaneously affect, through intraactions generating response-ability (Braidotti 2013; Jones & Hoskins 2016). By this, I am referring to either denial and/or a closing in of a person’s relational boundaries, as I described in my journal entry in Chapter Five, and as Lily pertained to when she discussed some constraining and disciplining forces of discursive structures of school systems causing tension in the way she approached her teaching practices in Chapter Six. In this sense, overwhelm can often set in, as issues become too big, too far gone, and not possible to be reconciled at an individual micro-political level (Shiva 2008). For example, there is an ongoing narrative that socio-ecological crisis narratives within globalisation, neoliberalism, and capitalism are derived from, and must be attended to, by higher-order organisations of corporate
enterprise and governmental structures of policy. Relinquishing a sense of response-ability (and accountability) away from the individual, this presents an interesting paradox in this research. That is, in one sense, I am moving away from a goal-oriented, individual focus of sustainability narratives (e.g., as indicative in sustainable development agendas of ESD), yet I am also presenting the idea that change must, and can only, reside within the micro-politics of an individual.

I have tried to attend to this through understanding the micro-political nature of the individual as entangled within macro-political structures of globalisation, neoliberalism, and capitalism. In this way, I acknowledge that individuals are not outside of these global structures but are one holonic part of the whole. As such, I contend that socio-ecological crisis narratives, as derived from, and further contributing to, globalisation, neoliberalism, and capitalism, are the business of the individual. However, given the pervasive stronghold of sustainable development agendas emphasising individual empowerment as autonomously established under the right conditions of teaching and learning, there is further scope to explore how this ‘agency as virtue’ might perpetuate apathy and indifference. For example, if agency is something to be ‘achieved’ and ‘obtained’, then what happens when the motivations for achieving/obtaining agency are stifled, arrested, and distorted through apathy and indifference, as the socio-ecological crisis narratives of these Anthropocene times become too overwhelming for any given individual to tackle.

While planetary socio-ecological disarray is a heavy burden for any one individual to effect change, this draws potency upon the capacity of relational agency to illuminate the idea that our futures are co-constituted and co-implicated. In this way, relational agency troubles staunch individualism (as taken up through sustainable development agendas of ESD) and it
challenges indifference and apathy. This is because relational agency understands that individuals are always in a state of ‘becoming-with’ the world. However, given that apathy and indifference arrest opportunities to inspire relational agency in the first place (through static, stable, fixed, and rigid closure of personal boundaries), there is scope in environmental education research to inquire into how the driving forces of apathy and indifference might be dismantled (Kopnina 2014).

8.3.3.2 Providing Conditions of Possibility for Affirmative Politics of Vulnerability

Ideas relating to the power of vulnerability to generate transformational change have been demonstrated in social science, deep ecology, and Land education scholarship. For example, in her research on shame and vulnerability, Brown (2006) discussed the importance to actively ‘speak shame’ to build ‘shame resilience’, through the ability to recognise and accept personal vulnerability. According to Brown, shame, defined as ‘An intensely painful feeling or experience of believing we are flawed and therefore unworthy of acceptance and belonging’ (2006, p. 45), is often a taboo topic amongst researchers and practitioners, despite it being understood as ‘the master emotion of everyday life’ (2006, p. 43). It is, therefore, important to acknowledge how feelings of shame, derived from the idea that humans are inherently vulnerable to discursively oriented power struggles (e.g., Foucault 1988), might cause social isolation through a lack of authenticity regarding our strengths, limitations, and past, present, and future (in)justices.

Examples of vulnerability in the deep ecology movement relate to Joanna Macy’s (2018) work with shame (among other emotions) in her ceremonial rituals of the ‘work that reconnects’. Identifying and transforming human vulnerabilities, as taken up in the ‘Despair Ritual’, Macy’s philosophies in deep ecology facilitate opportunities for people to “touch bottom”, in experiencing and expressing their pain for the world. As they do, people lose their fear of it. And
the bottom becomes common ground’ (Work that Reconnect Network 2018, n.p., original quotation marks). These ideas are also taken up by John Seed through his variations of Macy’s approaches to deep ecology, including, the ‘Council of All Beings’ (e.g., Seed et al. 2007).

Examples of vulnerability in Land education scholarship, refers to Indigenous reconciliation in a settler colonial environmental education. As Lisa Korteweg and Emily Root (2016) suggested, the environmental education field must attend to emotions involving anger, shame, guilt, frustration, fear, anxiety, hope, admiration, curiosity (etc.) regarding ongoing injustices of First Nations people and Land. As Korteweg and Root wrote:

Ideally, the environmental education field would become the model of how to be open and vulnerable enough to affectively learn and discuss Indigenous Land-based controversies based upon strengths of personal connectedness to ‘nature’ and place, fused with serious responsibilities to enact justice (2016, p. 185, my quotation marks).

I provide these examples to demonstrate the importance of vulnerability in deconstructing shame, to reconnect with more-than-human worlds, and to attend to Western/Indigenous reconciliation. Yet, actively engaging in vulnerability is not something very widely accepted within discursive structures of what is ‘normal’ education practice. For example, some (eco)feminists, namely Trish Glazebrook (e.g., 2002), suggested that this is because vulnerability has historically been relegated to exist within a female embodiment, and given that females are subjugated and marginalised within androcentric (male) hegemonies, then it follows that virtues associated with female embodiment are also subjugated and marginalised. In this sense, I was fortuitous that I shared many underlying philosophies with Lily, for example, working to challenge discursive structures of vulnerability through affirmative politics (as I explored in Chapter Five).

Given the constraining and disciplining effects discursive structures, I am interested, therefore, in how affirmative politics of vulnerability might attend to pervasive socio-ecological
crisis narratives that feature the vulnerability of people and the environment in precarious socio-ecological times (e.g., Cuomo 2011; Gaard 2015). That is, rather than approaching vulnerability through a deficit orientation of ‘multiplicities of the same’, in that injustices are ‘done’ to people or an environment makes them vulnerable, I would be interested to understand how approaching vulnerability from a posthumanist performativity and new materialist lens can further substantiate the idea that we are all in this together (Braidotti 2017), as I explored in Chapter Seven.

8.3.3.3 Posthumanist Performativity and New Materialism at the Vanguard

According to Annette Gough and Hilary Whitehouse (2018), simultaneously emerging and departing from the linguistic turn of poststructuralism, the posthumanist/material turn in education came into focus in the 1990s. As such, now at the vanguard of environmental education research, posthumanist/new materialist research is still establishing credibility and viability in the field, with some important scholarly critiques rupturing future lines of flight for these philosophical and methodological approaches. For example, Paul Rekret (2016) claimed that posthumanist/new materialism is fraught with contradiction, in that it espouses a ‘spiritual or ascetic self-transformation so that one might be ‘attuned to’ or ‘register’ materiality and, conversely, portray critique as hubristic, conceited, or resentful, blinded by its anthropocentrism’ (n.p.). For Chris Calvert-Minor (2013), in his specific focus upon Barad’s ethico-onto-epistemologies, Barad inadvertently retains a particular form of humanism. Suggesting that the human must remain central in any given inquiry, as Calvert-Minor wrote, Barad’s ‘posthumanist notion of ontological objectivity, which makes the human an ancillary epistemological concern, is not viable; her unique ‘turn to matter’ is epistemologically untenable’ (2013, p. 136). Drawing on these critiques of Rekret and Calvert-Minor, I can certainly vouch for my ongoing struggles in
grappling with the contradictions of attempting to depart from human exceptionalism and
supremacism, yet given that my human lens is the only perspective I have, it is impossible to not
speak from my humancentric position.

To trouble this, I have sought to make clear that generative transformations through
intraacting relationships in this research are my own perspective of how I have ‘become-with’,
not how ‘Other(s)’ might have been affected through intraactions with me. Moreover, given that
I cannot escape my humanness, nor do I want to, I find posthumanist perspectives valuable to
changing socio-ecological crisis narratives, rather than transhumanist (e.g., deep ecology) or
antihumanist (e.g., poststructural deconstructivism). In the transhumanist model, I might seek to
escape my human self, in becoming more ‘natural’. In the antihumanist model, I fall into
‘multiplicities of the same’ in taking the moral high ground through critiques rebuking
something from a separate and detached distance, in becoming more discursive. While
transhumanism and antihumanism might promote a more ethically grounded ecocentric narrative
in challenging socio-ecological crisis narratives, posthumanist perspectives draw out the
grounded, lived, embodied, and embedded politics of location. This is crucial, because in acting
from my human self, for my human self, I am equally acting for ‘Other(s)’, because ‘Other(s)’
are an inherent part of who I am becoming (and vice-versa).

To grapple with tensions relating to the stronghold of anthropocentric and humancentric
thinking, I draw upon Gough and Whitehouse’s (2018) suggestions that new and different
research approaches in environmental education might involve a more thorough exploration of
intersections of posthumanism/new materialism with ecofeminism. As such, perhaps a more
detailed approach that explores feminism with ecology, through a material/discursive analysis,
might be useful in advancing both posthumanism/new materialism and ecofeminism in the
environmental education field. I delved into this space in *Chapter Four* through my ‘Lady/Backpacker’ storytelling, and in *Chapter Five* through care ethics as relational, but a more comprehensive approach to this idea could help challenge the critique of entangled ethico-onto-epistemologies as contradictory, because ecofeminism is already explicitly grounded in human.

### 8.4 In Transit

Through a cartographic and diffractive threading of several narratives through each other in this thesis assemblage I have hoped to illustrate the entanglement of affects, in that as we are affected, we are simultaneously affecting in mutual and co-constituted transformation. In this way I illuminated past, present, and future existences as co-constituted with ‘Other(s)’ through a dynamic, ongoing, continual, and reiterative unfolding into new patternings of thinking, being, doing, and knowing. Following this I crucially acknowledge my part in perpetuating socio-ecological crisis narratives, as I am not beyond, or separate from, these globalising, neoliberal, and capitalist these Anthropocene times. Yet, I equally understand that the present-moment yields a myriad of opportunities to (re)make myself, time and time again, in becoming-with, as I am *always* response-able for the unfolding of shared futures (Haraway 2016). As such, we are not humans because we claim to be distinct from ‘the nonhuman, the inhuman, the subhuman, the more-than-human, those who do not matter’ (Barad 2017, p. 86), but our humanness is derived from our response-ability to act *with* the world. Paradoxically, instead of focusing on environmental ethics from the perspective of ‘including’ ‘Other(s)’ *into* anthropocentric and humancentric knowing, being, thinking, and doing, response-ability is attending to our own human ethical stance and moral status (Plumwood 2001).

Acting from a grounded, lived embodied, and embedded politics of location will depend on the situated nature of any given environmental education policy/practice/research context.
However, as I have sought to demonstrate in this research, response-ability in the politics of location starts with not seeking to place demands to ‘know’ something different to my/our own self/selves, but to understand that we can only ever account for our own transformations through intraactions with ‘Other(s)’ in mutual (re)configurings with the world (Jones & Hoskins 2016). Through nomadic multiplicities of subjectivities, we are always in transit. Not through aimless wanderings of escape and detachment, but, through a dynamic, ongoing, continual, and reiterative unfoldings of new and different stories, in the chiasmic dance of intraaction with people, plants, animals, machines, texts, and energies.

For me, this work does not conclude here. However, as the marks on these pages come to their end, to keep this story alive, vital, and vibrant, my hope is that as this thesis assemblage is engaged with/through further intraactions, my (re)storying of human/nonhuman relationships might generate and transform new and different thinking/doing for future environmental education policy/practice/research. My hope is that these stories will be expanded upon in the (re)configuring of new worlds, in becoming-with through a dynamic, ongoing, continual, and reiterative unfolding. Keeping the story going in finding new and different stories to (re)conceptualise binary logics in environmental education, is not only in our anthropological self-interest - justice demands this, but ultimately planetary wellbeing depends on it. To keep the story alive, vital, and vibrant through further intraactions with this research, my final provocation to you is presented on the following page.
What would it mean if you understood that you have never been apart from ‘Other(s)’, but that you are always in a dynamic, ongoing, continual, and reiterative ‘becoming-with’, through an entangled, yet differentiated, existence of shared futures?

To understand your response through affects emerging from intraacting with this provocation, I invite you to ponder, journal, draw, discuss, move with/through your ideas, thinking/doing these thoughts/actions with the world.
I used to think that we were one,
the sky, the earth, the moon, the sun.
A cosmic unity of Land, animal, and sea,
grounded in terra, my limbs like the tree.

When anger erupts, it’s the earths molten core,
like every muscle aching, tired and sore.
Charging rivers coursed through each vein,
carrying our life, as if we’re the same.

I used to say my breath was the tides.
My vision, the diamonds in sparkling night skies,
my voice, the grey thunder rumbling,
my tears, a raging downpour…tumbling…
…tumbling…
…tumbling…

Shattering the illusion that my life is yours.

In the quiet, pause of now,
The cloud pass on as if they’re a cloud.
The sun as the sun, drenching weary bones dry,
my tears are my own, but together we live and die.

(Riley 2018)
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UNEP *see* United Nations Environment Programme


UNESCO see United Nations Education, Scientific, and Cultural Organisation


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Appendix A: Meeting Provocations

Meeting I Provocations

Historical accounts

I acknowledge that we are meeting here today on Treaty 6 territory and homeland of the Metis, and I pay respect to First Nations and Metis custodians of the Land.

1. How would you describe the Place/Land in which you grew up? (urban, rural, coastal, mountainous). Perhaps you could draw/map this?

2. How would you recall some of your earliest memories engaging with the Place/Land (as a child, adolescent, adult)?

3. How did such engagement with Place/Land make you feel?

4. Who were the main influencers promoting your engagement with Place/Land (parents, teachers, peers)?

5. How would you describe Place/Land in which you grew up, and/or your engagement with Place/Land as previously described, as influencing your conceptions of environmental education teaching practices?
Meeting 2 Provocations

Part 1: Mapping Conceptions and Practices of Environmental Education

I acknowledge that we are meeting here today on Treaty 6 territory and homeland of the Metis, and I pay respect to First Nations and Metis custodians of the Land.

1. How do you engage with the ‘Place/Land’ in your classroom practice?
2. How is Saskatchewan curriculum policy integrated into these conceptions and practices?
3. How is this teaching practice taken up by students?
4. How would you describe any limitations to this practice?

Part 2: Conceptions of Relational Teaching Practices

1. How might we, as a researcher/teacher, practice relational pedagogies in our co-created environmental education researcher/teacher enactments?
Meeting 3 Provocations
The Potential for the Future

I acknowledge that we are meeting here today on Treaty 6 territory and homeland of the Metis, and I pay respect to First Nations and Metis custodians of the Land.

1. How do ideas concerning relational pedagogy differ from what you’ve conceived environmental education to be about in the past?

2. How would you describe ideas and concepts of ‘more-than-human’ worlds?

3. How did your relationship with Land and more-than-human worlds develop as you engaged with relational pedagogies?

4. How do ideas concerning relational pedagogy impact upon how you might further engage in environmental education in classroom practice? Commenting on:
   a. Student engagement with this approach;
   b. Significant occurrences;
   c. Implications for teaching practice.

5. Do ideas concerning relational pedagogies as explored in the researcher/teacher enactments address curriculum mandates, as prescribed by Saskatchewan policy?

6. Can this work extend to a whole-school approach?

7. How does the story of Mojo differ from the encounter with the dead bird in the school-yard?
Appendix B: Human Ethics Approval

Memorandum

To: Dr Peta White & Dr Claire Charles
   School of Education

B

oo: Miss Kathryn Riley

From: Faculty of Arts & Education Human Ethics Advisory Group (HEAG)

Date: 14 February, 2017

Subject: HAE-17-010
   (Re)Visioning The Possibility for Sustainability Education: A Co-Creative Teacher Engagement

Please quote this project number in all future communications

The application for this project has been considered by the Faculty HEAG under the terms of Deakin University’s Human Research Ethics Committee (DUHEC).

Approval has been given for Miss Kathryn Riley, under the supervision of Dr Peta White & Dr Claire Charles, School of Education, to undertake this project from 14/02/2017 to 14/02/2021.

The approval given by the Faculty HEAG is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Faculty HEAG immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.
- Modifications are requested by other HRECs.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

The Faculty HEAG and/or DUHEC may need to audit this project as part of the requirements for monitoring set out in the National Statement on Ethical Conduct in Human Research (2007).

Kylie Koukioudina
   HEAG Secretariat
   Faculty of Arts and Education
Appendix C: Copyright Approval for Cluster Artwork

RE: ‘Graphic Artwork for Research Inspiring, Research Performing, Research Understanding, and Research Becoming’ on pages 1, 7, 56, 57, 89, 90, 186, 187, and 218

Dear Trevor, on behalf of your daughter, Zuzana,

My name is Kathryn Riley, and I am a researcher at Deakin University. I am writing to request your permission to reproduce your daughter Zuzana Morog’s above cited content in my doctoral thesis that I will be publishing through Deakin University, entitled: ‘(Re)Storying Human/Nonhuman Relationships: Posthumanist Possibilities in Researcher/Teacher/Environmental Education Worlds’. An abstract from this thesis containing the context for the requested graphic artwork is attached for your reference.

This thesis is the result of a 3-year research project in environmental education. It is an important addition to the environmental education field, in that it contains new research into teaching approaches in environmental education to promote more meaningful human relationships with nature. I hope that the release of this thesis will encourage teachers and school communities to engage in valuable nature-based learning experiences for their students.

The report will be made available online for public access through Deakin’s Digital Repository at no charge. Only slight modifications will be made to the requested figure (relevant headings as listed in the above cited content), and of course the report will contain a full bibliographic citation, and an acknowledgement that yourself, Trevor Morog (father), has granted full permission for the reproduction of Zuzana Morog’s graphic artwork.

If yourself, Trevor Morog, on behalf of Zuzana Morog (as the copyright owner of this material), is agreeable to the use requested above, please complete and return the form that appears below for my records, or alternatively, please send through your required licensing documentation for my consideration.

Thank you for your time. If you have any questions, please don’t hesitate to contact me.

Warm regards,

Kathryn Riley
Permission form: Please complete and return this for my records

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