Western Graduate&PostdoctoralStudies

Western University
Scholarship@Western

Electronic Thesis and Dissertation Repository

7-2-2020 10:00 AM

Toward Common Worlds Pedagogies in Early Childhood Education: A Response to the Challenges of the Anthropocene

Adrianne Bacelar de Castro, *The University of Western Ontario*

Supervisor: Heydon, Rachel, *The University of Western Ontario*
Co-Supervisor: Pacini-Ketchabaw, Veronica, *The University of Western Ontario*
A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education
© Adrianne Bacelar de Castro 2020

Follow this and additional works at: https://ir.lib.uwo.ca/etd

Part of the Early Childhood Education Commons

Recommended Citation

Bacelar de Castro, Adrianne, "Toward Common Worlds Pedagogies in Early Childhood Education: A Response to the Challenges of the Anthropocene" (2020). *Electronic Thesis and Dissertation Repository*. 7103.
https://ir.lib.uwo.ca/etd/7103

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact wlswadmin@uwo.ca.

Abstract

In response to the realities of living with global ecological challenges and climate-related risks in the Anthropocene, I draw on the arts of slowing down, noticing, and paying attention to worldly realities in the work of early childhood education as a response to this geological time. Through an inquiry with charcoal and cardboard as part of a common worlding ethnographical project in a childcare centre in London, Ontario, I questioned what it might look like to change the child-centered/humancentric position so prevalent in early childhood education to a more inclusive perspective that includes more-than-humans. As we made this shift I wondered, too, what it might look like to learn with, rather than about, our world. Through my imperfect, experimental path toward a pedagogy of indeterminacy that attunes to onto-epistemologies, I offer a glimpse into how early childhood education might trouble its entrenched humancentric approach.

Keywords

common worlding; pedagogy; early childhood; education; Anthropocene; postqualitative

Summary for Lay Audience

In response to the realities of living with global ecological challenges and climate-related risks in the Anthropocene, I draw on the arts of slowing down, noticing, and paying attention to everyday realities in the work of early childhood education as a response to this geological time. Art materials as simple and common as charcoal sticks and cardboard have provoked an unexpected and significant rethinking of my practices as both an educator and researcher. Through an inquiry with charcoal and cardboard, I wondered, too, what it might look like to learn with, rather than about, our world. Using a series of pedagogical moments, I do not offer answers but rather illustrate the ongoing formation of questions that might bring about alternative ways of doing early childhood education. Through my imperfect, experimental path toward a pedagogy that challenges a goal-driven education, I offer a glimpse into how early childhood education might trouble its own humancentric approach.

Co-Authorship Statement

I am the principal contributor and lead author of the paper "Pedagogies of Indeterminacy," the second chapter in this thesis. The research and writing of this paper were done with co-author Sarah Hennessy. I assumed responsibility for 65 percent of the work for the paper and led the following aspects: primary research, organization, coordination of writing responsibilities, and preparation of the final work for publication.

Acknowledgments

I feel privileged to have had Rachel and Veronica as my supervisors. I am grateful to Rachel, who welcomed me warmly to Western at the beginning of my graduate studies. I remember how anxious I felt about the first meeting with her and how good I felt later, knowing that I would have wonderful people I could count on during the path ahead. I am grateful to Veronica, whose research project I joined, which made this work possible. Every encounter with her was challenging and troubling in some ways, generative in others. Beyond readings, lectures and academic knowledge, I am thankful to the community Veronica creates where experiences, food, handwork, art, work, culture, literature and politics are elegantly and affectively threaded by and with wonderful feminist women and men.

This work is the result of intense and beautiful collaborations within the community created by Veronica. I did not write this thesis alone. The reading groups, Zoom meetings, and moments talking over coffee with this community were generative and sparked many of the woven thoughts to make this work possible.

I am thankful to Kelly for her generosity, teaching me about ethics, helping me with the first abstract and making everything more fun with the many giggles and amazing poetry. Thank you, John, for being such a good research partner with Preschool 2; although brief, they were intensive learning moments. I have gratitude for Maureen, who showed me that strength and kindness are part of her educator-mother-researcher subjectivity; that is inspiring! A most special thanks to Sarah, who was more than a research partner, sharing

those intense moments with charcoal and cardboard, and who has been a good friend on whom I can count on anytime. Sarah's creativity and queer ways of thinking weaved my unlearning in many ways.

I am grateful to the educators, staff, children and families from the childcare centre where the research took place. The exchange of thoughts, feelings and questions in everyday encounters during the inquiries were great mobilizers for this collaborative research.

Finally, I thank my family—Rock, Clara and Constantino—who have been patient and are always supporting me and giving me purpose. Filomeno and Ariadine, who have been giving me the love and support I need during all my life to work towards my dreams, thank you. Thank you, Fátima, for being an inspiration and providing me with advice and incentive to pursue a master's degree.

Table of Contents

Abstract ii

Summary for Lay Audience iii

Co-Authorship Statement iv

Acknowledgments v

Table of Contents vii

List of Figures x

List of Appendices xi

Chapter 1. Introduction 1

1.1 Thesis overview 4

1.2 Situating my research 6

1.3 Common worlds framework 6

1.4 Empirical research within a common worlds framework and the Common Worlds Research Collective 9

1.5 Methodology & methods 13

1.5.1 Common worlds research: An inclusive space for thinking 13

1.5.2 Situating myself as a researcher 17

1.5.3 Research site 18

1.5.4 Participants 18

1.5.5 Methods 18

1.6 The inquiries: Charcoal and cardboard 19

1.7 Summary of thesis 22

1.8 References 24

Chapter 2. Unlearnings with Charcoal: Threads with Common Worlding 32

2.1 Unlearning 34

2.2 Unlearning through a common worlding pedagogical inquiry 36

2.3 Unlearning my leanings toward child development practices 38

2.3.1 Looking at charcoal and children's relations beyond developmental theories 39

2.4 Unlearning to think *about* materials 45

2.5 Unlearning humancentrism 50

2.6 (Un)Conclusion: Thinking with common worlds 56

2.7 References 58

Chapter 3. Pedagogies of Indeterminacy 62

3.1 Neoliberalism's impact on early childhood education 65

3.2 Disrupting productivity discourses in early childhood education 66

3.3 The possibilities arising from indeterminacy, boredom, and contemplation 68

3.4 Thinking indeterminacy with common worlds 69

3.5 Pedagogies of indeterminacy 72

3.6 Tensions of boredom 78

3.7 Tensions with contemplation 80

3.8 Conclusion 82

3.9 References 84

Chapter 4. Conclusion 84

4.1 Toward common worlds pedagogies 88

4.2 Questions, learnings, and new questions 89

4.3 Contributions to early childhood studies 90

4.4 Curriculum making in common worlds pedagogies: Possibilities for future research 93

4.5 Conclusion 94

4.6 References 96

Appendices 100

Curriculum Vitae 123

List of Figures

Figure 1.1: Renewed perspectives with charcoal and paper. 20

Figure 1.2: Cardboard meets water. 22

Figure 2.1: Charcoal and paper. 32

Figure 2.2: Marks all around. 40

Figure 2.3: Tree in the playground, nature culture divide. Photo by the author. 55

Figure 3.1: Contemplation. 73

Figure 3.2: Cardboard bark? 76

List of Appendices

Appendix A. Western University Non-Medical Research Ethics Board Delegated Approval 101

Appendix B. Western University Non-Medical Research Ethics Board Continuing Ethics Review Approval 103

Appendix C. Western University Non-Medical Research Ethics Board Renewal Ethics Review Approval 105

Appendix D. Letter of Information and Consent: Families 106

Appendix E. Letter of Information and Consent: Educators 114

Appendix F. Confidentiality Agreement: Researchers 121

Chapter 1. Introduction

The Anthropocene marks severe discontinuities; what comes after will not be like what came before. I think our job is to make the Anthropocene as short/thin as possible and to cultivate with each other in every way imaginable an epoch to come that can replenish refuge. Right now, the earth is full of refugees, human and not, without refuge.

Donna Haraway, Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin

The challenges we face in the Anthropocene urge us to change the ways we relate to knowledge. For about two decades, scientists have discussed the Anthropocene as a new geological epoch during which humans are changing our planet at a growing speed (Haraway, 2015; Stengers, 2015). Bruno Latour (2018) problematizes climate change and offers an invitation to face this reality. He says,

> Each of us thus faces the following question: Do we continue to nourish dreams of escaping, or do we start seeking a territory that we and our children can inhabit? Either we deny the existence of the problem, or else we look for a place to land. (p. 5).

Attending an art exhibition titled *Anthropocene*, I was stunned by the magnificent and beautiful photos of the human-modified landscape. The images provided a bird's eye view of the effects of human actions and mastery over the landscape. To have such a top-to-bottom panoramic view provoked a troubling feeling of disconnect with those impacts. In any of the places in those photographs, I would not be aware of the human impacts if I were only standing or passing through. The impacts of the powerful strength humans have developed through technology can be seen from a distance, but they go unnoticed when we are up close.

This experience made me think about what Isabelle Stengers (2015) observes in the introduction to *In Catastrophic Times*: "They are tempted to think it is too late, that there is no longer anything to be done, or even prefer to believe that everything will end up sorting itself out, even if they can't imagine how" (p. 23). That pessimist feeling is one way of reacting to the Anthropocene when we realize what we could actually do and what needs to be done as we face such enormous impacts. Stengers mentions that some of us are paralyzed by this enormity while others wish to inherit a story of struggle and try to create an alternative future. When addressing those ideas of facing our existence here on this planet, she argues: "And the disturbing truth here—when those who are struggling for another world are concerned—is that it is now a matter of learning to become capable of making it exist. That is what the change of epoch consists of, for us all" (p. 28). Early childhood education needs to face these challenges in a timely manner, embracing the struggles and looking for a practice that is engaged in creating alternative futures.

My research is set in this context, where I acknowledge climate change (among other challenges in this epoch) and, in response to Latour's and Haraway's questions and considerations, I look for a place to land, or new imaginings that can cultivate a refuge. My response is situated within early childhood education, and I offer it as an addition to those who call for new sensibilities in our work. Affrica Taylor (2017), for instance, argues for responses that take humans and more-than-humans into account, questioning the views of stewardship concerning nature. She calls for responses that consider humans as part of nature and frame these relations beyond the nature-culture divide to reflect our entanglements. She and her colleague Veronica Pacini-Ketchabaw (2019) respond by considering the "entangled common worlds that children and animals inherit and co-

inhabit as messy and mixed up rather than pure" (p. 13); they regard the "everyday common worlds of children and animals as lively, dynamic and brimming with potential" (p. 13). My response lies within these wonderings that create collective dispositions and focus on how we move toward common worlds pedagogies by thinking with, rather than about, worlds. In making such a move I distance myself from the need to master skills or knowledge and embrace the tension and difficulties of staying with those ideas in early childhood education. I join others (Blaise, Hamm, & Iorio, 2017; Hodgins, 2015; Nelson, 2018b; Taylor & Pacini-Ketchabaw, 2019) working in early childhood who are looking for ways to live well together in anthropogenically changed worlds.

Jenny Ritchie (2016), addressing pedagogical work in early childhood in response to the Anthropocene, asserts that within the Anthropocene also lies the idea of "othering" by privileged classes and countries. Work with children in this epoch must address response-ability toward these others, both humans and nonhumans. Fikile Nxumalo (2018) raises similar concerns, arguing for perspectives that include Indigenous and Black voices often erased in romantic views of nature and childhood. Nxumalo addresses the relevance of diverse responses to the Anthropocene for ECE:

> Why do concerns about Anthropocene discourses matter for early childhood education? In North America, there continues to be a proliferation in nature-based early childhood programs, such as the ever-popular forest preschools. There has also been a plethora of books, articles, and opinion-editorial pieces on the benefits of "nature" schools or outdoor education for young children (Davis, 2015; Depenbrock, 2017; Louv, 2008; Müller & Liben, 2017). While this attention to the importance of education to the more-than-human world is welcomed, the persistent romantic framing of nature is troubling (Nxumalo & Pacini-Ketchabaw, 2017; Taylor, 2017). In particular, raced and colonial erasures of dominant

> Anthropocene discourses are continually, even if inadvertently, reinforced (Nxumalo, 2015, 2016, 2017a). (p. 3)

Wondering about living in such a geological epoch mobilizes my thinking and research. My response is framed within the common worlds framework (A. Taylor, 2013, 2018; Taylor & Giugni, 2012) in a research approach I refer to as common worlding. Affrica Taylor (2013) defines common worlding as "thinking about common worlds (…) as dynamic collectives of humans and more-than-humans, full of unexpected partnerships and comings together" (p. 78). To shape my work within this particular framework helps me to pull myself away from romantic discourses within the Anthropocene. This means that I will avoid the top-to-bottom, bird's eye view that I experienced in the Anthropocene art exbibit as I look for a situated, on-the-ground approach to think with ECE. My work within common worlds is intended to contribute to the work that is being carried out to reconfigure "childhood and nature in more political, collectivist, material and reconstructive terms" (A. Taylor, 2018, p. 206).

1.1 Thesis overview

This is an integrated article thesis. The first chapter situates the research as I lay out how I relate with theories, concepts, and ontologies throughout the study. Chapters 2 and 3 are stand-alone papers written for future publication. As a consequence of being composed as two separate articles there are slight repetitions between the chapters and some overlapping field notes and observations.

In Chapter 1, I begin by situating the broader context that frames my research as one possible response in early childhood education to the challenges of the Anthropocene. I present the initial questions that led me to think with the common worlds

framework and explain how common worlds pedagogies acted as a compass in my study. Next, I position the research within the empirical work carried out by the Common Worlds Research Collective. I introduce the common worlds methodology and methods and explain how I connect knowledge, worldviews, and methodology, making this research postqualitative. I then describe our inquiry with charcoal and cardboard, explaining our processes and methods, and I end by summarizing the thesis.

Chapter 2, "Unlearnings with Charcoal," traces pathways toward thinking with common worlds framework as I diffractively read and respond to ethnographical observations of charcoal-children-educators-encounters. Diffractively reading and responding to the encounters with common worlds theorizings, educational practices, developmental psychology discourses and my own professional history.

Chapter 3, "Pedagogies of Indeterminacy," was written with Sarah Hennessy as second author. Drawing on a pedagogical inquiry in an early childhood centre in southern Ontario, we employ pedagogies of indeterminacy to think about early childhood narratives beyond productivity-driven discourses. We ask: *What might pedagogies of indeterminacy do*? In this paper we were inspired by the scholarship within the Common Worlds Research Collective to think with indeterminacy, boredom, and contemplation as provocations toward alternative practices in ECE.

Chapter 4 provides a discussion and brings the two papers in Chapters 2 and 3 together with concluding thoughts on the relevance of this study to the field of curriculum studies and early childhood education.

1.2 Situating my research

This study started with a question framed within the common worlds theoretical framework: How might educators and children change their relationship with humans and more-than-humans in learning spaces? More specifically, for the purpose of this study, the first questions that guided my initial inquiry were: What happens when educators and children move from learning about to learning with? How do we build and live curriculum as this point of view shifts? From these initial three questions that started the inquiry, different focuses and new questions were posed. The papers that form Chapters 2 and 3 originated from the initial questions, and new questions were raised through the many situations that arose in the course of the research.

1.3 Common worlds framework

The common worlds framework is seen as a creative and productive way to respond to anthropogenic challenges because it allows educators to extend their practices to the more-than-human worlds, to see complex entanglements, and to build a collective instead of a childcentric pedagogy. This work is informed by the fluid connections between humans and more-than-humans as well as the ethics in the construction of this collective (Nelson, Pacini-Ketchabaw, & Nxumalo, 2018; A. Taylor, 2013, 2017).

The first concept within the framework that is particularly relevant for my research is to think childhood connection with nature beyond idealized and romantic views. Affrica Taylor (2013) writes: “This idealized union of childhood and Nature is intended to protect Nature’s child from the corrupting influence of adult society and technologies, but it effectively separates children off, at least semiotically, from the rest of humanity” (p. 61). This idealized notion is built on Western logic and binary

thought—in this case, the divide between nature and culture. Common worlds proposes to position the child beyond this divide to think with natureculture (Haraway, 2008) instead. Childhood in this context is not seen as pure and innocent but entangled within a world that is messy and imperfect. This vision of the child questions the developmental childcentric position on the grounds that it may reinforce humancentrism (Nxumalo, 2015, 2016; Nxumalo & Pacini-Ketchabaw, 2017; Taylor & Pacini-Ketchabaw, 2015).

To think about the practice of environmental education without framing the human as nature's saviour is central to common worlds theorizings, which question the notion of the human as the steward of the natural world. Scholars within the Common Worlds Research Collective present their work in response to anthropogenic challenges, positioning their work as an alternative response to stewardship models in environmental education (Hodgins, 2015; Nelson et al., 2018; Taylor, 2017). For these scholars, stewardship pedagogies reinforce human exceptionality, separate humans from the world, and frame nature as a wilderness untouched by humans. Framing nature as "the wild" reinforces the nature-culture divide and inscribes actions in the binary thought of what/who is bad or what/who is good to nature. Affrica Taylor (2017) writes, "Consciously or not, humanist stewardship pedagogies still operate from the premise that humans have exceptional capacities, not only to alter, damage or destroy, but also to manage, protect and save an exteriorized (non-social) environment" (p. 1453). This line of thinking works against collective thinking and our entanglements with the world because it exacerbates the nature-culture division. The common worlds response to the Anthropocene differs from the stewardship response by proposing that we become more worldly as we refocus our attention on the imbricated nature of our relation to more-than-

humans. As Taylor (2017) writes, "it is a low-key, ordinary, everyday kind of response that values and trusts the generative and recuperative powers of small and seemingly insignificant worldly relation infinitely more than it does the heroic tropes of human rescue and salvation narratives" (p. 1458).

Thinking within feminist theory and philosophy, Taylor (2013) drew from the ideas of Karen Barad, Gilles Deleuze and Félix Guattari, and Rosi Braidotti. These feminist approaches to nature focus on the relations between human and more-than-human worlds. Taylor relied on the work of Kay Anderson, Val Plumwood, and Donna Haraway because they seek a relational ethic with the worlds. Haraway's ideas have a prominent presence in the construction of the common worlds framework, because she writes and transgressively explores human entanglements with the world (A. Taylor, 2013). As Taylor (2017) describes it,

> Haraway urges us to "join forces" with other species in order to work towards the collective, and considerably more modest goal of a "partial … recuperation and recomposition" of our common worlds. (…) Haraway's insistence on the "with" or the "com" of "companion" species and "re-composing" within an already entangled naturescultures world displaces the singular and ultimately binary humanist vision of human agency, caretakership or stewardship on behalf of the environment. (A. Taylor, 2017, p. 1454)

Ideas from another feminist scholar, Isabelle Stengers, have been added to the theoretical framework. These include ideas about collective thinking and slowing down to be able to "notice what else is going on and what is at stake for all who belong in this world" (Taylor & Pacini-Ketchabaw, 2019, p. 15). Stengers' and Haraway's ideas inform the practices of thinking *with* rather than *about* that are emphasized by scholars who

address common worlds (see Hodgins, 2019a; A. Taylor, 2013, 2017; Taylor, Blaise, & Giugni, 2013).

Thinking with, rather than about, is one the biggest references in my research framework and is emphasized in the inquiry with materials discussed in Chapters 2 and 3 as I attempt to be more inclusive when creating the setting for experimentation and encounters with materials with a focus on relationality. That concept also carries a pedagogical response that helps to distance the work from a child-centric perspective. This distancing also nurtures a different relation with the worlds when allowing for a more collective response in anthropogenic times.

1.4 Empirical research within a common worlds framework and the Common Worlds Research Collective

A growing body of work has been carried out within the Common Worlds Research Collective since the first publications that inspired this situated and political approach to researching with children (see Taylor et al., 2013; Taylor & Giugni, 2012). Affrica Taylor (2017) points out that much is still to be learned from thinking beyond binaries in encounters between children and more-than-humans as the orientation changes from individual to collective learning: "Outside of formalised pedagogical contexts, close observations of young children's everyday interactions with the world around them reveal that many [children] already practice a form of thinking collectively with the more-than-human world" (p. 13). The empirical research conducted by members of the Common Worlds Research Collective and by other scholars thinking with common worlds frameworks include children's relations with place (Hamm & Boucher, 2017; Land et al., 2019; Nxumalo, 2015, 2017; Pacini-Ketchabaw, 2013; Yazbeck & Danis,

2015), with other species (Black, 2019; Nelson, 2018b; Nxumalo & Pacini-Ketchabaw, 2017; Pacini-Ketchabaw & Nxumalo, 2015; Taylor & Pacini-Ketchabaw, 2015, 2017, 2019) and materiality (Berry, 2019; Hodgins, 2015; Pacini-Ketchabaw, Kind, & Kocher, 2016; Rautio, 2013; Rautio & Jokinen, 2016). There is also work being carried out in the intersections with children's relations with place, species, and materials that discuss gender (Blaise & Rooney, 2019; Hodgins, 2014, 2019b), relations with the weather (Blaise, Rooney, & Pollitt, 2019; Rooney, 2019), care (Nelson, 2018a; Woods et al., 2018), technology (Land et al., 2018), and feminist methods (Blaise et al., 2017). These empirical works refuse humancentric perspectives and refocus on the entanglements of everyday situated encounters, permitting us to understand how global issues impact the local lives of children, educators, researchers, and more-than-humans (Taylor & Pacini-Ketchabaw, 2019).

While these research practices continually question and refuse humancentric exceptionalism, they highlight a postdevelopmental (Blaise et al., 2019) approach to research with children. Children are decentered as the protagonists of the inquiries and relationality becomes the center. This move distances the research from looking for a biopsychological emphasis on children's development and creates openings "that unhinge the humanistic learning child as the sole centre of early pedagogy" (Nxumalo, 2017, p. 562). My research is situated within these openings that are created when we think with children beyond developmental structures. Part of Chapter 2 is dedicated to contributing to unsettling the childcentric notion carried in child development discourses.

Most of the common worlds empirical research that has been carried out is ethnographical using common worlds feminist methods (Berry, 2019; Blaise et al., 2017;

Blaise & Rooney, 2019; Hodgins, 2019b; Taylor & Pacini-Ketchabaw, 2019). These researchers approach ethnographical research by focusing on the entanglements between children, educators, researchers, and more-than-humans, resisting anthropocentric perspectives. My inquiries described in Chapters 2 and 3 are part of a body of ethnographical work that, like many of the scholarly works using a common worlds framework, is not centralized in validating field work (Berry, 2019) but instead cultivates ways of noticing the interconnectedness between humans and more-than-humans (Nxumalo & Pacini-Ketchabaw, 2017).

My inquiries extend and contribute to the common worlds empirical research that thinks about pedagogy. Argent, Vintimilla, Lee, and Wapenaar (2017) reflect about common worlds pedagogies as they examine their practice through a collective conversation. They explore and think about what it means to enact a pedagogy of place. Their contribution to thinking about place and living pedagogies highlights situated paths and tensions that arise when they reflect on their emergent practices when thinking beyond themselves as "central holders and creators of knowledge" (Argent et al., 2017, p. 18). There is still much to think about regarding different paths and tensions created by thinking with common worlds theories and methods. Tensions and situated paths are created as we move to enact such inclusive pedagogies. My work was crafted through thinking about the many moves, undoings, and unlearnings one might undertake to read practice diffractively with common worlds theories and enact more inclusive pedagogies.

The inquiries that are described in Chapters 2 and 3 involve encounters with children's relations with materials. Pacini-Ketchabaw, Kind, and Kocher (2016) inquired for a period of three years about the role of materials in early childhood settings, paying

careful attention to relations within children's experimentations with materials. Unpredictability and the unknown were part of the experimentation and were considered important components in the encounters, which involved "cultivating wonder in the unknown, creating situations that make us uncomfortable so that genuine encounters might take place and something new might emerge" (p. 37). The possibilities that lie within thinking with indeterminacy are the focus of Chapter 3, where I propose to think about what kind of possibilities pedagogies of indeterminacy might entail. There is other work within the common worlds framework that addresses the possibilities provoked when thinking with and encountering the unknown, the uncertain, or the indeterminate (Berry, 2019; Black, 2019; Blaise & Rooney, 2019; Corry, MacAlpine, & Pacini-Ketchabaw, 2019; Rooney, 2019); my research focuses on the concept of indeterminacy pedagogically in a situated context in which a group of children and educators encounter charcoal and later cardboard.

In my research I address my understanding of the concept of common worlds and my awareness of my own thought processes in a process of unlearning. As I propose to think with pedagogies of indeterminacy, I make a unique contribution to this empirical body of work, addressing the tensions that arise when responding to Affrica Taylor's (2013) invitation:

> My academic enactments are only preliminary steps in shifting our relations to nature and thus to childhood. I have made them in the hope of envisioning and supporting more livable common worlds and futures for twenty-first-century children. I look forward to seeing what kinds of on-the-ground doings might be enabled by such a shift towards common worlds pedagogies. (p.124)

Responding to the challenges in anthropogenic times, my purpose with this research was not to find a solution or a generalizable model, but rather to illustrate the ongoing formation of questions that might produce alternative ways of doing early childhood education that challenge the Western humancentric approach.

1.5 Methodology & methods

1.5.1 Common worlds research: An inclusive space for thinking

My study wonders what kind of doings in ECE can happen when thinking with objects, places, animals, and many others with which we share our entangled common worlds. For that reason, my inquiry took place considering an inclusive onto-epistemology. Such a worldview considers the relations and processes rather than subjects or objects of research and "refuses positivist and phenomenological assumptions about the nature of lived experience and the world" (Lather & St. Pierre, 2013, p. 630).

My intention, therefore, has been to think beyond binary logics and to see humans and more-than-humans in imbricated relations that influence the research design. Patti Lather and Elizabeth St. Pierre (2013) questioned how entanglements can be problematic in all categories of qualitative research from the humancentric point of view. In considering how we can disconnect from our object of study, they ask: "How do we think a 'research problem' in the imbrication of an agentic assemblage of diverse elements that are constantly intra-acting, never stable, never the same?" (Lather & St. Pierre, 2013, p. 630). When considering our common worlds as an inclusive space for thinking, I chose to work with a postqualitative research perspective (Lather, 2013, 2016; Lather & St. Pierre,

2013). There is no prescribed postqualitative methodology; as Lather (2013) describes "this methodology-to-come" (p. 635), each project does it differently. She asks:

> What opens up if we position alternative methodology as non-totalizable, sometimes fugitive, also aggregate, innumerable, resisting stasis and capture, hierarchy and totality, what Deleuze might call "a thousand tiny methodologies"? (Lather, 2013, p. 635)

My research, following postqualitative logics, did not trace a path to be followed with prescribed goals or ends to meet; rather, the research path was full of indeterminacy, uncertainty, and the understanding that lived research could take me in many possible directions. In this study, I did not commit to linear, objective methods and procedures because I wanted to be sensitive to "contingencies, relationalities, instabilities and history" (Lather, 2016, p. 129). Research using predetermined methods assumes that reality is also predetermined and can be seen as data to be extracted. For those reasons, my construction of methodology and procedures were ongoing throughout the research.

The planning for this research had the purpose to prepare and make a backpack full of tools available for me as a researcher. What I am calling a backpack is a metaphor based on ideas from Affrica Taylor (2013) about the researcher as a bricoleur, which she drew from Claude Lévi-Strauss (1966) to develop a reconstructive perspective for her work *Reconfiguring the Natures of Childhood*. *Bricoleur* is a French word that does not have an exact translation in English but could mean a handyman, one who uses different tools to make do-it-yourself projects. The French word, however, carries a more playful and creative meaning. A bricoleur brings the idea of being able to put things together, using a variety of tools or materials.

Another important influence for thinking about the researcher's backpack is Pacini-Ketchabaw and Taylor's (2019) carrier bag. The carrier bag is inspired by Haraway's bag lady, used as a metaphor of a porous bag to carry different methods from diverse areas of study.

Drawing on these ideas, the role of the backpack in my research was to carry the possibility of building with different perspectives and using various tools. A backpack with pockets—compartments of different sizes—allowed me to carry what I might need on the way as I did my research. A backpack represents the idea of mobility and easy access to the tools I might need "on the go." Another characteristic of the backpack is that it stays behind you—you carry it; it does not carry you. Having reflected on the idea of not letting the methodology limit my research, I still needed to choose methods that could be and were used. What I mean by that is that my tools were not the ones imposing a way of doing research. They worked as tools that helped me see, interact, and explore, but they still allowed me to be flexible and were used only when they served a purpose. That shows the situated aspect of this study, where each moment of the research was situated and asked that I use a different tool.

My backpack carried enough uncertainty that new methods could be packed and others could be easily left out. The backpack represented my methodology-in-the-making, but was not only that. It has a close relation to the theoretical framework, from which it cannot be separated. For that, inside the backpack, I carried a compass. The compass was the theoretical reference for the inquiry. The role of theory in this inquiry was not to be a map that guided my research, but rather a compass that helped me find different directions that changed according to the experiences I faced along the way. The

idea of a map assumes a reality that is already known and established, which would have taken me back to the positivist logic of a reality that is fixed or universal. In contrast, the idea of a compass that could take me in different directions allowed multiplicity within my analyses. Chapters 2 and 3 illustrate what it means to think-in-the-middle. My tools and compass were not there to help me extract data, because I was part of the data, relating to it. There was no data to be mined in this research project.

Not defining all procedures and methods a priori does not mean this research is less rigorous or valid. Being rigorous in this onto-epistemology means that I was aware of my humancentric leanings and intentionally and continually questioned my doings and my thinking to sustain an inclusive inquiry. I acknowledge that my views of the world are partial and that it was impossible not to disturb the worlds I related with throughout the research. The rigour in this research also lies in working with theory and practice as connected and entangled, avoiding isolating or othering participants (humans and more-than-humans), and striving for doing-making-thinking practices that are situated, indeterminate, multiple, and uncontainable (C. A. Taylor, 2017). Finally, I think it is important to say that this was not an easy endeavour, and that it needed commitment and attentiveness toward its tensions.

My backpack that followed me in this study, therefore, carried the compass as a helping tool to see different directions (theoretical framework) and the many initial analytical and interactive tools (methods). During the inquiry, I made decisions about what to use along the way to allow indeterminacy, multiplicity, and collaboration in a creative and rigorous endeavour that required entangled responsibility to the worlds.

1.5.2 Situating myself as a researcher

I come to this research project from the perspective of an uninvited Brazilian settler in this land, from mixed Portuguese and Syrian descent. Before moving to Canada in 2018 and beginning my graduate studies, I was working as a principal in a childcare and elementary school. In the most recent years I was involved in changing the pedagogical project for early years in a private school in Sao Luis, MA, Brazil. In this particular project I was focused on thinking with educators about how we saw childhood and how to change the spaces and materials within the school to address those views. I was curious about childhood and early childhood spaces and how they played an important role in education. That curiosity motivated me to pursue a master's degree.

My research practice demanded reinventing myself again and again in an ongoing process of reflexivity and, at the same time, diffraction. Looking into my past experiences and how they shape how I relate and understand my human and nonhuman partners in research was part of the process. I must acknowledge these influences and how my ways of seeing are shaped by them. This approach to knowledge allows me to work against the tendency to create an othering practice and, at the same time, instead, to think diffractively in an ongoing flow to make difference visible, positive, and full of possibilities. This troubled researcher subjectivity followed me throughout the inquiry as I tried to be less about the interpretivist "I" in order to approach a more inclusive and interconnected "we." My intention was to decenter myself as much as possible as an individual researcher and to work as one more "tool for thinking" (Lenz Taguchi, 2013) in the research alongside children, educators, researchers, and more-than-humans. That process and what diffraction meant in the work is addressed in Chapter 2.

1.5.3 Research site

The inquiry was part of Veronica Pacini-Ketchabaw's SSHRC-funded PDG project Climate Action Childhood Network (CAN). The research occurred in a London, Ontario childcare centre located on the traditional lands of the Anishinaabe, Haudenosaunee, Leni-Lunaape, and Attawandaran peoples. The research sites included the infant, toddler, and preschool classrooms, outdoor playground areas, and outdoor natural areas surrounding the childcare centre building.

1.5.4 Participants

The participants were six children aged between 6 and 18 months who regularly attended daily child care, educators who worked at the childcare centre, and a fellow graduate student. The research involved observations of participants' interactions with children and educators in different spaces inside the childcare centre and in outdoor settings. All of the participants consented to participate in the research.

1.5.5 Methods

The interdisciplinary project was based on the principles of the Common Worlds Research Collective (http://commonworlds.net/), a feminist network inquiring about common worlds methods and children's relations with the worlds. The specific project of which my research was part, *Witnessing the Ruins of Progress* (http://witnessingruinsofprogress.climateactionchildhood.net/index.php/about/), carried the collaborative principles of the larger network at its core, as well the shared feminist new materialist and decolonizing principles with which CAN was conceived. My research contributed to the larger project through the inquiry with materials (charcoal and

cardboard) intersecting the materiality, relations and pedagogical intentions. To be part of a collaboratory and being in collaboration with a group of researchers in the CAN project was an important part of the inquiry process. My inquiry was not an individual endeavour and our long-term ethnographical observations were shared and were part of a larger conversation crossing boundaries of classrooms and research groups through a blog (http://witnessingruinsofprogress.climateactionchildhood.net/) where research moments were shared publicly.

In the project our focus was on the pedagogical processes of noticing and paying attention to the intersections of the relations, intentions, and materials. As described on the project blog,

> the relations between the human and the more-than-human world are all to often obscured in educational contexts. We are committed to rendering these relations visible, audible, comprehensible, even tangible for the children of the child care centre. In doing so, we promote a collective, multitudinous engagement with, and appreciation of, the precarious complexity that characterizes the delicate balance of our ecosystem. Such engagement requires an immersive and reflective involvement with the materials that comprise our world. (Drew, 2018, para. 3)

We distanced our work from child-centered research methods to position the methods as situated, "relational, [and] more-than-human" (Taylor & Pacini-Ketchabaw, 2019). The research being created with common worlds methods is grounded in practice (Hodgins, 2019a). This way of doing research does not mean that practice has been privileged over theory, but "rather, it enacts the inextricable entanglement of theory and practice, knowledge and action, of thinking and doing, within a feminist relational ontology" (Hodgins, 2019a, para. 7). The work carried out in this study with common worlds

methods created an important area for experimentation leading to questions and discussions.

1.6 The inquiries: Charcoal and cardboard

Most of the observations and reflections were part of an inquiry with charcoal and paper that involved four classrooms in the childcare centre. My observations were focused on the infant room.

The inquiry with charcoal, children, and educators took place in an immersive space, by which I mean that toys, objects, and furniture were removed or moved to allow the relations with charcoal to intensify. We worked with the educators creating a document where observations, photos, and reflections were shared interactively, creating responses and questions that would lead to various ways of continuing the experimentations. This document was the pedagogical documentation of the inquiry.

Figure 1.1: Renewed perspectives with charcoal and paper.

Pedagogical documentation (Dahlberg, 2012; Vecchi, 2010) is a process to make visible the relations, movements, learning, and thoughts in various pedagogical situations. When

making a pedagogical process visible, Gunilla Dahlberg (2012) says, “you make it subject to dialogue, interpretation, contestation, transformation” (p. 225). The documentation of children’s interactions during the project acted as both a memory and a process of curriculum making.

My intention in using pedagogical documentation was to render visible for children, educators, and researchers the ideas and concepts that emanated from our relations with more-than-humans—in this case, charcoal and paper. However, by doing so, the idea was also to make tensions visible, to speculate about new possibilities for early childhood practice, and to think more deeply with theory, educators, and children. At first, the charcoal sticks were placed on large pieces of paper on the floor. As the inquiry changed and moved over time, charcoal and paper would be put inside drawers and paper would cover walls and spaces where the infants gathered (see Figure1.1). Those movements were responses to how the children and educators related with the material as it made its presence daily, leaving traces, many of those not wished for or predicted. Some of the tensions of the inquiry with charcoal are described in Chapters 2 and 3.

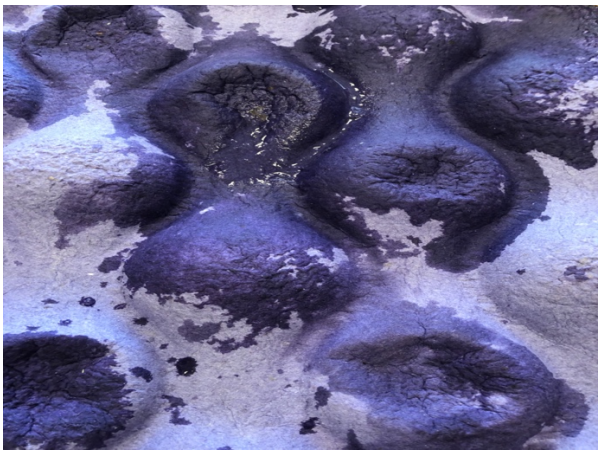

Figure 1.2: Cardboard meets water.

After some months, and in the face of controversy due to the messy nature of charcoal, the research team together with the educators chose cardboard as the next material to think with in the inquiry project. Cardboard was already present in the infant room, as spaces where the babies loved to hide or play. In this second part of the inquiry, cardboard's presence was intensified in the room. Cardboard boxes of all shapes, sizes, and colours were brought into the room. The choices of what boxes, where or how to arrange the boxes, or what materials we could invite to be with charcoal were made through the inquiry in discussions and moments of reflection with the educators.

The entire process with charcoal and cardboard was a collective one with collaborative eyes and hands throughout.

1.7 Summary of thesis

This thesis is an attempt to respond to our current challenges in the Anthropocene in the field of early childhood education. This response is part of the ongoing empirical work of common worlds pedagogues. The inclusive common worlds framework that takes

human/nonhuman entanglements into account is generative of new sensibilities we need if we are to live well in this new geological epoch.

Inspired by common-world pedagogies, my moves in this research were toward thinking with, rather than trying to master, concepts or materials or whatever makes our worlds. In proposing a shift toward common-world pedagogies, I also question childcentric practices and stewardship practices toward the environment. I found in the common worlds framework an inclusive place to think research. This implies thinking with onto-epistemologies and making this work a postqualitative study. It means that I have an entangled and responsible position as a researcher and I am part of the inquiry.

The two articles that are part of my thesis as Chapters 2 and 3 engage deeply with questions of and possibilities that lie in thinking with practice and focusing curriculum making in common-world relations. Children, rather than being seen as consumers of predefined ideas, are part of a collective that thinks with the common worlds. Both articles draw on two inquiries, one with charcoal and one cardboard, where the infant room in the childcare centre was curated to focus on the relations and create intimacy with the materials. We invited all the participants to pay close attention to the materials, encouraging the educators to help the children slow down and be attentive by responding to their movements and curiosities and constantly going back to them rather than jumping from one question to a new one. Staying with questions and children's moves with the materials and keeping the participants' attention focused on the materials was challenging. It demanded that we stayed with the difficulties of charcoal and cardboard. Embracing the tension, we explored other ways to relate that challenged the production-driven ways of practice in early childhood education. In very different ways, both articles

were written from a place of wondering how we can learn with, rather than about, in the inquiries with charcoal and cardboard. Chapter 2, "Unlearnings with Charcoal," brings the tensions of thinking with common worlds as I present the different paths I took in diffractively reading the charcoal inquiry. In Chapter 3, "Pedagogies of Indeterminacy," I focus on alternative dispositions to create and think with the worlds. I wonder about how can we twist productivity-driven and material-consuming practices in early childhood education to create a more attuned, attentive, and sensitive disposition toward human and more-than-human others.

This work can be read as experimentations with new sensibilities in ECE for a more collective and inclusive response in early education that chooses to "stay with the trouble" (Haraway, 2008, 2015) to reimagine "how to be human differently" (Somerville, 2018, p. 1584) in the Anthropocene. In imagining alternative ways to relate with the worlds we share, we may be able to create a refuge in these challenging times.

1.8 References

Argent, A. L., Vintimilla, C. D., Lee, C., & Wapenaar, K. (2017). A dialogue about place and living pedagogies: Trees, ferns, blood, children, educators and wood cutters. *Journal of Childhoods and Pedagogies, 1*(2). Retrieved from https://journals.sfu.ca/jcp/index.php/jcp/article/view/23

Berry, A. (2019). Sympoetics of place and the red dust of India. *Journal of Childhood Studies, 44*(2), 13–27. doi:10.18357/jcs442201919057

Black, S. K. (2019). *Exploring young children's encounters with the more-than-human: A multispecies ethongraphy* (Master's thesis). Retrieved from https://ir.lib.uwo.ca/etd/6198

Blaise, M., Hamm, C., & Iorio, J. M. (2017). Modest witness(ing) and lively stories: Paying attention to matters of concern in early childhood. *Pedagogy, Culture, & Society, 25*(1), 31–42. doi:10.1080/14681366.2016.1208265

Blaise, M., & Rooney, T. (2019). Listening to and telling a rush of unruly natureculture gender stories. In F. Nxumalo & C. P. Brown (Eds.)., *Disrupting and countering deficits in early childhood education* (pp. 134–146). London, UK: Routledge Taylor & Francis.

Blaise, M., Rooney, T., & Pollitt, J. (2019). Weather wanderings. *Journal of Public Pedagogies, 4*. doi:10.15209/jpp.1185

Corry, J., MacAlpine, K.-A., & Pacini-Ketchabaw, V. (2019). Educators experimenting with common worlds pedagogies. In L. Gibbs & M. Gasper (Eds.), *Challenging the intersection of policy with pedagogy* (pp. 35–48). New York, NY: Routledge.

Dahlberg, G. (2012). A practice for negotiation and democracy. In C. P. Edwards, L. Gandini, & G. E. Forman (Eds.), *The hundred languages of children: The Reggio Emilia experience in transformation* (3rd ed.; pp. 225–230). Santa Barbrara, CA: Praeger.

Drew, J. (2018, October 1). Witnessing Ruins of Progress: Recuperating "staying with the trouble" [blog post]. Retrieved from https://witnessingruinsofprogress.climateactionchildhood.net/index.php/2018/10/01/witnessing-ruings/

Hamm, C., & Boucher, K. (2017). Engaging with place: Foregrounding Aboriginal perspectives in early childhood education. In N. Yelland & D. F. Bentley (Eds.), *Found in translation* (pp. 58–75): New York, NY: Routledge.

Haraway, D. (2008). *When species meet*. Minneapolis: University of Minnesota Press.

Haraway, D. (2015). Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making kin. *Environmental Humanities, 61*(1), 159–165. doi:10.1215/22011919-3615934

Hodgins, D. B. (2014). Playing with dolls: (Re)storying gendered caring pedagogies. *International Journal of Child, Youth, and Family Studies, 5*(4.2), 782–807. doi:10.18357/ijcyfs.hodginsbd.5422014

Hodgins, D. B. (2015). Wanderings with waste: Pedagogical wonderings about intergenerational ecological justice-to-come. *Canadian Children, 40*(2), 88–100.

Hodgins, D. B. (Ed.). (2019a). *Feminist research for 21st-century childhoods*. New York, NY: Bloomsbury.

Hodgins, D. B. (2019b). *Gender and care with young children: A feminist material approach to early childhood education*. New York, NY: Routledge.

Land, N., Hamm, C., Yazbeck, S.-L., Brown, M., Danis, I., & Nelson, N. (2018). Doing pedagogical intentions with *Facetiming Common Worlds* (and Donna Haraway). *Global Studies of Childhood*. doi:10.11772F2043610618817318

Land, N., Hamm, C., Yazbeck, S. L., Danis, I., Brown, M., & Nelson, N. (2019). Facetiming common worlds: Exchanging digital place stories and crafting pedagogical contact zones. *Children's Geographies, 18*(1). doi:10.1080/14733285.2019.1574339

Lather, P. (2013). Methodology-21: What do we do in the afterward? *International Journal of Qualitative Studies in Education, 26*(6), 634–645. doi:10.1080/09518398.2013.788753

Lather, P. (2016). Top ten+ list: (Re)thinking ontology in (post)qualitative research. *Cultural Studies ↔ Critical Methodologies, 16*(2), 125–131. doi:10.1177/1532708616634734

Lather, P., & St. Pierre, E. A. (2013). Post-qualitative research. *International Journal of Qualitative Studies in Education, 26*(6), 629–633. doi:10.1080/09518398.2013.788752

Latour, B. (2018). *Down to earth*. Medford, MA: Polity.

Nelson, N. (2018a). *Common worlding pedagogies: Cultivating the "arts of awareness" with tracking, compost, and death* (Master's thesis). Retrieved from https://dspace.library.uvic.ca/handle/1828/9341

Nelson, N. (2018b). Rats, death, and Anthropocene relations in urban Canadian childhoods. In A. Cutter-Mackenzie, K. Malone, & E. Barrett-Hacking (Eds.), *Research handbook on childhoodnature: Assemblages of childhood and nature research* (pp. 1–23). New York, NY: Springer.

Nelson, N., Pacini-Ketchabaw, V., & Nxumalo, F. (2018). Rethinking nature-based approaches in early childhood education: Common worlding practices. *Journal of Childhood Studies, 43*(1), 4–14.

Nxumalo, F. (2015). Forest stories: Restorying encounters with "natural" places in early childhood education. In V. Pacini-Ketchabaw & A. Taylor (Eds.), *Unsettling the*

colonial places and spaces of early childhood education (pp. 21–42). New York, NY: Routledge.

Nxumalo, F. (2017). Geotheorizing mountain-child relations within anthropogenic inheritances. *Children's Geographies, 15*(5), 558–569. doi:10.1080/14733285.2017.1291909

Nxumalo, F. (2018). Situating Indigenous and black childhoods in the Anthropocene. In A. Cutter-Mackenzie, K. Malone, & E. Barrett-Hacking (Eds.), *Research handbook on childhoodnature: Assemblages of childhood and nature research* (pp. 1–22). New York, NY: Springer.

Nxumalo, F., & Pacini-Ketchabaw, V. (2017). "Staying with the trouble" in child-insect-educator common worlds. *Environmental Education Research, 23*(10), 1414–1426. doi:10.1080/13504622.2017.1325447

Pacini-Ketchabaw, V. (2013). Frictions in forest pedagogies: Common worlds in settler colonial spaces. *Global Studies of Childhood, 3*(4), 355–365.

Pacini-Ketchabaw, V., Kind, S., & Kocher, L. (2016). *Encounters with materials in early childhood education*. New York, NY: Routledge.

Pacini-Ketchabaw, V., & Nxumalo, F. (2015). Unruly racoons and troubled educators: Nature/culture divides in a childcare center. *Enviromental Humanities, 7*, 151–168. doi:10.1215/22011919-3616380

Rautio, P. (2013). Children who carry stones in their pockets: On autotelic material practices in everyday life. *Children's Geographies, 11*(4), 394–408. doi:10.1080/14733285.2013.812278

Rautio, P., & Jokinen, P. (2016). Children's relations to the more-than-human world beyond developmental views. In B. Evans, J. Horton, & T. Skelton (Eds.), *Play and recreation, health and wellbeing, geographies of children and young people* (pp. 35–49). Singapore: Springer.

Ritchie, J. (2016). Qualities for early childhood care and education in an age of increasing superdiversity and decreasing biodiversity. *Contemporary Issues in Early Childhood, 17*(1), 78–91.

Rooney, T. (2019). Weathering time: Walking with young children in a changing climate. *Children's Geographies, 17*(2), 177–189.

Somerville, M. (2018). Anthropocene's time. *Educational Philosophy and Theory, 50*(14), 1584–1585. doi:10.1080/00131857.2018.1461428

Stengers, I. (2015). *In catastrophic times: Resisting the coming barbarism*. Open Humanities Press.

Taylor, A. (2013). *Reconfiguring the natures of childhood*. New York, NY: Routledge.

Taylor, A. (2017). Beyond stewardship: Common world pedagogies for the Anthropocene. *Environmental Education Research, 23*(10), 1448-1461. doi:10.1080/13504622.2017.1325452

Taylor, A. (2018). Situated and entangled childhoods: Imagining and materializing children's common world relations. In M. Bloch, B. Swadener, & G. S. Cannella (Eds.), *Reconceptualizing early childhood education and care—A reader: Critical questions, new imaginaries, and social activism* (pp. 205–214). New York, NY: Peter Lang.

Taylor, A., Blaise, M., & Giugni, M. (2013). Haraway's "bag lady story-telling": Relocating childhood and learning within a "post-human landscape." *Discourse: Studies in the Cultural Politics of Education, 34*(1), 48–62. doi:10.1080/01596306.2012.698863

Taylor, A., & Giugni, M. (2012). Common worlds: Reconceptualising inclusion in early childhood communities. *Contemporary Issues in Early Childhood, 13*(2). doi:10.23042Fciec.2012.13.2.108

Taylor, A., & Pacini-Ketchabaw, V. (2015). Learning with children, ants, and worms in the Anthropocene: Towards a common world pedagogy of multispecies vulnerability. *Pedagogy, Culture, & Society, 23*(4), 507–529. doi:10.1080/14681366.2015.1039050

Taylor, A., & Pacini-Ketchabaw, V. (2017). Kids, raccoons, and roos: Awkward encounters and mixed affects. *Children's Geographies, 15*(2), 131–145. doi:10.1080/14733285.2016.1199849

Taylor, A., & Pacini-Ketchabaw, V. (2019). *The common worlds of children and animals*. New York, NY: Routledge.

Taylor, C. A. (2017). Rethinking the empirical in higher education: Post-qualitative inquiry as a less comfortable social science. *International Journal of Research & Method in Education, 40*(3), 311–324. doi:10.1080/1743727X.2016.1256984

Vecchi, V. (2010). *Art and creativity in Reggio Emilia: Exploring the role and potential of ateliers in early childhood education*. New York, NY: Routledge.

Woods, H., Nelson, N., Danis, I., Elliott, D., Wilson, J., Payjack, J., & Pickup, A. (2018). With(in) the forest: (Re)conceptualizing pedagogies of care. *Journal of Childhood Studies, 43*(1), 44–59. doi:10.18357/jcs.v43i1.18264

Yazbeck, S., & Danis, I. (2015). Entangled frictions with place as assemblage. *Canadian Children, 40*(2), 22–31. doi:10.18357/jcs.v40i2.15176

Chapter 2. Unlearnings with Charcoal: Threads with Common Worlding

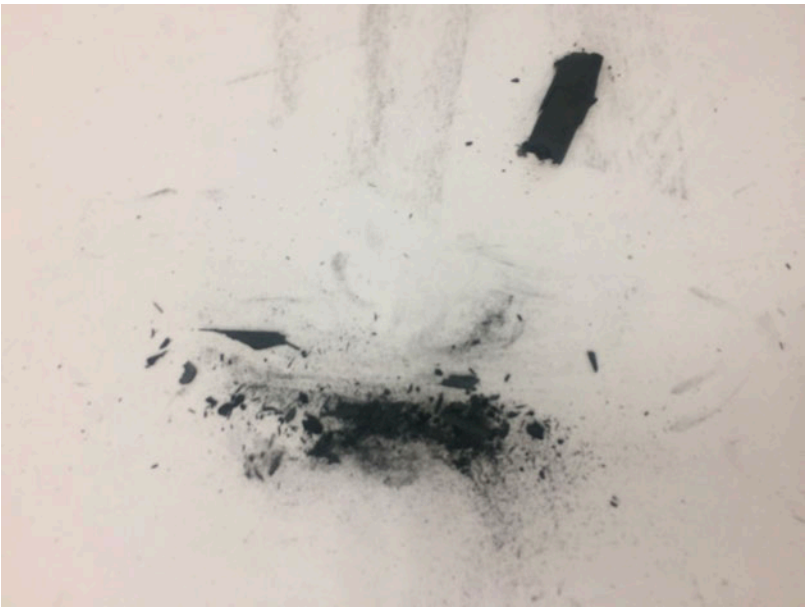

Figure 2.3: Charcoal and paper.

In the first term of my graduate studies, I attended a lecture by Jack Halberstam, who mentioned that unlearning was an inevitable part of facing new paradigms. This idea immediately resonated with me because, during the first months of my studies, I had grappled with many new concepts, different worldviews, and new onto-ethico-epistemologies. At that moment, as I listened to his lecture, I was able to ascribe a name to what was happening: I was *unlearning*. Since I had decided to pursue graduate studies after a lifetime working in elementary and secondary schools in Brazil, my intention had been toward acquiring new learnings. What had not crossed my mind was the immense shift in worldviews that I would go through, which put me on a path to unlearn instead.

In this paper, I engage with the question: What have I *unlearned* as a researcher working alongside a group of infants and educators in a common worlding pedagogical inquiry with charcoal in an early childhood education classroom? Arguing that common worlds pedagogies demand unlearning, I think with Pacini-Ketchabaw, Kind, and Kocher (2016) when I acknowledge that the charcoal in this context was more than an art material. In their encounters with materials:

> charcoal is a thing: a stick of compressed burned wood. But it is also a continuum, a story, an event, a happening, a doing. We are interested in charcoalness, the expression and experience of charcoal in the encounter: always in process, always becoming charcoal. . . . Charcoal is not just for drawing with. (2016, p. 34)

Similarly, the encounter with charcoal in the inquiry I describe in this article was an opening for the process of unlearning, which, as Éamonn Dunne (2016) writes, entails disrupting knowledge:

> Unlearning calls on us to shake things up, to shake it off, to philosophize with a hammer, to take a leap of faith into the abyss of nonknowledge; it calls on us to let go, to fail, to fail again, for better or for worse. It calls on us to take the risk that encounters. (p. 16)

Unlearning risks moving from the comfortable position of believing that reality is something that one can learn about—something universal, static, waiting to be uncovered—to the uneasy position of questioning knowledges and practices one never questioned before.

I begin the article by expanding on the idea of unlearning. Then I describe the pedagogical inquiry with charcoal, situating the article theoretically and methodologically. I follow these sections by engaging with three unlearnings: unlearning

my leanings toward child development; unlearning thinking about materials to allow thinking with materials; and unlearning humancentrism.

2.1 Unlearning

As for Halberstam (2014, inspired by Rancière, 1991), unlearning has been my intellectual adventure. My unlearning has been intentional, with unexpected and unpredictable outcomes, a never-ending journey. Halberstam (2012) explains that it is important to learn to unlearn, which is a process that requires "break[ing] with some disciplinary legacies, learning to reform and reshape others and unlearning the many constraints that sometimes get in the way of our best efforts to reinvent our fields, our purpose, our mission" (p. 10). For me, unlearning has been a strong disrupting force to challenge worldviews and open to uncommon, unknown possibilities.

Dunne (2016) asserts that "in a sense learning is impossible, since for learning to happen, we need to expect the unexpected; we need to learn to unlearn" (p. 17). Unlearning is not the opposite of learning; in fact, it asks one to rethink and question learning. It allows one to understand that learning can occur without reason or agenda. Gert Biesta (2013) has challenged the idea of learning, arguing that the term carries neoliberal ideas of individualism. He writes: "The fact that 'learning' is an individualistic and individualizing term—learning is, after all, something one can only do for oneself—has also shifted attention away from the importance of *relationships* in educational processes and practices" (Biesta, 2013, p. 63, emphasis in original). The idea of learning carries the politics of naturalization of learning. For those who are moving toward thinking about a collective and are intentionally questioning the discourses that have

shaped early childhood education, unlearning seems to be a more appropriate concept to narrate pathways that are not in fact individual but are built upon relations.

The process of unlearning I bring forward in this paper is one that questions learning itself. It brings a sense of the unexpected and a never-ending idea that is built on relationality rather than individualism. My unlearning involves more than critical reflection; unlearning works with diffractive thinking. According to physicist and feminist theorist Karen Barad (2014), reflection is mirroring, looking inside, taking a step back in order to change or think about one's life. I stress here that reflection is not enough, and I rely on the warning of early childhood pedagogues Veronica Pacini-Ketchabaw and Alan Pence (2011): "Critical reflection cannot be about making the self visible, but about re-imagining new subjectivities in relation to different contexts" (p. 7). Instead, I experiment diffractively, following Barad's (2014) suggestion.

Diffractive reading, as Barad would understand it, is being able to read the in-between spaces created by the charcoal encounters in a way that will allow me to see difference and its effects (Barad, 2014; Bozalek & Zembylas, 2017). Both Barad and Donna Haraway write about the use of diffractive methodology to make the effects of differences visible, a process of being attentive to how differences appear. To be attentive to the material configurations in my experimentations with charcoal, I think with diffraction: Bozalek and Zembylas (2017) write that diffraction can be used "to acknowledge the role of the knower in knowledge production and particularly how we learn about 'material configuration of the world's becoming'" (p. 111).

To think diffractively emphasizes my movements of unlearning. That emphasis happens because I read a series of charcoal encounters moving in a nonlinear path and

creating new waves of movement toward unlearnings. Hillevi Lenz Taguchi (2012) explains how diffractive reading entails reading and becoming with the data. This means that you are not reading it from a distance or separate from it; as a researcher, you are part of the event. In Lenz Taguchi's words, "the data is itself understood as a co-constitutive force, working with and upon the researcher, as the researcher is working with the data" (p. 13). The unlearnings in the charcoal inquiry were part of reading the encounters diffractively, putting me in the middle of the research process and helping me to think otherwise and to transform.

2.2 Unlearning through a common worlding pedagogical inquiry

Unlearning began as a disruptive force as I joined an ethnographic common worlding pedagogical research project. The research took place in an urban childcare centre in London, Ontario, with a group of six infants, three educators, and one other graduate student. The project, part of the Climate Action Childhood Network (CAN; 2020) led by Veronica Pacini-Ketchabaw and funded by the Social Sciences and Humanities Research Council of Canada (see http://www.climateactionchildhood.net/), reconceptualized art materials, specifically charcoal. Charcoal in this project was an agentic material in an intentional setting created by removing part of the furniture, toys, and other materials from the classroom to intensify the possibility of paying attention. We (researchers and educators) prepared the space with paper and charcoal and organized it, giving the charcoal a central position in the space. In this setting, we focused on encountering charcoal in new ways. The proposal was to engage with the arts of slowing down, paying attention, and noticing. We asked the educators to invite children to practice these arts as they engaged with charcoal and as they visited the forest close to the childcare centre.

Charcoal was chosen, after the children showed an interest in charcoal sticks they found in the forest, as a way to create continuities between the centre and the forest. In a blog post, Pacini-Ketchabaw (2018a) explained the choice of charcoal and paper as materials for the inquiry, highlighting how the choice of materials we bring inside the classroom matters and showing the connections between the forest and charcoal: the sticks children were fascinated with are transformed through industrial processes into charcoal, and trees become paper.

Thinking with common worlds pedagogies in the inquiry, we focused our attention on the relations between children and the materials and how material-child entanglements produce certain ways of being within a specific context (Taylor & Pacini-Ketchabaw, 2019). We considered that those entanglements are not solely human, and we problematized questions concerning child purity and innocence, as well as developmental ideas, by considering that we are part of the world with all its imperfections (Nelson, Pacini-Ketchabaw, & Nxumalo, 2018; Taylor, 2013). These common worlds pedagogies required unlearnings. Questioning childcentric and developmental ideas and moving toward the possibility to be with, think with, learn with, and consider more-than-human entanglements, I tried to think beyond humancentrism.

In the rest of the article, I diffractively narrate my three key unlearnings in our encounters with charcoal, with theory (common worlds theoretical framework), with the memory of my previous practice, and with educators, researchers, and children. It is these very ideas within common worlds that I interweave with my unlearnings.

2.3 Unlearning my leanings toward child development practices

Prior to beginning my graduate studies, much of my practice in education was driven by developmental psychology, more specifically the knowledge of ages and stages. I did not see the limitations of this point of view or even think about it. In planning meetings with teachers from the school I used to work at in Brazil, we were always looking at the goals for each age and what activities would be best to achieve those goals. Another constant practice was to limit the activities of the day to a maximum duration of 20 minutes in the belief that children could not sustain their attention for long periods. There was always a tension between organizing and planning goals for individual children and addressing the collective, and a tension between trying to have a child-centered practice and meeting a set of development goals. Although I was convinced that the most appropriate education entailed a curriculum that allowed emergence and child-centered practices, much of what I did in my practice was limited by beliefs and assumptions about what children can or are supposed to do at a certain age. The possibilities that presented themselves in the common worlding inquiry with charcoal were powerful enough for me to unlearn child development.

The scholarship of Erica Burman (2017) was paramount in my unlearning. She highlights some of these constraints, critically analyzing the role of developmental psychology within social practices, including development-focused theory and educational practices. I summarize in the following lines some of the limitations Burman raises that are relevant for thinking with my unlearnings.

Developmental psychology provides the language and practices that produce a particular kind of subject: the child as an object of study, care, and intervention.

Throughout the history of the field of developmental psychology, the idea of a "normal child" was produced. This universal concept of normality crossed historical, cultural, and social contexts. Burman (2017) highlights that "the normal child, the ideal type, distilled from the comparative scores of age-graded populations, is, therefore, a fiction or myth" (p. 22). This nonexistent child is a construction from the perspective of adults (and the idea of the adults they will one day become); it is romantic, nostalgic, or purely sanitized and measured in scientific perfection.

The idealized normal child is repeatedly constructed in the ideas of futurity and progress, dismissing who the child is in the present moment. The ideas of mastering skills and the need to progress mirror the importance of productivity in contemporary Western society. Burman (2007) shows how the construction of developmental theory structures influenced the neoliberal system "as the authorizer and arbiter of child, family and professional relations within the capitalist and now late capitalist or neoliberal state apparatus" (p. 27).

These limitations within developmental psychology diffractively interfered with my professional history, the charcoal encounters in the inquiry, and poststructural and postdevelopmental readings that contributed to the unlearning path.

2.3.1 Looking at charcoal and children's relations beyond developmental theories

Amanda[1] *(10 months old) sits and gets a stick of charcoal. She touches it with the tip of her finger, examines it carefully, and starts to make marks on the paper. She picks*

[1] To protect and respect the children's privacy, pseudonyms are used.

up another charcoal with her other hand and repeats the movements with both hands, making lots of marks. She smiles making those marks. As she moves her arms the charcoal leaves traces on the paper, even when she is not looking at it. I invite her to look down, show her all her work. There are so many marks on the paper, all around her. She looks at the marks, observes them, and then makes more marks around her body. Now, as she does the marking, she looks at her hands. When she leaves the space to take her nap, we can see the empty space her body left on the paper, making a mark in opposition to the dark traces of charcoal.

How can we continue to build Amanda's trust with these new materials? (excerpt from research field notes)

Figure 2.2: Marks all around.

We (educators and researchers) were working with infants who were 8 to 18 months old. That they were not *ready* for working with charcoal was a limiting assumption. The idea of a normal child, addressed earlier, contributes to the idea of setting goals and educational objectives to be achieved by each age group and the persistent idea of readiness that is still present in ECE contexts (File, 2012). Had we permitted these narrow beliefs of readiness or the lack of it or even the futility of working

with such young infants, we would have been deprived of witnessing and participating in what followed. Our aim was not that those explorations by the infants should develop their fine motor skills or prepare them for future school practices. We had no intention of measuring their achievements against any standard. We were in a movement with new questions and inquiry about the materials as a group. This movement was about deep engagement and attunement to materials. The child (Figure 2.2), who was deeply engaged with charcoal, making marks on paper, first unintentionally and later looking at the paper and following with movements that marked the paper more and more, stayed immersed in this encounter for a long period of time. Her moments with the charcoal did not end when she left the space to have lunch; charcoal smudges accompanied her on her arms and clothes and followed her home. The engagement continued for days as the charcoal encounters continued happening. My ideas of infants' attention span, the grasping movement of the hands, and the very idea of how long an engagement between an infant and a material could endure were smudged by the charcoal. Unlearning with charcoal happened as it was leaving its traces, not only on the paper and our skin, but also on my thinking about developmental theories.

The waves of questioning of these taken-for-granted theories of ages and stages so present in early childhood education were triggered as I read the book *Beyond Quality in Early Childhood Education and Care* (Dahlberg, Moss, & Pence, 2013). The authors propose in their discussions to reflect on the developmental theories within the project of modernity, echoing some of the concerns Burman (2017) raises. They explain that what Jürgen Habermas called the project of modernity "had ambitious goals: progress, linear and continuous; truth, as the revelation of a 'knowable' world; and emancipation and

freedom for the individual, socially, politically and culturally" (2013, p. 20). In the centre of these modern ideas is the notion of a true world to be discovered by the individual, who has a preordained natural and universal humanity, independent of the context (Dahlberg et al., 2013). If we use theories as if they were the truth or a representation of reality, we might distance ourselves from children's complexity and lose sight of their real lives, real experiences, real capacities. We might dismiss children's full potential. Dahlberg and colleagues write: "The maps, the classifications and the ready-made categories end up replacing the richness of children's lived lives and the inescapable complexity of concrete experience" (p. 38). The encounter with the charcoal, and the specific moment where educators and researchers posed questions about the child's awareness of the charcoal marks left on the paper, made it possible to think beyond modern thought constraints.

Research in the field of developmental psychology flourished in the twentieth century (Burman, 2017), when these ideas of modernity were pervasive in science. Although the reconceptualist movement has been questioning the role of developmental theory for more than two decades (Edwards, Blaise, & Hammer, 2009), these theories still resonate in the field as the neoliberal discourse in ECE grows strong with the global trend of standardization (Arias de Sanchez, Doiron, & Gabriel, 2012; Moss, 2014).

At this moment, I am wrestling with the constraints of theories and their limitations. As I have argued, we (educators and researchers) might have been constrained by having to aim at specific goals or by the limitations of age-related stages of development that would have kept us from experiencing the charcoal and paper explorations. Our knowledge of child development is a point of reference that enables us

to plan activities and establish clear goals for the work in ECE. In these times, when accountability and standards are important, developmentally appropriate practice (DAP) seems to be the logical approach to achieve professionalism in childcare centres and schools. DAP helps educators to have pedagogical intentionality, while they plan and assess children's learning. These ideas are a part of the global trend of standardization referred to before. This is not to deny that there are relevant and important contributions in the vast body of work related to children's development. The idea is to understand the limitations of developmental theories and find new ways of thinking about curriculum in ECE. I do not wish to position myself within another binary (i.e., anti-DAP). Instead, I wish to think about how we might use this knowledge to understand children, but not necessarily to inform all of our curriculum practices from this single paradigm. I agree with Burman's (2017) warning to be careful of the "indiscriminate use of general models and particularly how they are interpreted and applied" to inform practice (p. 290). Again, unlearning does not simply undo or bring ignorance into the diffraction movement. Rather, in this case it meant the overlapping of ideas that transformed the ways I understood the child-charcoal-theory encounter.

An alternative way of thinking about developmental knowledge is to see it as one among many discourses about childhood and not as a reality in itself (Dahlberg et al., 2013; Edwards et al., 2009; Rautio & Jokinen, 2016; Ryan, 2008). It is a discourse that makes it challenging to study things without aiming for a specific goal or purpose related to the individual (Rautio & Jokinen, 2016, p. 39). Being with charcoal without an aim of constructing meaning or any developmental achievement had its challenges. For example, it is hard to explain to parents, who are also exposed to grand discourses about childhood

through the media, age-related toys, or market logics, that we can do things without preestablished goals. The pure pleasure of touching the charcoal stick tip, observing the black dust it leaves, or listening to the squeaky sounds it can make when we trace with it—these interactions have value.

Pauliina Rautio (2013) contributed to these thoughts with the idea of autotelic material practices, which suggest that we do not need to find an explanation for children's actions with materials. She and her colleague Päivi Jokinen (2016) ask, "How are we to argue on behalf of things and activities like this? On behalf of things that do not seem to have a point, a purpose, or a linguistically conveyable meaning?" (p. 39). think

To unlearn toward new ways of thinking about childhood beyond the developmental view is also closely related to the question of childcentric practices. Child-centered practices bring the same ideas rooted in modern thought of a normalized understanding of the child as the centre of the world. Dahlberg et al. (2013) take a postmodern stance to propose decentering the child. In this point of view, the child is seen as part of its relations, connected to the world. Dahlberg et al. write:

> From our postmodern perspective, there is no such thing as "the child" or "childhood", an essential being and state waiting to be discovered, defined and realized, so that we can say to ourselves and others "that is how children are, that is what childhood is." Instead, there are many children and many childhoods, each constructed by our understandings of childhood and what children are and should be. (p. 46)

Extending the understanding of decentering the child beyond the contribution of Dahlberg et al. (2013), my reflections on child-centered practices connect to the following unlearnings: to question the humanist thinking that positions humans above all, and to move toward an alternative onto-epistemology that includes more-than-humans.

The infants' relations to charcoal were explored in the research project, pushing beyond developmental and individualistic views. We (educators and researchers) were not centered on the child or being led by the children. We were led by the children's entangled relations with the charcoal, with the purpose of a collective and inclusive inquiry. We were entangled as well, both observing and engaging with charcoal and child.

2.4 Unlearning to think *about* materials

The second unlearning I describe is to move from learning *about* to learning *with*. Just like my other unlearnings in the inquiry, it happened along with all the experiences I lived with charcoal alongside educators, children, and researchers. How do we enact being with, or thinking with? In my previous practice, l always loved to plan learning moments, classes, and provocations for children with materials and space. The act of planning was always intended to decide what the learning would be about, the topic, and the possibilities of content in the planned experience. Objects, places, and events were listed; possible connections, uses, purpose, etc., were considered. As I reflect on my former practice, I can easily observe the pattern of humancentric thinking that needs to isolate objects, facts, and events as things to be studied. In contrast, my move with the charcoal was in a very different direction. My aim was to think about the possibilities of being with charcoal, not to use it to produce an artwork, or to beautifully arrange it to make a provocative space, or to teach children the possibilities of marking with it.

An influential work on this unlearning path was *Encounters with Materials in Early Childhood Education* (Pacini-Ketchabaw et al., 2016). The book is dedicated to thinking with materials in ECE as educators, children, and researchers "gather around

materials to investigate, negotiate, converse and share" (p. 1). It helped me to move beyond learning about materials to think instead about relationality as the centre of the experimentations and encounters with humans, objects, and places. Thinking with Pacini-Ketchabaw et al. (2016) in this case meant that experimentation was a part of the inquiry. To experiment with charcoal, or to learn and unlearn with charcoal, included thinking with materiality and arts as a mode of inquiry. To think with can be an invitation to new possibilities rather than a "recipe" or "routine" to be reproduced or generalized. Such an invitation is evident in the charcoal encounter described below in an excerpt from our field notes.

We have just begun our explorations with charcoal and paper; the changed space in the classroom with the charcoal sticks over large pieces of paper is in the centre. The first few children come into this area and observe the charcoal. They point it out, get pieces from the floor, and bring them to me. The sticks break in the grasping. The charcoal falls and breaks again. In a recursive act, I accept the offer of the charcoal from the children and put it back onto the paper. The pieces are smaller, as each time they try to grasp it, it breaks into tiny pieces. The eyes change focus to our hands, and we notice the dark dust, traces of our manipulation—rubbing hands, retrieving the charcoal, and checking to see what happens.

The first marks the charcoal makes are on our hands, and soon after our experimentation we try to mark the paper with the charcoal. We break the charcoal as we try to grab it; we carry the charcoal around; the charcoal leaves marks on our hands, and we can leave marks on the paper with it. We have just accepted as a group the

invitation to slow down and focus. We can start noticing new movements, new curiosity arriving.

The movement of the charcoal and the children described above illustrates initial moments of the charcoal inquiry, where children, educators, and researchers were noticing charcoal: how charcoal moved us, marked us; how its fragility changed the way we touched it; how thinking with charcoal in this space was a singular moment that responded to the specifics of this material and also to the people who were in this particular space. To open myself to think *with*, to learn *with*, or simply to be *with* was the intention. I challenged myself to notice the ways the charcoal influenced my moves as well as the children's—not what we could do with charcoal, but how we were relating with it in this encounter. The idea of learning and thinking with is intimately connected to the ideas of how children relate to materials. In these relations, matter is considered an agentic entity that invites interaction in specific ways and is part of our world, connected to us.

I am moving toward collective and inclusive thinking as I try to follow relations instead of the children, and that leads me to think beyond learning about things. In other words, to shift from humancentrism toward collective thinking is also to move from thinking *about* the world to learning *with* the world. The idea of connectedness moves us to think with, and become with, our enmeshed relations. It is an attempt to become worldly (Taylor, 2017) as we focus on these connections with the worlds. In this context, being more worldly means "paying attention to the mutual affects of human-nonhuman relations, pursuing more-than-human collective modes of thought, and . . . learning from

what is already happening in the world" (Taylor, 2017, p. 1449). In this movement of thinking with, we acknowledge the agency of more-than-humans.

Sylvia Kind and Veronica Pacini-Ketchabaw (2016) extend the ideas from *Encounters with Materials*, highlighting that children's experimentations are not innocent and involve obligations and responsibilities with the tensions and ethical engagements they may evoke. I could make sense of the ideas they proposed only when I faced the challenge to be with charcoal.

I have to explain a little about this challenge. The way I have been describing moments with charcoal is not enough to illustrate the whole landscape. The charcoal and paper setting had pedagogical intentions; the choice of charcoal as a material was closely related to the forest located near the daycare and visited weekly by the children. Learning with requires that we are intentional about the choice of material as well as the pedagogical decisions we make. As mentioned before, I had no intention of telling the children the connection between charcoal and paper directly. I wanted us to be immersed in these relations; in time, some of those links would be visible to the children.

The choice of charcoal, though, was not free from tensions. The dust and the dark colour of the charcoal meant mess, dirty clothes, and dirty skin. Some of the children had never encountered this material before, and some adults had concerns about the choice of material and its implications for the children's well-being. Parents came to the childcare troubled by the fact that children would go home dusty, with their clothes and probably their hands and faces marked by charcoal. Would they eat the charcoal? Would charcoal stain their clothes? How does one approach being with a material that leaves marks as it is touched?

As I have described before, we are always separating ourselves from nature, and we also idealize what nature should look like. We enjoy nature when it fits within our idealized and romantic notions, such as children in playful relations with an idealized forest. We have a hard time accepting that relations may begin with uneasiness, reluctance, mess, or even distance. Proposing to learn *with* through the arts of noticing was also an invitation to have a different relationship with the forest and with charcoal inside the centre, a relationship that did not mean learning about or consuming what children find or see in the forest but that invited us instead to stay with the difficulties of charcoal, or to stay with questions about the sticks, instead of jumping to the next interest children might demonstrate.

Materiality is also political (Hodgins, 2015; Rautio, 2013). Denise Hodgins (2015) wonders about "the idea of multiple other knots, weavings and connections the material-moments touch" (p. 95) as she considers the implications of the choice of materials in early childhood settings. In our case, choosing to be with charcoal and paper had implications. We were troubled, for example, to see the amount of paper piling up as the days of charcoal interaction went by. What would we do with the leftovers? Preschoolers gathered the powder and put it into glass jars. What they would do with it later was not clear, but the educators and researchers alongside the children chose to stay with the trouble and not merely treat the charcoal dust as waste. While the charcoal left its traces in the form of dust, paper was a more significant issue. The idea of transforming the paper into new paper by recycling it came up. The whole centre got involved in the process of tearing, soaking, and sifting paper. The idea was not to simply recycle the paper and produce less waste. It showed new ways in which we were affected by the

relations we had with paper and charcoal. We were responsible for the relations we established with the materiality. We were in fact thinking and changing with these relations and not learning how to recycle or make paper.

The possibility to change, to transform with, opens while we unlearn merely thinking *about* materials, ideas, others, and beyond and move toward thinking with. The transformation, the unlearning, includes the tensions that come when we think relationally with the inclusion of the many knots those moments touch, including political knots, acknowledging place, history, and relations that belong to these material-idea-human encounters. The next unlearning brings this idea of relationality and the need to decenter the child (and others) into a moment of weaving the unlearnings together to think beyond humancentrism.

2.5 Unlearning humancentrism

In this section, as I narrate some of the unlearning movements that challenged humancentrism in the inquiry, there might be the impression that this was the first unlearning among those presented in this paper. I have to warn, however, that this unlearning has the very characteristics of nonlinearity and endlessness that the act of unlearning entails. What I mean by that is that I am still in the process of unlearning to be the centre, as a human, still unlearning that humans are better than any other being that lives on earth and that humans are responsible for controlling and protecting our planet. I believe I will never be able to say I have unlearned humancentrism. What I can say is that in this process I get to think and be in tension with those concepts and read the world through a more inclusive lens—a lens that includes humans and more-than-humans. This

unlearning is part of the beginning, the middle, and the inexistent end. It is an opening to think about our ways of engaging with the worlds.

My first visit to the childcare centre was during a meeting and a walk in the forest with the educators. A post on the project's blog described this experience:

> We (educators, pedagogists, researchers) took a walk in the forest with the intention to pay attention, notice, engage in the presence of more-than-human others.
>
> We asked ourselves . . .
>
> • What and how do we notice when we walk in the presence of others—including nonhumans?
>
> • What relations do we notice?
>
> • What logics do we notice and how might we follow these logics?
>
> Our Engagements . . .
>
> We noticed life, death, playfulness, garbage and plastics, patterns and textures, sounds (wind, squirrels, sticks and leaves under our feet, a plane flying above us), human-made and organic structures, levels and heights, animals (frogs and insects), a wide variety of trees and plants, strength and resiliency. The forest is alive, the forest thinks, the forest reverberates (despite our human presence). (Pacini-Ketchabaw, 2018)

That walk was the prologue to my journey as a graduate student and researcher, and at that point, I was already facing the tensions of learning and opening myself to the unlearnings narrated in this paper.

Following the walk in the forest with the educators we started the inquiry with charcoal and paper. We changed the classroom environment, moving furniture, taking away a great part of the visual and play materials in the room, and offering a space for the children and educators to be with charcoal deeply. To move, to experiment, to mark, and

to care with and about the charcoal transformed our ways of relating with children and other materials in the room. This movement allowed for more curious and attentive interactions.

My debut as a researcher was in this context as we (educators and researchers) prepared the setting for experimentations with charcoal and paper. To recognize charcoal as agentic, to consider its roles in the interaction, and to think with space and material itself was part of the first unlearning. I was challenging my entrenched humanist position to allow more-than-humans into the picture, which in this case was the charcoal.

Becoming more inclusive of the more-than-humans challenging my humancentric ways of thinking might seem simple in theory, but enacting it has been a complex and layered experience. It started with the walk in the forest, navigating the Common Worlds Research Collective website (http://commonworlds.net/), reading *Beyond Stewardship: Common World Pedagogies for the Anthropocene* (Taylor, 2017), and beginning my interactions with infants, charcoal, and educators. I cannot point to any of these events as a single experience responsible for starting my unlearning process. That ambiguity makes unlearning uncomfortable. It troubles my clean categorizations, taking me beyond my limits and "turning them outside in rather than inside out" (Dunne, 2016). The movements I engaged in allowed for more than reflections on those matters as I was moving outside in and inside out at the same time, not only relying on my own beliefs or questioning them, but also opening up to think with others.

Affrica Taylor (2017) summarizes the process of thinking collectively and finding new ways of being in this world, highlighting the idea that it includes unlearning:

> More-than-human collective thinking is hugely challenging for those of us who are well schooled in human exceptionalism. It requires us to let go of

> the certainty that humans are the only knowing subjects and the nonhuman world is the object of our knowledge. The very process of learning to be affected, to think with and produce common accounts with the more-than-human must, *per se*, interfere with our human conceits to be the world's only knowing and agentic subjects. Ultimately, this kind of collective thinking and learning also means that those of us who are well-schooled in humanist thinking have a great deal of unlearning to do. (p. 1455)

My unlearning was imbricated within those lived and about-to-be lived moments, which were layered, connected, diffractive experiences that contributed to extending and challenging my views on what it means to live in this world.

The experience of the walk in the forest with the educators emphasized the importance of attunement needed for us to have a more inclusive perception of our worlds. We were being invited to enact the "arts of noticing" (Tsing, 2013). The same focus was extended to the classrooms with the charcoal interaction: to notice how charcoal moved with us, how it left traces on our hands, clothes, the paper—even when we did not intend it to. To notice our relations with charcoal also made a collective practice possible when two or three infants would interact and share the same space, as some made markings while others observed attentively. We made lines, smudges, prints, and beats on the paper to make the little bits of charcoal dance in the air. The arts of noticing were there when we allowed ourselves, as adults, to be deeply involved with charcoal as we experimented as a collective and chose not to center the children or be led by them. Instead we followed children's interactions with charcoal and paper.

The explorations with the infants were intended to approach environmental education in a different way, one that troubled the heroic vision of humans as the stewards of nature. Stewardship pedagogies reinforce human exceptionality, separate

humans from the world, and frame nature as a wilderness untouched by humans (Hodgins, 2015; Nelson et al., 2018; Taylor, 2017). Framing nature as "the wild" inscribes actions toward nature in the binary thought of what/who is bad or what/who is good to nature. Taylor (2017) explains the limitations of human-centered environmental pedagogies: "Consciously or not, humanist stewardship pedagogies still operate from the premise that humans have exceptional capacities, not only to alter, damage or destroy, but also to manage, protect and save an exteriorized (non-social) environment" (p. 1453). This line of thinking works against collective thinking and our entanglements with the world because it exacerbates the nature-culture division, a division that separates humans from nature.

As the process of unlearning unfolds, I see myself grappling with concepts wherever I go beyond the research project. Part of the process is to observe things more attentively and make connections to such thinking. I see the event of unlearning as something that took me out of equilibrium, meaning that the event of unlearning haunted me so that I saw its spectral presence everywhere. I am thinking with John Caputo (2016), who brings the idea of education hauntology: "Everywhere questions, suspicions, longings, doubts, dreams, wonders, puzzles where once peace reigned. Nothing will be simple anymore. They [students] will never have any rest" (p. 116). One simple example of this ghostly presence that followed me everywhere is a visit I did to the school at which I used to work. The school had not changed much, but I was looking at it with a renewed perspective, with new questions, and with wonderings. On that occasion, I shared an image on Twitter of the school playground that illustrates the nature-culture

divide I was in the movement of unlearning in our charcoal and paper interactions (Figure 2.3).

Figure 4.3: Tree in the playground, nature culture divide. Photo by the author.

> Children interact with the tree as part of their playground. It takes part in their play, their art installations. We have the tendency to normalize the children and we also do the same about our relations to the tree: we make a physical division between the tree top and the playground. The messiness of the tree as it renews its leaves is not allowed in our relations with it. How can we see the leaves in a different way? What changes could happen in the relationship with this tree when we allow for the presence of the leaves? Can we see them beyond garbage? #natureculturedivide #commonworlds #ECE #Brazil. (Bacelar de Castro, 2019)

The conscious and unconscious spectral attempt to see the concepts I was trying to understand was and still is an important part of the process of my unlearnings. As I open up to these events, I might be in a new state of becoming another me or another us. I

am *becoming with* (Haraway, 2008; Snook, 2016) the charcoal, the children, and the educators. I use the term *becoming with* to express uneasiness within the divide of nature and culture (Snook, 2016).

2.6 (Un)Conclusion: Thinking with common worlds

My unlearnings do not have an exact point of origin, a specific timeline, or an order of events. As I have highlighted before, unlearning was a layered experience, with no beginning or end. To unlearn humanist thinking, to question child-centered practices, and to think with more-than-humans were all part of moving myself toward a pedagogy attuned to onto-epistemologies. My unlearnings were part of the process of thinking with common worlds frameworks. My intention is to present unlearning as a way of thinking and doing, a way of being and becoming.

The common worlds framework is seen as a creative and productive way to respond to anthropogenic challenges since it extends educational practices to the more-than-human worlds, allowing us to see our complex entanglements and to build a collective instead of a childcentric pedagogy. This work is driven by the fluid connections between humans and more-than-humans, as well as by the ethics in the construction of this collective (Nelson et al., 2018; Taylor, 2013, 2017). "Common worlds" is not only a description of what is shared or held in common; it refers to the concept of collective thinking, implying inclusivity and belonging (Taylor & Giugni, 2012). What Taylor (2013) proposes in the construction of a common worlds framework is a methodological shift, one that is not deconstructive in nature, but instead produces a creative, reconstructive methodology that reconfigures the natures of childhood.

The path of unlearning toward thinking with common worlds is like Taylor's methodological shift toward a creative reconfiguration of thoughts, practices, and knowledges. Such a reconfiguration goes beyond the act of learning. It is a move that allows for interruptions, disruptions, surprises, and discomfort and, at the same time, gives space for thinking otherwise and for extending ideas. For me, in thinking with Halberstam (2012), unlearning also functioned as a call to undiscipline myself and to search for other narratives besides the ones I had previously learned—narratives more attuned to our common worlds.

While narrating my unlearnings in this article, I was in a way talking about a diffractive movement interconnecting my thoughts, charcoal, paper, children, educators, and theories. As I conclude the paper, I am only beginning my path of raising questions about alternative ways of doing ECE. These questions include: How might educators and children change their relationships with humans and more-than-humans in learning spaces? What happens when educators and children move from learning about to learning with? How do we build and live curriculum in this shifting point of view? These and other questions lead me onto a path that takes humans and more-than-humans into account, that troubles the notion of human stewardship of nature and thinks beyond childcentric developmental views. As I continue on this path, my reflections on these questions diffract, opening many more paths.

2.7 References

Arias de Sanchez, G., Doiron, R., & Gabriel, M. (2012). An examination of international early childhood curriculum documents from 17 countries. *Canadian Children, 37*(2), 29–47.

Bacelar de Castro, A. (2019). Children interact with the tree as part of their playground. It takes part in their play, their art installations. [Twitter]. Retrieved from https://twitter.com/Adrianne_castro/status/1124690747712786432

Barad, K. (2014). Diffracting diffraction: Cutting together-apart. *Parallax, 20*(3), 168–187. doi:10.1080/13534645.2014.927623

Biesta, G. (2013). *The beautiful risk of education*. Boulder, CO: Paradigm.

Bozalek, V., & Zembylas, M. (2017). Diffraction or reflection? Sketching the contours of two methodologies in educational research. *International Journal of Qualitative Studies in Education, 30*(2), 111–127. doi:10.1080/09518398.2016.1201166

Burman, E. (2017). *Deconstructing developmental psychology* (3rd ed.). New York, NY: Routledge.

Caputo, J. D. (2016). Teaching the event: Deconstruction, hauntology, and the scene of pedagogy. In A. Seery & É. Dunne (Eds.), *The pedagogics of unlearning* (pp. 111–130). Earth, Milky Way: punctum books.

Dahlberg, G., Moss, P., & Pence, A. (2013). *Beyond quality in early childhood education and care: Languages of evaluation* (3rd ed.). New York, NY: Routledge.

Dunne, É. (2016). Learning to unlearn. In A. Seery & É. Dunne (Eds.), *The pedagogics of unlearning* (pp. 13–24). Earth, Milky Way: punctum books.

Edwards, S., Blaise, M., & Hammer, M. (2009). Beyond developmentalism? Early childhood teachers' understandings of multiage grouping in early childhood education and care. *Australasian Journal of Early Childhood, 34*(4), 55–63. doi:10.1177/183693910903400408

File, N. (2012). The relationship between child development and early childhood curriculum. In J. J. Mueller & N. File (Eds.), *Curriculum in early childhood education: Re-examined, rediscovered, renewed* (pp. 29–41). New York, NY: Routledge.

Halberstam, J. (2012). Unlearning. *Profession*, 9–16.

Halberstam, J. (2014). Talk & Q&A at Pedagogics of Unlearning. September 6th 2014, Trinity College Dublin. Retrieved from https://soundcloud.com/garethstack/jack-halberstam-talk-qa-at-pedagogics-of-unlearning-2014

Haraway, D. (2008). *When species meet*. Minneapolis: University of Minnesota Press.

Hodgins, D. B. (2015). Wanderings with waste: Pedagogical wonderings about intergenerational ecological justice-to-come. *Canadian Children, 40*(2), 88–100.

Kind, S., & Pacini-Ketchabaw, V. (2016). Charcoal intensities and risky experimentations. In V. Pacini-Ketchabaw, H. Skott-Myhre, & K. Skott-Myhre (Eds.), *Youth work, early education and psychology* (pp. 93–111). New York, NY: Palgrave Macmillan.

Lenz Taguchi, H. (2012). A diffractive and Deleuzian approach to analysing interview data. *Feminist Theory, 13*(3), 265–281. doi:10.1177/1464700112456001

Moss, P. (2014). Two early childhood education stories. In *Transformative change and real utopias in early childhood education: A story of democracy and potentiality*. New York, NY: Routledge.

Nelson, N., Pacini-Ketchabaw, V., & Nxumalo, F. (2018). Rethinking nature-based approaches in early childhood education: Common worlding practices. *Journal of Childhood Studies, 43*(1), 4–14.

Pacini-Ketchabaw, V. (2018, October 5). A walk in the forest with the educators [blog post]. Retrieved from http://witnessingruinsofprogress.climateactionchildhood.net/index.php/2018/10/05/a-walk-in-the-forest-with-educators/

Pacini-Ketchabaw, V., Kind, S., & Kocher, L. (2016). *Encounters with materials in early childhood education*. New York, NY: Routledge.

Pacini-Ketchabaw, V., & Pence, A. (2011). The postmodern curriculum: Making space for historically and politically situated understandings. *Australasian Journal of Early Childhood, 36*(1), 4–8. doi:10.1177/183693911103600102

Rancière, J. (1991). *The ignorant schoolmaster* (Vol. 1). Redwood City, CA: Stanford University Press.

Rautio, P. (2013). Children who carry stones in their pockets: on autotelic material practices in everyday life. *Children's Geographies, 11*(4), 394–408. doi:10.1080/14733285.2013.812278

Rautio, P., & Jokinen, P. (2016). Children's relations to the more-than-human world beyond developmental views. In B. Evans, J. Horton, & T. Skelton (Eds.), *Play*

and recreation, health and wellbeing, geographies of children and young people (pp. 35–49). Singapore: Springer.

Ryan, P. (2008). How new is the "new" social study of childhood? The myth of a paradigm shift. *Journal of Interdisciplinary History, 38*(4), 553–576. doi:10.1162/jinh.2008.38.4.553

Snook, A. (2016). *Intraspeciation within the ontological biosphere* (Masters degree). Retrieved from http://openresearch.ocadu.ca/id/eprint/545/

Taylor, A. (2013). *Reconfiguring the natures of childhood*. New York, NY: Routledge.

Taylor, A. (2017). Beyond stewardship: Common world pedagogies for the Anthropocene. *Environmental Education Research, 23*(10), 1448–1461. doi:10.1080/13504622.2017.1325452

Taylor, A., & Giugni, M. (2012). Common worlds: Reconceptualising inclusion in early childhood communities. *Contemporary issues in Early childhood, 13*(2). doi:10.23042Fciec.2012.13.2.108

Taylor, A., & Pacini-Ketchabaw, V. (2019). *The common worlds of children and animals*. New York, NY: Routledge.

Chapter 3. Pedagogies of Indeterminacy

In a room absent of toys and furniture, charcoal moves. The children come into this area and observe the charcoal. They point, grab, and bring the charcoal to me. I accept the offer of the charcoal from the children and place the smaller pieces on the paper. The charcoal breaks and falls recursively. With each interaction the pieces diminish. The eyes change focus to our hands and we notice the dark dust, traces of our manipulation. Rubbing hands, the children watch to see what happens. Marks were made by charcoal, by us, together in relations. As a group, we have just accepted the invitation to slow down and focus with charcoal.

We open this paper with notes from the first day of a pedagogical inquiry inspired by the scholarship within the Common Worlds Research Collective (http://commonworlds.net/). From September 2018 to April 2019, we participated as researchers in a Climate Action Childhood Network (CAN)[2] research site in an early childhood centre in southern Ontario in a project titled *Witnessing Ruins of Progress*.[3] As pedagogists working in an international collaboratory, our collaborative ethnographic research focuses on alternative pedagogies to dominant discourses of child-centeredness and developmentalism in early childhood. Our research works to open up possibilities in early childhood education.

---

[2] This paper is part of an ongoing federally funded study with Climate Action Childhood Network (http://www.climateactionchildhood.net/), an international collaborative partnership created by the Common Worlds Research Collective (http://witnessingruinsofprogress.climateactionchildhood net/). The CAN research is focused on young children, education, and challenges related to climate change.

[3] See http://witnessingruinsofprogress.climateactionchildhood.net/ .

In this specific inquiry, we involved young children in intensive engagements, first with charcoal followed by cardboard. First, researchers and educators together changed the environment, moving furniture and removing materials in the childcare rooms to offer a space for children, educators, researchers, charcoal, and cardboard to be deeply together. To be deeply together with a material, in this context, is to be in a purposefully arranged space where children, educators, and researchers alike use common worlds methods to consider alternative ways to interact and to be together. Common worlds methods embed researchers in the research process and focus on slowing down to attune with the sensorial and affective aspects and the histories of entangled relations (Hodgins, 2019).

The changed classroom space invited a slowed pace and experimentation with the material. That was our first move in engaging with unpredictable possibilities, interruptions, and new thinkings the charcoal encounters provoked. It is within those possibilities that in this paper we explore pedagogies of indeterminacy. Indeterminacy, or not knowing in advance, allows for an infinite number of solutions toward multiple ends. Desiring to open up dominant early childhood narratives that sanitize education toward productivity goals, we ask: *What might pedagogies of indeterminacy do*? We consider a pedagogy of indeterminacy as an alternative to dominant discourses rather than a replacement.

We think with indeterminacy in our research because it brings the possibilities that lie in not knowing or establishing a priori everything that is there for a child to learn or to know. In indeterminacy, relations are always moving and cannot be determined. We embrace these tensions through pedagogies of indeterminacy. When we embrace

indeterminacy in research, the focus of the experimentation becomes an "unknown potentiality and change" (Lenz Taguchi, 2010, p. 16). Indeterminacy happens within the tension of being in the middle, in the tensioned balance of not moving toward edges, toward binary thinking. In our immersive encounters with cardboard and charcoal, we think with Karen Barad (2007) and her concepts of indeterminacy. She posits that

> if the indeterminate nature of existence by its very nature teeters on the cusp of stability and instability, of determinacy and indeterminacy, of possibility and impossibility, then the dynamic relationality between continuity and discontinuity is crucial to the open-ended becoming of the world which resists acausality as much as determinism. (p. 182)

We connect Barad's thinking on indeterminacy to the open-ended possibilities of the dynamic relationalities of entanglements within common worlds (Taylor, 2018). This paper goes beyond stating examples of material engagements with cardboard and charcoal by purposefully engaging, from the outset, with the challenges and possibilities of indeterminacy.

In challenging dominant constructs of productivity in early childhood education, the concept of indeterminacy, for this work with charcoal and cardboard, encompasses thinking with boredom and with contemplation. We discuss how indeterminacy can be present in early childhood education as moments of boredom and contemplation. For us, these moments are openings to indeterminacy. Boredom and contemplation are enactments away from predetermined structures toward other possibilities of engaging with the worlds, as an alternative to productivity modes of practice. We find boredom, contemplation, and indeterminacy to be integral parts of material relations because relations require attention, pauses, and engaging with what you do not know or do not know yet.

We begin this paper by confronting the neoliberalism-informed productivity concepts that dominate practices in early childhood education. From here we note three ways in which early childhood education conforms to productivity logics in relation to skills, spaces, and temporalities. We continue by troubling these ways with possibilities that arise from indeterminacy, boredom, and contemplation. The next section focuses on a common-worlds–informed pedagogy of indeterminacy. Using field notes from our inquiry with cardboard and charcoal, we outline how pedagogies of indeterminacy become generative and meaningful. Our field notes are a blend of observations and reflections provoked by these observations. We worked with the educators sharing observations, photos, and reflections following each day of the experimentations. That movement of going back created responses and questions that would lead to various ways of continuing the experimentations. We focused on practicing the art of slowing down by proposing in these shared observations with educators that we pay attention to children's responses, actively engage with their curiosity about charcoal or cardboard, and stay with the difficulty of being with the materials. The paper concludes by highlighting the vitality of a pedagogy of indeterminacy in early childhood education.

3.1 Neoliberalism's impact on early childhood education

Neoliberalism, the term that dominates global economics and influences governments and institutions toward hyper-focused efficiency and individualization models (Higgins & Larner, 2017), profoundly influences education through dominant models of productivity. The combined focus on productivity, efficiency, and the individual contributes to the centering habits of early childhood education, including child-centered, teacher-centered, skills-centered, curriculum-centered, and school-preparedness–centered

habits. Through these habits, education, which is grounded in a human-centered science model of superiority, sanitizes education toward a single goal of productivity by excluding possibilities beyond productivity. Decentering the human dismantles hierarchical framings that place all other matter below humans. In a common worlds framework, decentering the human in early childhood practice aims to disrupt a cultural predisposition toward human supremacy and the "western, individualistic, normativising" (Ritchie, 2016, p. 78) tendency of the neoliberal era (Plumwood, 1993; Smith, Tuck, & Yang, 2018; Taylor, 2017).

An impact of neoliberalist byproducts of productivity and hyperindividuality in early childhood education is a focus on preparing increasingly younger children for efficient learning of preset curricula for success in the competitive market of education—success required for future employability and earning power (Dahlberg & Moss, 2004). The productivity focus of neoliberal discourse creates a space where having no set goal or model to follow is perceived as fruitless, unprofessional, and wholly negative. Defaulting to a neoliberal model where education is a means to an end for individual and corporate prosperity creates an inflexible model in which there is no place for indeterminacy, boredom, or contemplation.

3.2 Disrupting productivity discourses in early childhood education

The free-market influence of neoliberalism informs both the curriculum and the business of early childhood education in much of Canada (Halfon & Langford, 2015). Ontario's early childhood curriculum *How Does Learning Happen?* (Ontario Ministry of Education, 2014) is infused with productivity language that positions early childhood education as a means of producing outputs toward an "optimal" (p. 8), "stronger future"

(p. 4). While *How Does Learning Happen?* is a more open document than its predecessors, its productivity language implies a frenetic pace for educators who need to aim at "getting to be better and better as teachers all the time" (p. 13), an implication that influences practice.

In this paper, we note three ways in which neoliberalism-informed productivity discourses influence early childhood education in Ontario. The first productivity influence is a focus on skills specific to school readiness and success. These skills are efficiently laid out within a set continuum of development. While explicitly described as not a "lock-step, universal pattern" (Ontario Ministry of Education, 2014, p. 1) the implicit orientation, in chart form, is nevertheless used as a tool to measure the efficient movement of children through the psychology-laden developmental continuum (Johnston, 2019). The second influence is the constant need for novelty. Within understandings of the spaces of early childhood practice (like classrooms and playgrounds), productivity informs a conceptual tone in which the new is seen as necessary because of its role in generating dopamine and neural pathways. In productivity-informed ECE, this can become a speeding force for educators who must try to constantly infuse spaces with the new (Rushton, Juola-Rushton, & Larkin, 2010). The third influence is the unyielding structure of time-based schedules. The practice of early childhood education carries the language of time as part of both longer trajectories aimed at school success and short-term skill acquisition driven by an infinite preparedness for "next year, next grade" mentality. Similar to the limited understanding of time as linear, time in early childhood is also commodified. In a productivity model of the neoliberal context, the time to care for young children "cannot be traded, and thus [is] not

recognized" (Farquhar, 2016). Time, dictated by the ever-present class clock, infuses and stresses dialogues, engagements, behaviours, and experiences and divides them into set segments, acting as the ultimate resource.

3.3 The possibilities arising from indeterminacy, boredom, and contemplation

With indeterminacy, we actively challenge productivity discourses. We acknowledge that each decision within a pedagogical encounter carries multiple possibilities that may not follow linear paths to connect ideas, relations, and materials but rather create a complex network. Indeterminacy encompasses the instabilities of the unexpected; the instability of not knowing is a tensioned place. Sitting with tension can be perceived as boredom—an undesirable effect of those instabilities in a productivity model. Boredom worked as a feared and undesirable possibility in our charcoal and cardboard encounters, and that possibility created tensions. The tensioned nature of boredom in early childhood education works as an alternative to the need for constant novelty. Instead, boredom gives place for sustained moments of inquiry that can open to creating relationships. Because developing relationships takes time, building them is an inherently inefficient process within a productivity mandate.

During sustained encounters with materiality, ideas, and places, there are moments of pause, of doing nothing, and of contemplation. Contemplation is generally attributed to humans and positioned as an individual endeavour. We see contemplation as more than the prolonged gaze of the individual consuming an image. For us, in this research, contemplation was a collective experience found in relations with others, both human and material. To contemplate is to create attunement (Stewart, 2011), a point of

entry for thinking with unusual subjects of contemplation, such as pieces of cardboard. Contemplating produced a pause that allowed us to attend to charcoal and cardboard and to respond "to something not quite already given and yet somehow happening" (Stewart, 2007, p. 127)—that is, it allowed us to respond to the indeterminate nature of the encounters. Contemplation was foundational to how we collaborated on field notes and brought the contemplative nudges from our thinking, not just the clinical nature of observation, to our field notes. The possibilities that arose from pauses that agitated in contemplation were troubling and forced us to face behaviours, policies, and centering habits that pressure educators to look for evidence to send home or hang on the wall. Undercurrents in ECE that create educator behaviours toward active doing, making, or producing by children as evidence for parents, administrators, and inspectors have the effect of sidelining contemplation.

Such moments of pause and indeterminacy open space for wondering "what will happen?"—a question deemed inefficient in a logic of school readiness. Early childhood spaces orchestrated with a rat race of "what's next, what's new?" of experience interrupts the possibilities that come from boredom and contemplation. In pedagogies of indeterminacy, we pause to disrupt the dictatorship of the classroom clock to make space for other kinds of time that privilege slowing down to build relationships.

3.4 Thinking indeterminacy with common worlds

We propose pedagogies of indeterminacy within the context of common worlds pedagogies. A common worlds framework embraces childhood "as made and lived through entangled sets of noninnocent human and more-than-human relations indebted to the maxim of situated knowledges" (Taylor, 2018, p. 207). Common worlds methods

attend to the presence of more-than-human worlds (materials, places, and other species) with pedagogies that attune to the challenges of the new geologic epoch of human-induced precarity: the Anthropocene (Stengers, 2015). Climate change models remain embedded within stewardship models (Taylor, 2017) that position nature as something only humans can save and protect. While children's engagement with climate change is growing across the spectrum of early childhood education, common worlds pedagogies support alternate directions, beyond human-centered stewardship, that are grounded in understanding of and emerging relations with a more-than-human world. Common worlds pedagogies ask us to continuously question childcentric and solely developmental doings in early childhood education. In continuously questioning, we consider how child-centered developmental practices reinforce individualist and humancentric positions in this geologic era (Taylor, 2013, 2017; Taylor & Pacini-Ketchabaw, 2015).

Thinking with common worlds moves away from the individual child to a collective lens of thinking with children. Through a collective disposition that involves educators and children learning with the worlds they are already entangled with, we stop following individual children and pursue openings to relations with more-than-human others. In our collective space with cardboard and charcoal, we considered relations with many. While some of the many included children, curricula, discourses, and materials, the approach lies with uncentered entanglements. Common worlding interrupts language that references "the world around us," as *How Does Learning Happen?* (Ontario Ministry of Education, 2014, p. 5) does with references to shared common worlds where humans are interconnected with multiple more-than-human worlds. This perspective moves us toward alternative ways to experience shared spaces with others, living and non-living,

human and more-than-human. The move from thinking about the world to thinking with the world is integral to this shift toward collective thinking. The idea of connectedness moves us to think and become with our enmeshed relations because we are not thinking with isolated parts or individual actions. It is an attempt to become worldly (Taylor, 2013) as we focus on shared worlds and connections with materials, energies, and species beyond self and beyond human.

In moving toward collective thinking while experimenting with charcoal and cardboard, ways of relating with materials and children are transformed. Rather than separate identities of human or material, the focus becomes the interactions with and between. We led the inquiry with questions such as: *What kinds of pedagogical responses might charcoal and cardboard enact? How might these responses disrupt child-centered, content-centered, and material-centered practices in early childhood?* In other words, the inquiry focused on the relations these materials evoked and on the space of intra-actions (Barad, 2007). By intra-activity, we mean that more than interaction takes place in the encounters: participants affect and are affected by others (Barad, 2007; Davies, 2014; Lenz Taguchi, 2010).

Engaging with pedagogies of indeterminacy, we recognize the messy nature of relations and we build on those ideas of entanglement and connectedness. As Barad (2007) writes, "indeterminacy reconfigures the possibilities and impossibilities of worlds becoming" (p. 225). As we create an opening for these encounters within common worlds, we foreground ways to build relationships with the unknown (Rooney, 2019, p. 187).

3.5 Pedagogies of indeterminacy

In our inquiry, alternative modes of response were found with charcoal and cardboard motions that opened possibilities for indeterminacy and interrupted productivity and consumption-driven behaviours. In facing the possibilities and impossibilities (tensions), we intentionally searched within our worldly encounters for "alternative modes of response to the challenges ahead; ways that are slower, less linear and open to the unexpected" (Rooney, 2019, p. 187).

The following are excerpts from our field notes. The first incident described took place during relations with charcoal, where we immersed ourselves in a space with charcoal and large pieces of paper on the floor and walls of the room. The second excerpt is from our cardboard encounters, where various cardboard pieces filled the room. With both materials, children, educators, and ideas were in relation working to disrupt the need for a singular focus (on a child, material, or learning moment). The intensive charcoal and cardboard experiments intentionally included an openness to the unexpected. The excerpts are positioned as invitations to readers to consider the possibilities inherent in contemplation and boredom. In other words, we enact pedagogies of indeterminacy.

We wonder about time. . . . We live fast-paced lives instilled early on to talk fast, move on, check in, but something keeps happening during these intra-actions that moves us into a different time zone where a minute can become an hour. During the charcoal encounters, we lose track of time. We can't remember what else was happening or who else was there. We feel caught trying to remember when it happened—before or after the walk? All we can remember is an intensity—a distinct squeaking sound. It is less

disturbing than scratching a chalkboard, but it makes the inner ear twitch and cringe at thoughts of the dentist's chair.

The sound is soothing and flows out with pressure and movement together. You can hear it, really hear it. It is intimate. You have to lean in close to feel the sound. Leaning in to listen, you can taste the metallic dust on your lips. Foreheads together, we listen with the children. It is a tiny metal note twanging along the paper from the charcoal to the ear. But it isn't just through the ears that it moves. It communicates in another way, coursing vibrationally inside. It feels like these invisible vibrations make organs quiver. It feels cold and primal, and unbalances the intellect. Are we hearing it or feeling it? It is a new experience and a telegraph line to very old feelings.

Over the course of a month, charcoal entanglements became entanglements with cardboard. As charcoal and paper encounters accumulated, the centre was faced with growing amounts of paper. This situation prompted dialogue on blue recycling bins and the false sense of relief recycling provides. It fostered dialogue on how pervasive certain materials can be without being present or acknowledged. This material, for us, was cardboard.

Figure 3.1: Contemplation.

A big box covers the light table today. The educator is curious about the possibilities of light and cardboard. She turns on the light table and tries it for herself. The result is not quite what she had in mind as there are no shadows because the light comes from the bottom. Later in the morning, a child, Clara (pseudonym), thinks differently, noticing the big window recently made in the large box. She takes a peek and sees the light table inside and keeps observing for a while, opening and closing the "window" and looking inside repeatedly. She decides to continue her inquiry, adding cardboard tubes. She puts the tubes through the window, and they fall between the cardboard box and the light table. Clara tries to get them back with my help. She throws the tubes inside again and again, until they fall over the light table.

She stops, smiles, and observes. Clara goes back to the first movements: opening and closing the window and watching the pieces that are over the light table. We look at it to see what she seems so contemplative about, and when staring at the object, we see how beautiful the light makes the pieces of cardboard look. We cannot be sure what Clara thought about the image, but we agreed with her that it was definitely worth contemplating.

Moments of intimately hearing together and wondering about beauty are moments of indeterminacy. Thinking *with* materials like cardboard and charcoal in sustained moments can invoke tension for educators because it disrupts neoliberalism-informed productivity in early childhood education. In a pedagogy of indeterminacy, staying with the chosen materials in moments of boredom and contemplation allows for generating wonder about the beauty of light and material together. It becomes an alternative to the constant need for novelty.

The immersive environment with charcoal, children, educators, and researchers during our encounters was provocative and generative. The purposeful disruption of the childcare environment generated encounters full of thoughts, connections, and dialogues. When a space for experimentation is opened, Pacini-Ketchabaw, Kind, and Kocher (2016) suggest that

> we engage with children, materials, narratives, and situations as they act on and act with each other. . . . It is not just human relationality. It is about the capacity for things and beings to respond to each other in space, in and out of time, in movement, in an environment that allows for multiple convergences and intersections. (p. 41)

In charcoal spaces of relational experimentations, our focus was not on the charcoal as an art material, its potential uses, or children's capacities with it. Our charcoal times were moments of intra-activity (Barad, 2007)—the in-between of charcoal, children, adults, materials, and more. In this intra-active approach, Hillevi Lenz-Taguchi (2010) writes, "when we think in terms of the material being just as agentic as humans, we are not locked into either-or thinking, nor into a thinking of both-and" (p. 29). Lenz Taguchi reminds us that such thinking allows us to go beyond binary divisions of theory/practice, nature/culture, or discursive/material toward a plethora of in-between thinkings. Our choice of charcoal was intentional, with the material bringing its origins, relations, and understandings into the room.

The charcoal came from a living tree—it was burned, processed, and transported before being purchased and used. When it joined us in the childcare centre, it continued a complex relation with humans and materials. The charcoal relates directly to the forest where the children frequently walk with their educators. It was never simply charcoal but rather a complex, entangled history and process fraught with politics, behaviours,

energies, needs, movements, and more. The charcoal as a material in the inquiry was not a simple, determinate material. Charcoal brought indeterminacy when we considered the complex relations of its becoming.

Figure 3.5: Cardboard bark?

We visited the forest with cardboard and children. In the forest we stopped at a favourite fallen trunk and spent time observing the surface of the trunk, noting holes, lines, and texture and pausing to take our mitts off to carefully feel this surface.

A piece of bark, separated from the decaying branch, came into focus. We considered both, cardboard and bark, turning them over in our hands and smelling them. We rubbed them both on our cheeks. We placed them on the ground and observed them together.

Like charcoal, cardboard carries stories. Cardboard boxes, tubes, and packaging are ubiquitous in urban Ontario lives. Cardboard in its many forms carries stories of movement, contents, transportation, and consumption. Much of the cardboard brought into the classroom was already part of educator-children-parent stories, such as the new widescreen television carried home through snow for Christmas. That one cardboard story was present and participated in the entanglement.

Just like this cardboard story participated in the entanglement, so too did cardboard participate with forest. The ridged texture of cardboard met bark on the forest floor, furthering stories with cardboard. In being with charcoal and cardboard, we thought with Affrica Taylor (2013), who describes the "dynamic collectives of humans and more-than-humans, full of unexpected partnerships and comings together, *which bring differences to bear on the ways our lives are constituted and lived*" (p. 49, italics in original).

The indeterminacy of the charcoal encounter makes it complex, relational, and situated. In recognizing temporalities, intra-actions, and material relations, humans become less central. Charcoal's past states and its journey from tree through fire to commodity and human use are part of a complex relationality, well imbricated with humans, spaces, and uses. The awareness of that inseparability interrupts tendencies toward individuality in favour of collective partnerships with cardboard and charcoal. Charcoal experiences were approached as a collective undertaking not centered around an individual child or humans but focused instead on the togetherness of adults, children, and materials. In clearing the room of other materials, this complex and collective relationality was underlined. The importance of materials, as participants, is foregrounded with the simplicity of being in relations with a single material. These material relations, like connections of texture between the cardboard and bark, or stories about the widescreen box, become members (Latour, 1993) of the classroom. Charcoal too is a member of the classroom and participates in multiple relations. Charcoal, as participant, is impossible to marginalize when the space is emptied of other materials.

Foregrounding charcoal in an immersive experience is not enough to diminish child-centering behavior. Proactively following charcoal, as participant, and its relations, combined with the immersive environment in our inquiry, dissipating child-centering habits. The tendency with decentering is to replace an outgoing activity centre with a new centre. We wrestled with the tension of filling the vacuum of the centre. With charcoal, and then with cardboard, we interrupted child-centered behaviour with a collective interconnectedness without a centre. We were able to think collectively with materials, discourses, and others when we interrupted tendencies to replace one centre with another. We troubled the tendency to think in child-centered, material-centered, productivity-centered ways. Our thinking became about the overlapping of multiple participants, connections, and boundaries. By interrupting a singular focus on children or explicit learning with charcoal and cardboard, it was possible to attune to connections among the many in the tangled collective.

3.6 Tensions of boredom

The provocations of being with a single material created tensions for and with educators and parents circling around issues of boredom. In removing much of the material stimulants in the space, questions arose, such as "What will the children do and play with?" Boredom was a great concern even before we started. In stripping the childcare room down to four walls, furniture, paper, and charcoal, comments arose, such as "They will get bored" and "Parents are going to ask us what they're learning with just charcoal." We actively wondered aloud with charcoal, cardboard, and each other. From children came raised eyebrows, deep, close, silent leans toward materials, and blank stares. In developing a new relation there was an air of indeterminacy and the unknowns of

building relations. Instead of attempting to erase the blank stare we purposefully revisited, leaned in further, and contemplated fascinations with, not about, cardboard and charcoal. We pushed to the background productive, neoliberal mindsets that position boredom as unproductive, negative, and unwelcome and sat with the tension of blank stares. Within the tension of the blank stares, we fell away from temporal constraints to taste, feel, and move intimately in a tangle beyond the human. It was in sitting on the floor with charcoal and little else that boredom became a "distinct squeaking sound" (field notes). The vibrational closeness and the curiosity stimulus caused us to consider "something beyond the boundaries of human existence" (Carson & Kelsh, 1998, p. 54) in relations with charcoal. Faced with boredom and the fear of boredom, we did not look away but instead confronted the systems, discourses, and professional training that narrate stories of boredom as unproductive. We stopped and recognized these stories for what they are—a political power deployment of a bully we can stand up to and interrogate. What kind of story are we interrupting when we sit with boredom? What knowledge are we foregrounding with tensioned boredom? Sitting with the tension of boredom is a political act of resistance against a neoliberal dominant discourse (Dahlberg, Moss, & Pence, 2013).

The possibility of boredom in learning spaces challenges the pervasive neoliberal discourse in education, reshaping the idea of a classroom. As Cristina Vintimilla (2014) writes:

> In early childhood settings, educators often arrange materials in different areas of the classroom for children to explore. I have noticed how children will stay in these areas, or with the materials, until they are bored or they have decided the activity is not fun anymore. Then they are ready to jump

> to the next area or table. I suspect the presumption behind such classroom organization is that children can't be engaged for long periods of time. (p. 81)

In this quote, Vintimilla highlights the role of the educator, in neoliberal discourse, to conduct boredom-free learning experiences and environments. As we encountered charcoal and cardboard, we embraced boredom as a participant in our entanglement. As a participant, boredom brought risk, tension, and possibilities—and generated contemplation.

3.7 Tensions with contemplation

The moment of listening to the charcoal sounds alongside infants provoked thinking about what it means to allow for moments without clear meaning. There was no way to predict movements within the encounters, and the resulting unpredictability allowed for new connections and other ways of thinking—charcoal and cardboard relations of sensorial intimacy with material members of the classroom. Indeterminacy created a space where interactions did not have a particular goal, beginning, or end and helped to dissuade centering and productivity discourses. The same indeterminacy that allowed for the listening in the charcoal moment was paralleled with cardboard tubes as they sat with the light. The child could do "nothing" with the tubes but observe turning nothing into something when contemplation was acknowledged as a participant. Recognizing and sharing this moment with another without connecting to any outcome engaged contemplation in the entanglement.

Cardboard, a pervasive object in our lives so present it often goes unnoticed, became a subject of contemplation. Living fast-paced lives in a consumptive society

striving for instant gratification can lead one to invisibilize entanglements. The invisibility comes from being so surrounded by a material that we cannot see it. Cardboard is further invisibilized by the human categorization of a material as a product for human benefit alone. The constant need for gratification in ECE contexts does not allow for simple moments that address contemplation. Quiet observation is considered as passive or nonparticipative (Buitoni, 2006). Attuning closely and deeply with charcoal led to contemplation about sound, vibrations, and metallic tastes. Both charcoal and cardboard moved individual educators and researchers alike to contemplate collective implications with pedagogy and practice in early childhood education. In dialogue, contemplation stimulated new thoughts unrelated to a focus on children, play, development, and productivity. In dialogue, the presence of neoliberal discourse was spoken aloud and actively repositioned as one of many participants instead of dominant discourse.

The world that asks us to efficiently produce devalues contemplation. The gaps of time between productive moments are filled with fun, entertainment, and wonderings. In some charcoal/cardboard moments, contemplation moved our thinking. Contemplation, in these examples, challenged productivity and a relentless drive for novelty, an undercurrent of consumptive societies (Jackson, 2009; Moss, 2014). In asking questions about material choices, treatments, and relations, we step away from needs for productivity and consider entanglements with more-than-human worlds with a multitude of participants.

In thinking with boredom and indeterminacy, common worlds methods that "advocate for the pedagogical potential of the mundane and ordinary" (Taylor, 2013, p.

49) support grappling with the ordinariness of materials like cardboard and charcoal to understand worldliness. Common worlds methods go beyond trying to understand the contexts in which a material intra-acts, trying instead to actively include otherness and the participants that follow—such as boredom, tension, temporalities, risk, possibility, energies, sensations, ancestries, discourses, stories, light, indeterminacy, contemplation, and the odd human.

3.8 Conclusion

Skills, novelty, and time are three ways productivity can dominate early childhood. In our charcoal and cardboard inquiries, we disrupted these to reveal the generative nature of indeterminacy. In creating a space to attend to relations with charcoal, we focused on collective understandings of relations between spaces, senses, materials, and humans. These relations went beyond the individual self or identifiable, measurable skills to become states to consider and contemplate. Novelty and the unspoken need for the new that underscore early childhood education presented in parental concerns about boredom. With cardboard, negative connotations of boredom became not productive but a generative alternative of considering beauty and possibility. Cardboard became an opening to "We wonder . . . " statements of a more panoramic viewpoint to see bark, textures, and indefinable, wonder-full maybes. Time, a societal and education productivity dictator, was conceptualized differently with both charcoal and cardboard in moves away from linear models. In early childhood, time infuses and stresses dialogues, engagements, behaviours, and experiences into set segments, acting as the ultimate resource. With charcoal, time carried diminished power as educators were focused on a material engagement, collapsing ideas of "What next?" thinking. Education behaviours

around materials as part of activities were lessened because of the depth of relations with the single material. Without thinking about "What activities will we do this morning?" educators immersed themselves in charcoal fluidly, without activity or the parameters of "morning." This fluid time opened to bark-forest time to think with material and place and contemplate the complexity of holes, rot, and others. Similarly, with charcoal we lost track of time and collapsed time as a minute became an hour and vibrations provoked primal telegraph lines of pasts.

What we propose with pedagogies of indeterminacy is an alternative narrative that challenges productivity logics. The nonlinearity and nontotalizable aspects within indeterminacy disrupt the logic based in what Peter Moss (2019) refers to as "prescription, predictability and regulation, with carefully calculated inputs and closely specified outputs [that] leave no space for the unexpected, surprising, for wonder and amazement" (p. 22). In thinking with common worlds, we actively consider indeterminacy without a productive end goal. Pacini-Ketchabaw et al. (2016) suggest that in a relational encounter we do not know the world because connections happen tangentially and take many directions. With this onto-epistemological understanding of our encounters and the learnings with charcoal and cardboard, we see thoughts and questions, often without answers.

In considering climate change and the dominant productivity discourse in early childhood education, we need to consider the generative nature of boredom and contemplation in practice with common worlds thinking. We need to disrupt thinking that positions charcoal and cardboard as disposable materials for human need and think with them and our common world entanglements with a precarious planet. Thinking with

common worlds is a political act in early childhood education that actively pushes back against neoliberal productivity models centered around human needs in favour of an alternative: collective thinking with more-than-human worlds.

The implications of these questions in anthropogenic times act as reminders of the benefits of thinking with lived experience rather than seeking concrete answers and lead to new questions: What role does pedagogy in early childhood contribute to new ways of thinking with the messy environments of our existence and practice? How do we stay with the generative nature of trouble in rethinking practice? How do we build alternative pedagogies into practice?

3.9 References

Barad, K. (2007). *Meeting the universe halfway*. Durham NC: Duke University Press.

Buitoni, D. S. (2006). *De volta ao quintal mágico: A educação infantil na Te-Arte*. São Paulo, Brazil: Editora Ágora.

Carson, R., & Kelsh, N. (1998). *The sense of wonder*. New York, NY: HarperCollins.

Dahlberg, G., & Moss, P. (2004). *Ethics and politics in early childhood education*. London, UK: Routledge.

Dahlberg, G., Moss, P., & Pence, A. (2013). *Beyond quality in early childhood education and care: Languages of evaluation* (3rd ed.). New York, NY: Routledge.

Davies, B. (2014). *Listening to children: Being and becoming*. New York, NY: Routledge.

Farquhar, S. (2016). Time in early childhood: Creative possibilities with different conceptions of time. *Contemporary Issues in Early Childhood, 17*(4), 409–420. doi:10.1177/1463949116677925

Halfon, S. H. A. N. I., & Langford, R. (2015). Developing and supporting a high quality child care workforce in Canada. *Our Schools, Ourselves. Summer*, 131-144.

Higgins, V., & Larner, W. (Eds.). (2017). *Assembling neoliberalism: Expertise, practices, subjects*. New York, NY: Springer.

Hodgins, B. D. (Ed.). (2019). *Feminist research for 21st-century childhoods*. New York, NY: Bloomsbury.

Jackson, T. (2009). *Prosperity without growth?* Retrieved from http://www.sd-commission.org.uk/data/files/publications/prosperity_without_growth_report.pdf

Johnston, L. (2019). The (not) good educator: Reconceptualizing the image of the educator. *eceLink, 3*(2), 40–54. Retrieved from https://d3n8a8pro7vhmx.cloudfront.net/aeceo/mailings/1631/attachments/original/eceLINK_Fall2019_Finalweb.pdf?1570820616

Latour, B. (1993). *We have never been modern* (C. Porter, Trans.). New York, NY: Harvester Wheatsheaf.

Lenz Taguchi, H. (2010). *Going beyond the theory/practice divide in early childhood education: Introducing an intra-active pedagogy*. New York, NY: Routledge.

Moss, P. (2014). *Transformative change and real utopias in early childhood education*. New York, NY: Routledge.

Moss, P. (2019). *Alternative narratives in early childhood: An introduction for students and practitioners*. New York, NY: Routledge.

Ontario Ministry of Education. (2014). *How does learning happen? Ontario's pedagogy for the early years.* Toronto, ON: Queen's Printer for Ontario.

Pacini-Ketchabaw, V., Kind, S., & Kocher, L. (2016). *Encounters with materials in early childhood education*. New York, NY: Routledge.

Plumwood, V. (1993). The politics of reason: Towards a feminist logic. *Australasian Journal of Philosophy, 71*(4), 436–462. doi:10.1080/00048409312345432

Ritchie, J. (2016). Qualities for early childhood care and education in an age of increasing superdiversity and decreasing biodiversity. *Contemporary Issues in Early Childhood, 17*(1), 78–91.

Rooney, T. (2019). Weathering time: Walking with young children in a changing climate. *Children's Geographies, 17*(2), 177–189.

Rushton, S., Juola-Rushton, A., & Larkin, E. (2010). Neuroscience, play and early childhood education: Connections, implications, and assessment. *Early Childhood Education Journal, 37*(5), 351–361. doi:10.1007/s10643-009-0359-3

Smith, L. T., Tuck, E., & Yang, K. W. (Eds.). (2018). *Indigenous and decolonizing studies in education: Mapping the long view*. Boca Raton, FL: Routledge Taylor & Francis.

Stengers, I. (2015). *In catastrophic times: Resisting the coming barbarism*: Open Humanities Press.

Stewart, K. (2007). *Ordinary affects*. Durham, NC: Duke University Press.

Stewart, K. (2011). Atmospheric Attunements. *Environment and Planning D: Society and Space, 29*(3), 445-453. doi:10.1068/d9109

Taylor, A. (2013). *Reconfiguring the natures of childhood*. New York, NY: Routledge.

Taylor, A. (2017). Beyond stewardship: Common world pedagogies for the Anthropocene. *Environmental Education Research, 23*(10), 1448–1461. doi:10.1080/13504622.2017.1325452

Taylor, A. (2018). Situated and entangled childhoods: Imagining and materializing children's common world relations. In M. Bloch, B. Swadener, & G. S. Cannella (Eds.), *Reconceptualizing early childhood education and care—A reader: Critical questions, new imaginaries, and social activism* (pp. 205–214). New York, NY: Peter Lang.

Taylor, A., & Pacini-Ketchabaw, V. (2015). Learning with children, ants, and worms in the Anthropocene: Towards a common world pedagogy of multispecies vulnerability. *Pedagogy, Culture, & Society, 23*(4), 507–529. doi:10.1080/14681366.2015.1039050

Vintimilla, C. (2014). Neoliberal fun and happiness in early childhood education. *Canadian Children, 39*(1), 79–87.

Chapter 4. Conclusion

In this concluding chapter I situate my research in the field of early childhood education and within common worlds inquiries as I look back into my initial questions: How might educators and children change their relationship with humans and more-than-humans in learning spaces? What happens when educators and children move from learning about to learning with? How do we build and live curriculum as this point of view shifts? As I situate my research, I highlight some of the works that resonate with my inquiries and some notable contributions to the field of early childhood education. I end by mentioning future research possibilities as I wonder about the relations between early childhood curriculum and common worlding.

4.1 Toward common worlds pedagogies

This research is a humble response inspired by on-the-ground research being carried out by members of the Common Worlds Research Collective toward more livable worlds (e.g., Berry, 2019; Blaise, Hamm, & Iorio, 2017; Blaise, Rooney, & Pollitt, 2019; Hamm & Boucher, 2017; Hodgins, 2014, 2015; Land et al., 2018; Nelson, 2018; Nelson, Hodgins, & Danis, 2019; Nelson, Pacini-Ketchabaw, & Nxumalo, 2018; Nxumalo, 2015, 2017, 2018a, 2018b; Nxumalo & Pacini-Ketchabaw, 2017; Pacini-Ketchabaw & Nxumalo, 2015; Rautio, 2013; Rautio & Jokinen, 2016; Rooney, 2018, 2019; Taylor & Pacini-Ketchabaw, 2019). As a response to the present human-modified geological epoch, this research is political and carries intentions. It is an approach to early childhood education that is collectivist and inclusive of more-than-humans. I would like to acknowledge, however, that even when I proposed embracing indeterminacy (see Chapter

3), I did not mean embracing anything or everything, but rather proposed a particular and situated relationship that considers the difficulties and complexity of our entanglements with our common worlds. The purpose of my research is not to find an educational solution to the challenges of the Anthropocene or to produce a generalizable model, but rather to illustrate the ongoing formation of questions that might produce alternative ways of doing early childhood education that challenge the Western humancentric approach.

4.2 Questions, learnings, and new questions

I was curious about how educators and children might change their relationships with humans and more-than-humans in learning spaces, particularly what happens when they move from learning about to learning with. The initial questions gave origin to a new question that precedes them in Chapter 2: What have I *unlearned* as a researcher working alongside a group of infants and educators in a common worlding pedagogical inquiry with charcoal in an early childhood education classroom? When one faces the world in relational ways, considering that we learn with our experiences, and when one situates children within the real world (Taylor, 2018, p. 206), we can create new ways to interact. To consider relationality is not an easy task; it takes what I referred to in the thesis as unlearning. In using this term, I do not mean dismissing all we have learned before. Rather, unlearning is about opening to think with difference and questioning what learning might look like when we move from the individualizing concept to a relational and collective disposition. With my guiding questions as the initial curious spark to think with the common worlds framework, I learned that it is possible to give up knowing a priori in order to embrace realities that are messy and impossible to determine.

In this research, I have learned that embracing discomfort, interruptions, and the unexpected might be a way to fuel a methodological shift, opening space for surprise, for new questions, and for thinking otherwise. As I engaged with pedagogies of indeterminacy, my wonderings created space for new questions: What role does pedagogy in early childhood contribute to new ways of thinking with the messy environments of our existence and practice? How do we stay with the generative nature of trouble in rethinking practice? How do we build alternative pedagogies into practice? These questions have been inspired by works that look into the relations of children and the world, work that aims to displace binaries and solely developmental discourses in early education. My work aims to contribute to this body of work. Below I discuss these inspirations and my own contributions to common worlding.

4.3 Contributions to early childhood studies

This research contributes to a growing body work in early childhood studies focused on children's everyday relations with more-than-humans in complex webs of relationality. Here, I note some examples that resonate with my research. In her book *Going Beyond the Theory/Practice Divide in Early Childhood Education*, Hillevi Lenz Taguchi (2010) shows how materials impact learning; Lenz Taguchi, who draws on Karen Barad's ethico-onto-epistemology, understands materiality as agentic and challenges binary divides in education through the use of pedagogical documentation. Pauliina Rautio (Rautio, 2013; Rautio & Jokinen, 2016) reflects on children's everyday encounters and relations in her wonderings about stones children carry in their pockets and children playing in the snow. Reading children's everyday encounters with materials that might be considered trivial by adults as children, she brings attention to children's relations and

doings to things that matter to them and that don't necessarily need intrinsic meaning. Rautio reads these encounters outside educational settings, challenging developmental discourses and considering material entanglements and relations. Her work offers a glimpse into what relational learning might look like.

Veronica Pacini-Ketchabaw and her colleagues Sylvia Kind and Laurie Kocher (2016) focus on the possibilities that material encounters carry. Thinking in alternate ways to "capitalist narratives" (p. i), they write about various material inquiries with children, focusing their attuned perception to the in-betweens of those encounters. Rather than centering their narratives on children's doings, they pay attention to the many knots and moments of decision those intra-actions create at the intersection of art, pedagogy, and materiality. As their work highlights, these researchers embrace unpredictability when attending to materials with the arts of noticing and paying attention. Wondering about what it means to "think with things," they offer with their work something that cannot be reproduced or generalized but instead engages ideas of relationality and shows how encounters can be faced as risky, demanding, and unique. In other words, they show what it means to embrace a situated practice of early childhood education.

Fikile Nxumalo (Nxumalo, 2017; Nxumalo & Pacini-Ketchabaw, 2017, drawing on Haraway, 2008, 2016) highlights the relevance of "staying with the trouble" within pedagogical practice in a move of not answering questions but rather paying attention to what kind of dispositions our relations with the worlds might create.

My research is inspired by these works that show the force and impact material relations can have in education and that consider the inseparability of knowing and being in a more collective and inclusive disposition toward the world. My shift toward thinking

with common worlds pedagogies was made possible by focusing on relations and choosing to stay with the difficulties of those relations. With my research, I join a conversation of empirical work carried out by scholars working within a common worlds framework, particularly those thinking about materiality (Berry, 2019; Hodgins, 2015; Pacini-Ketchabaw, Kind, & Kocher, 2016; Rautio, 2013; Rautio & Jokinen, 2016); those who question a solely developmental approach as the centre of early learning practice (Blaise, Hamm, & Iorio, 2017; Blaise & Rooney, 2019; Corry, MacAlpine, & Pacini-Ketchabaw, 2019) and who enter the discussion about common worlds pedagogies by examining practice (Argent, Vintimilla, Lee, & Wapenaar, 2017). My contributions lie in thinking with common worlds politically as an active push against productivity-driven practices. I offer a glimpse of how we can open spaces for reinventing early childhood education practices by finding pedagogical potential in mundane and ordinary moments, such as contemplating pieces of cardboard. I also contribute by exploring what it takes to make a shift toward common worlds pedagogies, including the challenges of making this shift in an early education setting. Addressing my own unlearning moves within a common worlding inquiry, I have shown where my resistance arose in the process of changing from a humancentric perspective to a more inclusive one.

In questioning taken-for-granted practices, common worlds scholars highlight the importance of moving away from romanticizing children's relations with nature (Nxumalo & Pacini-Ketchabaw, 2017; Taylor, 2013, 2017). In this thesis I presented a particular experience where I struggled not to fall back into romantic notions of pristine nature as a solution within early childhood education. In many moments during the research, while engaging with the pedagogical documentation, I resisted focusing on the

beauty and all the learning that might happen when children go for a walk in a forest, or how they get creative with an art material (such as charcoal). I resisted thinking that it all happens naturally just by being in that space. In choosing to attend to the many knots in charcoal or cardboard relations beyond the making of beautiful abstract art, I made a choice to show what it looks like to make a curriculum decision to engage in a sustained material inquiry in an infant classroom and to face the many difficulties within such a decision.

4.4 Curriculum making in common worlds pedagogies: Possibilities for future research

I believe there is still much to be discussed addressing the process of curriculum making when one embraces the indeterminacy of common worlding in postqualitative research. How do we make curriculum as we embrace a nonlinear path on which our thoughts can run, given that it is almost impossible to predict our ultimate destination? In continuing this research, I would consider using pedagogical documentation as a tool to emphasize the curriculum-making movement. Thinking with pedagogical documentation as a tool makes it possible to look back on children's encounters with materials, discuss them collectively, and bring the discussion back to the children. The pedagogical documentation as the memory of the inquiries. Although pedagogical documentation was present in my research, especially in the charcoal inquiry, this tool could be used more explicitly to think with children's relations and responses in the process of making the curriculum and also making it visible to the childcare community.

4.5 Conclusion

This thesis has described an inquiry with charcoal and cardboard that was part of a common worlding ethnographical project in a childcare centre in London, Ontario. In this research I questioned what it might look like to change the child-centered/humancentric position so prevalent in early childhood education to a more inclusive perspective that includes more-than-humans. As we made this shift I wondered, too, what it might look like to learn with, rather than about, our world. Through my imperfect, experimental path toward a pedagogy of indeterminacy that attunes to onto-epistemologies, I offer a glimpse into how early childhood education might trouble its entrenched humancentric approach.

During the charcoal experimentations, we (educators and researchers) made decisions without knowing the outcomes. We did not know what would happen when, for example, in response to the movements infants made with charcoal, we decided to change the position of the large sheets of paper around the classroom. We placed paper into drawers, inside cabinets, behind doors the infants loved opening, with and without pieces of charcoal. What would happen in response to these actions, and how this would change the group relations with the charcoal, was not something we could predict. We risked doing it, thinking about that space and paying attention to what it might entail. Embracing pedagogies of indeterminacy contributes to practice by highlighting the importance of entering the space of the inquiry with intention but not with answers as a researcher and educator. That was part of the process of thinking the curriculum with charcoal and later cardboard in this infant room. How the children changed the directions of their charcoal traces when the paper was positioned on a curved wall, or how much the children did not

want to leave blank paper without a piece of charcoal, as if they were thinking that paper and charcoal should be together. All these moments have meaning when they are connected, but if they are seen as just another activity proposed for the infants, they may not raise new questions or be seen as being worth being extended. What composed an alternate disposition toward the materials and curriculum making in this inquiry was the sustained attention we proposed—a sustained and intentional focus on the relational ideas and questions that were not simply discarded or ended in order to move on to the next activity.

Moving toward a focus on relationality and thinking beyond solely developmental discourses around early childhood education practices, I showed in this research that pedagogical intentionality plays a role in common worlding. How does intentionality continue to be significant with the shift toward common worlding? Intentionality, as both articles show, is about the environment we create and our dispositions toward the encounters that happen. It requires being open and attuned to children's curiosities and movements, and also to the materials' responses and the possibilities they carry. It means making decisions about what and how we choose to focus on, maintaining a focus on particular questions and not others. I agree with Donna Haraway (2016): "It matters what stories we tell to tell other stories with; it matters what knots knot knots and what thoughts think thoughts" (p. 12). In common worlding, it matters what we attend to; it matters what ideas we think with; it matters that we focus on and choose moments that render relations visible or that might create new relations with the world. It matters to think with things, animals, and places in order to find creative refuge from the anthropogenic challenges faced by children in this epoch.

4.6 References

Argent, A. L., Vintimilla, C. D., Lee, C., & Wapenaar, K. (2017). A dialogue about place and living pedagogies: Trees, ferns, blood, children, educators and wood cutters. *Journal of Childhoods and Pedagogies, 1*(2). Retrieved from https://journals.sfu.ca/jcp/index.php/jcp/article/view/23

Berry, A. (2019). Sympoetics of place and the red dust of India. *Journal of Childhood Studies, 44*(2), 13–27. doi:10.18357/jcs442201919057

Blaise, M., Hamm, C., & Iorio, J. M. (2017). Modest witness(ing) and lively stories: paying attention to matters of concern in early childhood. *Pedagogy, Culture, & Society, 25*(1), 31–42. doi:10.1080/14681366.2016.1208265

Blaise, M., & Rooney, T. (2019). Listening to and telling a rush of unruly natureculture gender stories. In F. Nxumalo & C. P. Brown (Eds.)., *Disrupting and countering deficits in early childhood education* (pp. 134–146). London, UK: Routledge Taylor & Francis.

Corry, J., MacAlpine, K.-A., & Pacini-Ketchabaw, V. (2019). Educators experimenting with common worlds pedagogies. In L. Gibbs & M. Gasper (Eds.), *Challenging the intersection of policy with pedagogy* (pp. 35–48). New York, NY: Routledge.

Hamm, C., & Boucher, K. (2017). Engaging with Place: Foregrounding Aboriginal Perspectives in Early Childhood Education. In *Found in Translation* (pp. 58-75): Routledge.

Haraway, D. (2008). *When species meet*. Minneapolis: University of Minnesota Press.

Haraway, D. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Durham, NC: Duke University Press.

Hodgins, D. B. (2014). Playing with dolls: (Re)storying gendered caring pedagogies. *International Journal of child, youth and family studies, 5*(4.2), 782-807. doi:10.18357/ijcyfs.hodginsbd.5422014

Hodgins, D. B. (2015). Wanderings with waste: Pedagogical wonderings about intergenerational ecological justice-to-come. *Canadian Children, 40*(2), 88–100.

Land, N., Hamm, C., Yazbeck, S.-L., Brown, M., Danis, I., & Nelson, N. (2018). Doing pedagogical intentions with facetiming common worlds (and Donna Haraway). *Global Studies of Childhood*.

Lenz Taguchi, H. (2010). *Going beyond the theory/practice divide in early childhood education: Introducing an intra-active pedagogy*. New York, NY: Routledge.

Nelson, N. (2018). Rats, death, and anthropocene relations in urban Canadian childhoods. *Research Handbook on Childhoodnature: Assemblages of Childhood and Nature Research*, 1-23.

Nelson, N., Hodgins, D. B., & Danis, I. (2019). New obligations and shared vulnerabilities: Reimagining sustainability for live-able worlds. *Nordic Studies in Science Education, 15*(4), 418-432.

Nelson, N., Pacini-Ketchabaw, V., & Nxumalo, F. (2018). Rethinking nature-based approaches in early childhood education: Common worlding practices. *Journal of childhood studies, 43*(1), 4-14.

Nxumalo, F. (2015). Forest stories: Restorying encounters with 'natural' places in early childhood education. In V. Pacini-Ketchabaw & A. Taylor (Eds.), *Unsettling the*

colonial places and spaces of early childhood education (pp. 21-42). New York, NY: Routledge.

Nxumalo, F. (2017). Geotheorizing mountain-child relations within anthropogenic inheritances. *Children's Geographies, 15*(5), 558–569. doi:10.1080/14733285.2017.1291909

Nxumalo, F., & Pacini-Ketchabaw, V. (2017). "Staying with the trouble" in child-insect-educator common worlds. *Environmental Education Research, 23*(10), 1414–1426. doi:10.1080/13504622.2017.1325447

Pacini-Ketchabaw, V., & Nxumalo, F. (2015). Unruly racoons and troubled educators: Nature/culture divids in a childcare center. *Enviromental Humanities, 7*, 151-168.

Pacini-Ketchabaw, V., Kind, S., & Kocher, L. (2016). *Encounters with materials in early childhood education*. New York, NY: Routledge.

Rautio, P. (2013). Children who carry stones in their pockets: On autotelic material practices in everyday life. *Children's Geographies, 11*(4), 394–408. doi:10.1080/14733285.2013.812278

Rautio, P., & Jokinen, P. (2016). Children's relations to the more-than-human world beyond developmental views. In B. Evans, J. Horton, & T. Skelton (Eds.), *Play and recreation, health and wellbeing, geographies of children and young people* (pp. 35–49). Singapore: Springer.

Rooney, T. (2018). Weather worlding: Learning with the elements in early childhood. *Environmental Education Research, 24*(1), 1-12.

Rooney, T. (2019). Weathering time: walking with young children in a changing climate. *Children's Geographies, 17*(2), 177-189.

Taylor, A. (2013). *Reconfiguring the natures of childhood*. New York, NY: Routledge.

Taylor, A. (2017). Beyond stewardship: Common world pedagogies for the Anthropocene. *Environmental Education Research, 23*(10), 1448–1461. doi:10.1080/13504622.2017.1325452

Taylor, A. (2018). Situated and entangled childhoods: Imagining and materializing children's common world relations. In M. Bloch, B. Swadener, & G. S. Cannella (Eds.), *Reconceptualizing early childhood education and care—A reader: Critical questions, new imaginaries, and social activism* (pp. 205–214). New York, NY: Peter Lang.

Taylor, A., & Pacini-Ketchabaw, V. (2019). *The common worlds of children and animals*. New York, NY: Routledge.

Appendices

Appendix A. Western University Non-Medical Research Ethics Board

Delegated Approval

Western
Research

Research Ethics

Western University Non-Medical Research Ethics Board
NMREB Delegated Initial Approval Notice

Principal Investigator: Dr. Veronica Pacini-Ketchabaw
Department & Institution: Education\Faculty of Education, Western University

NMREB File Number: 109337
Study Title: Climate Action Network: Exploring climate change pedagogies with children

NMREB Initial Approval Date: September 06, 2017
NMREB Expiry Date: September 06, 2018

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol		2017/06/27
Recruitment Items	Appendix A - Information Session	2017/05/07
Recruitment Items	Appendix B - Email reminder to be sent to Educators	2017/05/08
Recruitment Items	Appendix C: Families - Invite to Info Session	2017/06/27
Recruitment Items	Appendix D - Verbal reminder to families provided by Educators	2017/05/08
Assent	Appendix E - Children Assent	2017/05/08
Other	Appendix F - Confidentiality Agreement	2017/05/08
Letter of Information & Consent	Educators	2017/09/05
Caregiver Letter of Information & Consent	Families	2017/09/05
Instruments	Protocol to use with educators in monthly evening meetings.	2017/05/08
Instruments	Steps to conduct pedagogical documentation, including ethical considerations.	2017/05/08
Instruments	Steps of pedagogical documentation. Source: Understanding the British Columbia Early Learning Framework: From Theory to Practice (Government of British Columbia, 2015).	2017/05/08

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above-named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

[redacted]

Ethics Officer, on behalf of Dr. Randal Graham, NMREB Chair or delegated board member

EO: Erika Basile __ Grace Kelly__ Katelyn Harris__ Nicola Morphet __ Karen Gopaul __ Patricia Sargeant __ Kelly Patterson __

Western University, Research,
Support Services Bldg., Rm. 5150
London, ON, Canada N6G IG9
t. 519.661.3036 f. 519.850.2466 www.uwo.ca/research/ethics

Appendix B. Western University Non-Medical Research Ethics Board

Continuing Ethics Review Approval

Date: 9 September 2019

To: Dr. Veronica Pacini-Ketchabaw

Project ID: 109337

Study Title: Climate Action Network: Exploring climate change pedagogies with children

Application Type: Continuing Ethics Review (CER) Form

Review Type: Delegated

Meeting Date: 04/Oct/2019

Date Approval Issued: 09/Sep/2019

REB Approval Expiry Date: 06/Sep/2020

Lapse in Approval: September 7, 2019 to September 9, 2019

Dear Dr. Veronica Pacini-Ketchabaw,

The Western University Non-Medical Research Ethics Board has reviewed this application. This study, including all currently approved documents, has been re-approved until the expiry date noted above. REB members involved in the research project do not participate in the review, discussion or decision. The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Daniel Wyzynski, Research Ethics Coordinator, on behalf of Prof. Randal Graham, NMREB Chair

Appendix C. Western University Non-Medical Research Ethics Board

Renewal Ethics Review Approval

Date: 9 August 2018

To: Dr. Veronica Pacini-Ketchabaw

Project ID: 109337

Study Title: Climate Action Network: Exploring climate change pedagogies with children

Application Type: Continuing Ethics Review (CER) Form

Review Type: Delegated

Meeting Date: 07/Sept/2018

Date Approval Issued: 09/Aug/2018

REB Approval Expiry Date: 06/Sep/2019

Dear Dr. Veronica Pacini-Ketchabaw,
The Western University Research Ethics Board has reviewed the application. This study, including all currently approved documents, has been re- approved until the expiry date noted above. REB members involved in the research project do not participate in the review, discussion or decision. The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,
Daniel Wyzynski, Research Ethics Coordinator, on behalf of Prof. Randal Graham, NMREB Chair

Appendix D. Letter of Information and Consent: Families

Western

Letter of Information and Consent

Climate Action Network: Exploring climate change pedagogies with children
Letter of Information and Consent – Families

Principal Investigator
Dr. Veronica Pacini-Ketchabaw, Faculty of Education
Western University, (e) [redacted] (p) [redacted]

1. Invitation to Participate

Your child is being invited to participate in this research study about developing climate change pedagogies with children because he/she is enrolled in [NAME OF CHILD CARE CENTRE] and one or more of the educators at your child's classroom have agreed to participate in this study. The child care centre is a partner in the project. The Association of Early Childhood Educators Ontario (AECEO) and Early Childhood Educators of British Columbia (ECEBC) are also partners in the Climate Action Network.

2. Why is this study being done?

The purpose of this project is to advance our understanding of children's relations with their environment in order to synthesize knowledge at local, national, and global levels regarding children's creative responses to the impacts of climate change. We are interested in how children engage creatively to address climate change related impacts on animals, trees, food, energy, and weather within their own local contexts. Your child is invited to participate in an inquiry on responses to climate change. In addition, we are interested in the roles early childhood practitioners play in working with children to creatively and locally respond to climate-related issues. We hope that such knowledge will help us create effective and engaging new curricula, pedagogies, and policies.

3. How long will you be in this study?

It is expected that your child will be in the study for one school year, between 6 to 9 months. The collection of data will begin after September 4, 2018 and will be ongoing during this academic year.

Your child will participate in the project during regular child care hours. Researchers will visit your child's classroom once or twice a week (approximately 3 hours per visit) during this period to work alongside classroom educators.

Please note that the educator might or might not choose to extend the activities with children (without the researchers being present) more than twice a week, during the regular programming.

4. What are the study procedures?

This is a participatory and collaborative project. If you agree to voluntarily let your child participate, her/his participation will be through his/her engagement in classroom activities and the pedagogical documentation that reflects this participation.

As outlined in the provincial pedagogical documentation is part of the regular pedagogical practices in your child's classroom. Children and educators participate in pedagogical inquiries and documentation as part of the regular activities and events of the child care program. This project is distinct from the regular pedagogical activities of the centre in that selected data will be collected from the regular documentation for analysis and dissemination beyond the centre.

The process of pedagogical documentation involves recording of the inquiry (both by educators and by project team), and individual and collective discussions with educators and children based on the recordings. The purpose of these discussions will be to:

> (a) make visible the learning that takes place in everyday practices in the program; (b) deepen and extend the activities observed; and (c) follow children's interests and curiosities.

Daily practices that relate to issues of climate change will be recorded using video, photographs, and field notes. Videos and photographs of your child will be taken only with your permission. In addition, if we have your permission, we will ask children to provide verbal assent to indicate their voluntary participation in the photos and videos.

It is anticipated that researchers will share with others the results of this project in the following ways:

- Through an art exhibit
- In publications and presentations, for example in books, chapters, articles in refereed and professional journals, academic and professional conferences, white papers.
- In masters or doctoral theses.
- In project website and professional social media (see below for more information)

Photographs and video recordings that include children's faces might be used in publications and presentations, if permission is given. However, NO images of children's faces (i.e., images where children are recognizable) will be used online. (Please see the section on Anonymity & Confidentiality below for more information.)

Some of the information collected and the ongoing analyses will also be shared through the project's website (e.g., in a blog) and professional social media accounts (e.g., Twitter). Circulating research knowledge through online platforms will increase the scope of the provincial, national and international audience that our research is shared with. Utilizing a professional research website and Twitter allows researchers to readily connect and share inquiry analyses in an accessible form with early childhood educators, students, scholars, and research institutions and units worldwide. This is vital for the sharing of learning to help build knowledge in the field of environmental early childhood education pedagogy and to improve climate change practices for children.

An example of research websites where ongoing pedagogical documentation is shared through a blog is the Common World Childhoods Research Collective at http://commonworlds.net. Examples of social media use (i.e., Twitter) with research inquiries can also be found on this site.

Your child's educator will act as co-researchers in the process of the research. The educator will have access to the pedagogical documentation collected in the program to use according to your Centre's guidelines. The educator might or might not choose to:

- incorporate ideas generated through the project into his/her daily practices for further observation and interpretation
- display some of the information collected and the ongoing analyses in your classroom.
- communicate the ongoing analyses through regular updates via your classroom's newsletter so you are aware of the activities in which your child is participating as well as the learning that takes place in everyday practices at the centre
- disseminate the findings in articles in professional magazines, and at conference presentations.
- contribute entries to the project website blog and professional social media accounts.

5. What are the risks and harms of participating in this study?

There are no known or anticipated risks or discomforts associated with participating in this study. However, participation in this study may cause some inconvenience to your child.

An inconvenience for children might be the interruption or intrusion of being recorded while engaged in daily activities. Since both photography and video are currently used in the centres by the educators, the intrusion will be the presence of the researcher collecting documentation. If this occurs, recording will be stopped. It is expected that the children will eventually become familiar with the presence of the researchers and this will stop been intrusive.

6. What are the benefits of participating in this study?

The potential benefits to your child include the learning that will take place during their participation in the project.

The possible benefits to educators may be to have further insights into how to engage pedagogically with issues related to climate change.

This research project may generate potential benefits to society, such as the possibility of increased understanding about how to address issues of climate change through early childhood education practices. It may also help researchers understand how young children can learn about climate issues.

7. Can participants choose to leave the study?

If you decide to withdraw your child from the study, you have the right to request withdrawal of information collected about your child. If you wish to have your information removed please let the researcher know. Choosing to withdraw from the study will not impact your relationship with the child care centre or any other institutions connected with the research study.

However, please note that it will be very difficult for us to remove what your child had said during group conversations. This is due primarily to the fact that after removing one person's dialogue in a discussion, the entire conversation might not make sense in total. We will minimize your child's data to respect your decision to withdraw him/her while ensuring that we can still gain a good understanding of other participants' experiences and insights.

When photos/videos are involved, we will crop the images and delete clips that involve your child.

8. How will participants' information be kept confidential?

Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

Your child's participation in this study will not be kept confidential from their educator. The educators participating in the study will know which children are participating in the study in order to know who can and cannot be included in pedagogical documentation shared with the researchers.

While we do our best to protect your child's information there is no guarantee that we will be able to do so. The inclusion of your child's images through photographs and videos may allow someone to link the data and identify him/her.
Any photographs and/or video recordings to be shared on the project website and through professional social media accounts (e.g., Twitter) might have partial images of children (e.g., hands visible, feet visible) but will NOT have images of children that are recognizable (i.e., no faces will be visible).

We acknowledge the importance of your child's privacy, but are not able to assure absolute confidentiality. As with any person working with children, we are bounded by the professional and legal obligations of duty to report.

The researcher will keep any personal information about your child in a secure and confidential location for a minimum of 5 years. A list linking your child's study number with his/her name will be kept by the researcher in a secure place, separate from his/her study file. As well as making sure any identifying information is stored securely please note the following:

- If the results of the study are published, your child's name will not be used.
- Researchers might use your child's personal quotes in the dissemination of the project.
- Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, the nature of group research with children prevents the researchers from guaranteeing confidentiality. The researchers would like to families to respect the privacy of other children participants in the classroom and not repeat what is said in the group meetings to others.
- In addition, your child will be able to be identified by the child care setting community (i.e., educators in your centre, other families) and potentially by other child care settings in the community (given the size the community).

9. Are participants compensated to be in this study?

You and your child will not be compensated for participation in this research.

10. What are the rights of participants?

Your child's participation in this study is voluntary. You may decide not to let your child take part in this study. Even if you consent for your child to participate he/she has the right to not answer individual questions or to withdraw from the study at any time. If your child chooses not to participate or you choose to withdraw your child from the study at any time it will have no effect on your child's care and education.

It is possible that you may feel influenced to participate because your child's educator is a participant or because [NAME OF CENTRE] is a partner in this project. It is important to stress that your child's participation in this research must be completely voluntary. If you feel influenced to be involved because of this perceived power-over relationship, you should decline participation.

We will provide you with an update if the nature of the research changes during the duration of your child's participation in the study, this will ensure that you always have current information in making decisions of whether you would like your child to remain a participant in the study.

You do not waive any legal right by signing this consent form.

11. Whom do participants contact for questions?
You are encouraged to ask any clarifying questions with regard to your child's participation in this research and I will answer your questions to the best of my knowledge and your satisfaction.

If you have questions about this research study please contact Dr. Veronica Pacini-Ketchabaw, [redacted]

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics [redacted]

This letter is yours to keep for future reference.

Consent

Project Title: Climate Action Network: Exploring climate change pedagogies with children

Principal Investigator
Dr. Veronica Pacini-Ketchabaw, Faculty of Education
Western University, (e) [redacted]

I have read the Letter of Information, have had the nature of the study explained to me and I agree for my child to participate. All questions have been answered to my satisfaction.

I agree for my child to be photographed in this research
YES NO

I agree for my child to be audio-recorded in this research
YES NO

I agree for my child to be video-recorded in this research
YES NO

I consent to the use of images of my child (including his/her face) obtained during the study in publications and presentations
YES NO

I consent to the use of partial images of my child (e.g., hands visible, feet visible) obtained during the study in the project website and researchers' professional social media accounts
YES NO

I consent to the use of my child's personal, identifiable quotes obtained during the study in the dissemination of this research
YES NO

I consent to the use of my child's unidentified quotes obtained during the study in the dissemination of this research
YES NO

My signature (Dr. Veronica Pacini-Ketchabaw) means that I have explained the study to the participant named above. I have answered all questions.

_____	_____	_____
Print Name of Person Obtaining Consent	Signature	*Date (DD-MMM-YYYY)*

Child's Name: _____

Parent / Legal Guardian / Substitute Decision Maker (Print): _____
Parent / Legal Guardian / Substitute Decision Maker (Sign): _____
Parent / Legal Guardian / Substitute Decision Maker (Date): _____

Appendix E. Letter of Information and Consent: Educators

Western

Letter of Information and Consent

Climate Action Network: Exploring climate change pedagogies with children

Principal Investigator
Dr. Veronica Pacini-Ketchabaw, Faculty of Education
Western University, (e) [redacted]

1. Invitation to Participate

You are being invited to participate in this research study about developing climate change pedagogies with children because you are an educator at [NAME OF CHILD CARE CENTRE]. The child care centre is a partner in the project. The Association of Early Childhood Educators Ontario (AECEO) and Early Childhood Educators of British Columbia (ECEBC) are also partners in the Climate Action Network.

2. Why is this study being done?

The purpose of this project is to advance our understanding of children's relations with their environment in order to synthesize knowledge at local, national, and global levels regarding children's creative responses to the impacts of climate change. We are interested in how children engage creatively to address climate change related impacts on animals, trees, food, energy, and weather within their own local contexts. You are invited to investigate children's responses to climate change. In addition, we are interested in what roles early childhood practitioners play in working with children to creatively and locally respond to climate-related issues. We hope that such knowledge will help us create effective and engaging new curricula, pedagogies, and policies.

3. How long will you be in this study?

It is expected that you will be in the study for one school year, between 6 to 9 months. The collection of data will begin after September 4, 2018 and will be ongoing during this academic year. The anticipated total time commitment for this study is approximately 234 hours.

You will participate in the project during your regular working hours. Researchers will visit your classroom once or twice a week (approximately 3 hours per visit) during this period to work alongside you. You may or may not choose to extend the activities with children (without the researchers being present) more than twice a week, during your regular programming.

In addition, there will be a 2-hour evening group discussion meeting once a month during the school year to revisit and interpret the documentation collected in which other participating educators from the centre and researchers will be present. You may or may not choose to dedicate additional time to your own analysis of the pedagogical narrations. If so, you will determine the minimum/maximum amount of time beyond work hours devoted to this project.

4. What are the study procedures?

If you agree to voluntarily participate you will be asked to engage in pedagogical documentation, as described in *How does Learning Happen*, in your classroom.

Your specific responsibilities will be to facilitate and document, alongside researchers, a pedagogical inquiry related to responses to climate change. Part of facilitation includes photographing, video/audio recording, and taking field notes of pedagogical moments, discussions and investigations to contribute to a collaborative pedagogical inquiry.

As you are aware, the process of pedagogical documentation involves recording of moments of practice (both by yourself and by the researchers), and individual and collective discussions with you (both during activity time and in scheduled meetings) based on the recordings. The purpose of these discussions will be to:

> (a) make visible the learning that takes place in everyday practices in the program; (b) deepen and extend the activities observed; and (c) follow children's interests and curiosities.

You may or may not choose to incorporate ideas generated by these analyses into your daily practices for further observation and interpretation.

Practices will be recorded using video, photographs, and field notes. Videos and photographs will be taken of you only with your permission.

You will also be responsible for attending evening discussion meetings related to the pedagogical inquiry. Researchers will also take notes during/after evening discussion meetings. Some of the scheduled meetings will be video or audio recorded for later revisiting. During these meetings, videos of you will be taken only with your permission.

You will have access to the pedagogical documentation collected from your own program to use according to your Centre's guidelines.

It is anticipated that researchers will share with others the results of this project in the following ways:

- Through an art exhibit
- In publications and presentations, for example in books, chapters, articles in refereed and professional journals, academic and professional conferences, white papers.

- In masters or doctoral theses.
- In project website and professional social media (see below for more information)

Photographs and video recordings that include educators' faces might be used when sharing results of this project, if permission is given.

Some of the information collected and the ongoing analyses will also be shared through the study website (e.g., in a blog) and professional social media accounts (e.g., Twitter). Circulating research knowledge through online platforms will increase the scope of the provincial, national and international audience that our research is shared with. Utilizing a professional research website and Twitter allows researchers to readily connect and share inquiry analyses in an accessible form with early childhood educators, students, scholars, and research institutions and units worldwide. This is vital for the sharing of learning to help build knowledge in the field of environmental early childhood education pedagogy and to improve climate change practices for children.

An example of research websites where ongoing pedagogical documentation is shared through a blog is the Common World Childhoods Research Collective at http://commonworlds.net. Examples of social media use (i.e., Twitter) with research inquiries can also be found on this site.

As a co-researcher, you might or might not choose to:

- display some of the information collected and the ongoing analyses in your classroom.
- communicate the ongoing analyses through regular updates via your classroom's newsletter so parents are aware of the activities in which their child is participating as well as the learning that takes place in everyday practices at the centre.
- disseminate the findings in articles in professional magazines, and at conference presentations.
- contribute entries to the project website blog and professional social media accounts.

5. What are the risks and harms of participating in this study?

There are no known or anticipated risks or discomforts associated with participating in this study. However, participation in this study may cause some inconvenience to you. Engaging in discussions related to your pedagogical narrations during staff meetings might detract you from other activities.

An inconvenience for children and for you might be the interruption or intrusion of being recorded while engaged in daily activities. If this occurs, recording will be stopped. Another potential inconvenience to you, if you choose to be part of the

project outside working hours, is that that time will be taken from other non-work-related activities of your life.

6. What are the benefits of participating in this study?
The potential benefits for children include the learning that will take place during their participation in the project.

The possible benefits to you may be to have further insights into how to engage pedagogically with issues related to climate change.

This research project may generate potential benefits to society, such as the possibility of increased understanding about how to address issues of climate change through early childhood education practices. It may also help researchers understand how young children can learn about climate issues.

You will be provided with a certificate that acknowledges your participation in monthly, evening meetings.

7. Can participants choose to leave the study?
If you decide to withdraw from the study, you have the right to request withdrawal of information collected about you. If you wish to have your information removed please let the researcher know. Choosing to withdraw from the study will not impact your relationship with the child care centre or any other institutions connected with the research study.

However, please note, that it will be very difficult for us to remove what you have said during the group sessions. This is due primarily to the fact that after removing one person's dialogue in a discussion, the entire conversation might not make sense in total. We will minimize your data to respect your decision to withdraw while ensuring that we can still gain a good understanding of other participants' experiences and insights. When photos/videos are involved, we will crop the images and delete clips that involve you.

8. How will participants' information be kept confidential?
Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

While we do our best to protect your information there is no guarantee that we will be able to do so. The inclusion of your images through photographs and videos may allow someone to link the data and identify you.

We acknowledge the importance of your privacy, but are not able to assure absolute confidentiality. As with any person working with children, we are bounded by the professional and legal obligations of duty to report.

The researcher will keep any personal information about you in a secure and confidential location for a minimum of 5 years. A list linking your study number wit h your name will be kept by the researcher in a secure place, separate from your study file. If the results of the study are published, your name will not be used. You may however want to consent for us to reveal your identity when you are co-authoring articles/chapters/presentations with us. We will ask for your consent every time an opportunity for publication arises.

In addition, given the collaborative nature of this research, you might decide to waive your confidentiality.

Researchers might use your personal quotes in the dissemination of the project.

Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, the nature of group meetings prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the group meetings to others.

In addition, you will be able to be identified by your own child care setting community (i.e., colleagues in your centre, families) and potentially by other child care settings in the community (given the size of our community).

9. Are participants compensated to be in this study?

If you agree to participate in this study, we will issue a certificate of participation for the meetings that take place outside working hours which could be used towards your professional development hours. Please note that this certificate must not be coercive. It is unethical to provide undue compensation or inducements to research participants. If you would not participate if the compensation were not offered, then you should decline. If you agree to participate in this study, this form of compensation to you must not be coercive.

If you withdraw from the study, you will still receive a certificate for the professional development hours you have completed up to the withdrawal date. If you do withdraw from the study, and no other educators from your classroom are participants in this study, the children participants from your classroom will also be withdrawn from the study.

10. What are the rights of participants?

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time it will have no effect on your employment status.

It is possible that you may feel influenced to participate because [NAME OF CENTRE] is a partner in this project. It is important to stress that your participation in this research

must be completely voluntary. If you feel influenced to be involved because of this perceived power-over relationship, you should decline participation.

We will give you new information that is learned during the study that might affect your decision to stay in the study.

You do not waive any legal right by signing this consent form.

11. Whom do participants contact for questions?
You are encouraged to ask any clarifying questions with regard to your participation in this research and I will answer your questions to the best of my knowledge and your satisfaction.

If you have questions about this research study please contact Dr. Veronica Pacini-Ketchabaw, [redacted]

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics [redacted]

This letter is yours to keep for future reference.

Consent

Project Title: Climate Action Network: Exploring climate change pedagogies with children

Principal Investigator
Dr. Veronica Pacini-Ketchabaw, Faculty of Education
Western University, (e) [redacted]

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

I agree to be audio-recorded in this research
YES NO

I agree to be video-recorded in this research
YES NO

I consent to the use of images of myself obtained during the study in the project in the project website and researchers' professional social media accounts
YES NO

I consent to the use of personal, identifiable quotes obtained during the study in the dissemination of this research
YES NO

I consent to the use of unidentified quotes obtained during the study in the dissemination of this research
YES NO

I agree to have my name used in the dissemination of this research
YES NO

_____	_____	_____
Print Name of Participant	Signature	*Date (DD-MMM-YYYY)*

My signature means that I have explained the study to the participant named above. I have answered all questions.

_____	_____	_____
Print Name of Person Obtaining Consent	Signature	*Date (DD-MMM-YYYY)*

Appendix F. Confidentiality Agreement: Researchers

Confidentiality Agreement
CAN

(To be signed by co-applicants, research assistants, and educators co-researchers)

Confidential Information

I understand confidential information will be made known to me for the study Climate Action Network: Exploring climate change pedagogies with children being conducted by Professor Pacini-Ketchabaw of the Faculty of Education, Western University.

Confidential information shall include all data, materials, photographs, video, and other information disclosed or submitted, orally, in writing, or by any other media, to _____ by .

Obligations of Co-Applicants/Collaborators/Research Assistants/Educators

A. _____ hereby agrees that the confidential '**Climate Action Network: Exploring climate change pedagogies with children**' research study and is to be used solely for the purposes of said study. Said confidential information should only be disclosed to employees of said research study with a specific need to know.

_____ hereby agrees not to disclose, publish or otherwise reveal any of the Confidential Information received from Dr. Pacini-Ketchabaw, research assistants or other participants of the project to any other party whatsoever except with the specific prior written authorization of Dr. Pacini-Ketchabaw.

B. Materials containing confidential information must be stored in a secure online location at Western University (and then deleted from computer) so as to avoid third persons unrelated to the project to access said materials. Confidential Information shall not be duplicated by _____ except for the purposes of this Agreement.

Completion of the Work

Upon the completion of the work and at the request of Dr. Pacini-Ketchabaw, _____ shall return all confidential information received in written or tangible form, including copies, or reproductions or other media containing such confidential information, within ten (10) days of such request.

At _____ option any copies of confidential documents or other media developed by _____ and remaining in her possession after the completion of her work need to be destroyed so as to protect the confidentiality of said information. _____ shall provide a written certificate to Owner regarding destruction within ten (10) days thereafter.

With his/her signature, _____ shall hereby adhere to the terms of this agreement.

Signature: _____

Date: _____

Name of Principal Investigator: _____ (please print)

Signature of Principal Investigator: _____

Date: _____

Curriculum Vitae

Name: Adrianne Bacelar de Castro

Postsecondary Education and Degrees:
UNICEUMA
São Luís, MA, Brazil
1995–1998 BA

Honours and Awards:
Joan Pedersen Memorial Graduate Award
2019–2020

Related Work Experience

Research Assistant
2018–2020
Climate Action Network www.climateactionchildhood.net exploring human-climate relations in early childhood studies *(A SSHRC Insight funded research project),* Veronica Pacini-Ketchabaw, Faculty of Education, University of Western Ontario

Academic Principal
2016–2018
Escola Crescimento Calhau (primary school and child care), São Luis, MA, Brazil

Principal
2008–2018
Maple Bear São Luis (bilingual, primary school and child care), São Luis, MA, Brazil

Publications

Bacelar de Castro, A. & Hennessy, S. (in press) Pedagogies of indeterminacy. *ECELink*: Common Worlding in Early Childhood Education Special Issue
Winter, 2020

Presentations, Papers and Posters

Young People, well-being, resilience and enterprise: Critical Perspectives for the Anthropocene, Bilbao, Spain "beingS-of-the-world within a common world pedagogy".
2019

Canadian Association for Research in Early Childhood Post-CSSE Conference, University of British Columbia " Unlearnings with charcoal: A journey troubling human centrism".
2019

International Society for Teacher Education,"Unlearnings with charcoal and paper".
2019

EnviroCon, University of Western Ontario, London, Canada
"Charcoal and common worlds: what tracks can we leave as educators?"
2019