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ECOPEDAGOGIES

A DISSERTATION

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DEDICATION

To my children and grandchildren.

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I consciously entered the realm of the more-than-human late in life despite permanently being integrated and part of it. The more-than-humans have always been there engaging with me as entities sharing our space. I now committedly acknowledge these kin with this dissertation as I try to communicate my new understandings of their predicaments as they engage with my human counterparts. I therefore am honoured and grateful to be allowed to partake in the vitalities of all our kin sharing this World and Nature.

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INDIGENOUS LAND ACKNOWLEDGEMENT

I would like to begin by acknowledging that the land on which we are gathered for our studies is the traditional and unceded territory of the *Kanien'keha:ka* (Mohawk), members of the Haudenosaunee Confederacy, traditionally known as *Tiohti:áke* in *Kanien'kéha*, *Mooniyang* in *Anishinaabemowin*, also known as Montréal by the French colonizing settlers. It is a place that has long served as a site for meetings and exchanges between nations, including the Great Peace of 1701 which resulted in a peace treaty between the colonizing invaders and thirty-nine Aboriginal nations of North America, a land known by the Aboriginal nations as *Anowara:kowa*, the Great Turtle. I live here as an uninvited settler, and I am an Indigenous ally.¹ Tierney and Morgan (2023) in *The Indigenous imaginary and tertiary institutions* reveal that “while the rhetoric suggests a repositioning of Indigenous engagements within tertiary institutions (e.g., across institutions in Australia and Canada), institutional forces reflect a lack of commitment to Indigenous programs rooted in decolonial Indigenization” (p. 236). This is reminiscent of what Sharon Stein (2021) proposes with her interruption of our repeated engagements with ‘patterns of harmful desires’, this is an invitation “to dive into the difficult work of both unlearning our investments in a harmful system and learning to sense, relate, and imagine otherwise” (p. 14). As a first step, I acknowledged the traditional and unceded territory of the *Kanien'keha:ka* to show respect and recognize the ongoing presence and sovereignty of Indigenous peoples.

This act reflects my commitment to ethical engagement, decolonial awareness, and the responsibilities tied to my position as an uninvited settler and Indigenous ally within these lands. Power imbalances in settler research persist without proactive nuancing, potentially perpetuating anthropocentric biases despite stated awareness. I am grateful for the access and sharing of the multitude of Indigenous knowledge Systems referenced in this dissertation. Indigenous pedagogies promote inter-being relationality among humans, more-than-humans, and other-than-humans, fostering respectful negotiations and belonging that align with ecopedagogy's challenge to anthropocentrism and expansion of citizenship to planetary scales. These methods - such as land-based observation, storytelling, and holistic interconnectedness - infuse cellphilmaking with decolonial ethics, enabling MTHs to ‘speak’ through participatory visuals without humanizing them or appropriating Indigenous voices.

Throughout this dissertation my embodied understanding of settler responsibilities to land - such as ongoing learning from Indigenous protocols or MTH kinships, I tried to avoid superficiality that risks performative allyship. I tried to unpack how affective ecopedagogies (e.g., attunement to love, grief, or disruption in forest walks, outdoor education and wild pedagogies) demand reflexive self-location, fostering ethical co-becoming rather than abstracted advocacy.

STATEMENT OF AUTHORSHIP

The copyright of this thesis rests with the author. No quotation from it should be published without the author's prior written consent and information derived from it should be acknowledged.

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LIST OF ANNOTATIONS

(AI) Augmented Intelligence
(AR) Augmented Reality
(ANT) Actor-Network Theory
(CREP) Critical Radical Ecopedagogy
(CP) Critical Pedagogy
(EE) Environmental Education
(EoE) Education of the Environment
(ESD) Education for Sustainable Development
(EE) Environmental Education
(EL) Eco-literacy
(EP) Ecopedagogy
(EU) European Union
(GC) Global Citizenship
(GCE) Global Citizenship Education
(H-MTH-N) Human-More-Than-Human-Nature
(MTH) More-Than-Human
(N-E-R) No-Editing-Required
(NRT) Non-Representational Theory
(PAR) Participative Action Research
(PC) Planetary Citizenship
(PQI) Post-Qualitative Inquiry
(OEE) Outdoor Environmental Education
(OSS) One-Shot-Shoot
(SD) Sustainable Development
(SDG) Sustainable Development Goals
(SDE) Sustainable Development Education
(SSRHC) Social Sciences and Humanities Research Council of Canada
(TEK) Traditional Ecological Knowledge
(UN) United Nations
(UNESCO) United Nations Educational, Scientific and Cultural Organization's
(UQAM) Université du Québec à Montréal

ABSTRACT

This research-creation explores the potential of autoethnographic cellphilming - the creation of short, self-reflexive films using mobile devices - as a transformative praxis for ecopedagogy that is inclusive of more-than-human (MTH) entities. Drawing on autoethnography, the research-creation process investigates how the act of ‘affective cellphilming’ with and about MTH entities - such as animals, plants, objects, and phenomena - enables learners to cultivate kinship, belonging, and emotional engagement beyond anthropocentric frameworks. Grounded in critical pedagogies and inspired by Dewey, Freire, and Rancière, the study positions cellphilming as a participatory, sensory, and affective method that disrupts Northern/Western ‘traditional’ environmental education’s human-centeredness. By creating, documenting, sharing and analyzing over 50 cellphilms, the inquiry demonstrates how embodied, multisensory encounters with MTH entities foster critical awareness, ecological justice, and ethical relationality. The recurring frustration of my efforts in this ecology practice inflicted a ‘circular ecological melancholy’ where human-MTH relations are continually blocked by entrenched systems and normalized (un)sustainable habits, making meaningful transformation feel out of reach. The research-creation methodology values both artistic production and situated, experiential knowledge, offering a flexible framework for integrating theory and practice. Ultimately, this thesis proposes that autoethnographic cellphilming in ecopedagogy can reorient education of the environment toward a more inclusive, decolonial, and posthuman vision - empowering learners to recognize their entanglement with the MTH and the World and to enact more just and sustainable futures.

Keywords : Cellphilming, More-Than-Human, Autoethnography, Ecopedagogy, Posthumanism, Affect, Non Human

RÉSUMÉ

Cette recherche-cr ation explore le potentiel du cellphilmage autoethnographique - la cr ation de courts films autor flexifs   l'aide de t l phones cellulaires - en tant que praxis transformatrice pour l' cop dagogie incluant des entit s plus qu'humaines (PQH). S'inspirant de l'autoethnographie, le processus de recherche-cr ation  tudie comment l'acte de « cellphilmage affectif » avec et sur des entit s PQH - telles que des animaux, des plantes, des objets et des ph nom nes - permet aux apprenants de cultiver la parent , l'appartenance et l'engagement  motionnel au-del  des cadres anthropocentriques. Fond e sur des p dagogies critiques et inspir es par Dewey, Freire et Ranci re, l' tude positionne le cellphilmage comme une m thode participative, sensorielle et affective qui perturbe l' ducation environnementale traditionnelle en Occident centr e sur l'homme. En cr ant, documentant, partageant et analysant plus de 50 films cellulaires, l'enqu te d montre comment les rencontres incarn es et multisensorielles avec les entit s PQH favorisent la conscience critique, la justice  cologique et la relationalit   thique. La frustration r currente de mes efforts dans cette pratique  cologique a engendr  une « m lancolie  cologique circulaire » lorsque les relations humain-PQH sont continuellement bloqu es par des syst mes enracin s et des habitudes (in)soutenables normalis es, rendant une transformation v ritable difficilement atteignable. La m thodologie de recherche-cr ation valorise   la fois la production artistique et le savoir exp rientiel, offrant un cadre flexible pour int grer la th orie et la pratique. En fin de compte, cette th se propose que le cellphilmage autoethnographique en  cop dagogie puisse r orienter l' ducation environnementale vers une vision plus inclusive, d coloniale et posthumaine - permettant aux apprenants de reconnaître leur enchev trement avec le PQH et le Monde, et de mettre en place des avenir s plus justes et durables.

Mots cl s : Plus qu'humain, Autoethnographie,  cop dagogie, Posthumanisme, Affect, Cellphilm, Non Humain

TABLE OF CONTENTS

DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
INDIGENOUS LAND ACKNOWLEDGEMENT.....	vii
STATEMENT OF AUTHORSHIP.....	ix
LIST OF ANNOTATIONS.....	x
ABSTRACT.....	xi
RÉSUMÉ.....	xii
TABLE OF CONTENTS.....	xiii
INTRODUCTION.....	1
BRIEF OVERVIEW OF THE DISSERTATION.....	4
WHY I PURSUED THIS RESEARCH?.....	7
My Position: Who am I?.....	7
Driving Factors.....	7
How Substantial is my Positionality?.....	8
BACKGROUND TO THIS INQUIRY.....	9
Cellphilming Towards an Ecopedagogy.....	10
Research-Creation: An Appropriate Strategy.....	11
RESEARCH-CREATION PROBLEMS.....	15
Education of the Environment Issues and Transformations.....	15
Mobile Recording Devices in Education.....	17
Inclusive Ecopedagogy and the MTH for Praxis.....	19
Postdigital Ecopedagogies.....	21
RESEARCH-CREATION QUESTION, PURPOSES AND OBJECTIVES.....	22
METHODOLOGY AND RESEARCH-CREATION.....	23
Why Cellphilming?.....	24
My Research-Creation Praxis.....	26
MAPPING THE THESIS – WORK PLAN.....	27
SUMMARY.....	28

CHAPTER 1 LITERATURE REVIEW.....	29
INTRODUCTION.....	29
PART ONE: ECOPELAGOGIES	29
Ecology Education: Historical Legacies.....	29
Ecopedagogies.....	33
Western Fatalism and Indigenous Frameworks	38
Eurocentrism and EoE.....	44
Indigenizing Ecopedagogies	45
Ecopedagogies Re-Invented in Constant Flux	48
Ecopedagogies Informed by World-Earth Distancing.....	50
Ecopedagogies Global Citizenship Inclusive of the MTH	51
PART TWO: CELLPHILMING, MTH AND EMBODIMENT.....	53
Smartphones.....	53
Cellphilms in PAR.....	56
More-Than-Human Cellphilming.....	60
Recent Research Involving Autoethnography and Ecopedagogy	65
Cellphilming ontology.....	68
PART THREE: AFFECT, EMOTION AND BELONGING.....	69
Affect Perspectives.....	69
Weaving Belonging, Affect, and Planetary Citizenship.....	75
Belonging and Non-Representational Entanglements.....	78
Affective Technology	79
Indigenous Ways of Folding Affect and MTH entities	82
CONCLUSION.....	86
CHAPTER 2 THEORETICAL FRAMEWORK AND METHODOLOGY.....	89
INTRODUCTION: THEORETICAL FRAMEWORK.....	89
POST-QUALITATIVE INQUIRY AND POSTPHENOMENOLOGY	94
AUTOETHNOGRAPHY AND THE PERFORMATIVE.....	97
The Body and Technology.....	100
Autoethnography: Researcher–Researched Approach	103
Ethical Considerations.....	105
The Filming Autoethnographer.....	107
THE PRAXIS: HOW I THEORETICALLY PERFORMED CELLPHILMING FOR DATA ..	109
Non-Representational Cellphilming.....	112
Affective Cellphilming.....	115
Reflexive NRT Data Collection	118
The Diary and its Inclusion.....	121
Sharing and Viewer Response On-line.....	124
ETHICAL CONSIDERATIONS AND METHODOLOGICAL LIMITATIONS.....	126
Ethical Considerations.....	126

Methodological Limitations	128
Contextual and Cultural Considerations	129
CONCLUSION	130
CHAPTER 3 CELLPHILM CREATION WITH MORE-THAN-HUMANS	132
INTRODUCTION.....	132
Cellphilm and Teaching Applications	133
Preparing a Diary.....	135
Outdoor Field Scouting.....	135
Storyboarding.....	136
Shooting by Incorporating the Technology Respectfully	138
Choosing Editing or not.....	140
Sharing with Others.....	141
Teacher Training	141
NON-REPRESENTATIONAL CELLPHILMING: THE LOCAL, BANAL, MUNDANE, AND PERSONAL.....	142
Cellphilm Selection Parameters	150
Cellphilm Shooting and Editing Practices	154
Cellphilm as Engagement With/In Nature(s).....	156
Reflexive Practice and Vital Materiality	160
Multisensory Engagement and Non-Representational Realism.....	162
CONCLUSION.....	166
CHAPTER 4 POSTPHENOMENOLOGICAL IMPRESSIONS OF EMBODIMENT	169
INTRODUCTION.....	169
POSTPHENOMENOLOGY AND CELLPHILMING.....	171
Embodied Cognition in Cellphilm.....	174
Embodied Representational Cellphilm.....	176
EMBODIED ENVIRONMENTAL AWARENESS.....	178
AUTOETHNOGRAPHIC EXPLORATIONS OF EMBODIED CELLPHILMING	180
AFFECT, MOVEMENT AND SENSING.....	187
EMBODIED ECOPELAGOGY.....	190
INDIGENOUS EMBODIMENT AND KINSHIP	193
CONCLUSION	201
CHAPTER 5 BELONGING THROUGH MY CELLPHILMING PRAXIS.....	205
INTRODUCTION : GUIDED REFLEXIVE INQUIRY	205
KINSHIP THROUGH AFFECT, SENSES AND RECIPROCITY	205
PERIPATETIC CELLPHILMS: TALK THE WALK.....	206

CELLPHILMING PLANT AND ANIMAL LIFE	212
My Friends in the Gardens.....	212
Birds, Fish and Other MTH Entities.....	216
REFLECTIONS ON PLASTIC.....	220
EMBODYING AFFECT, EMOTIONS AND VIOLENCE.....	224
CELLPHILMING STATIC MTH ENTITIES	227
ANALYZING THE PRAXIS.....	235
CONCLUSION.....	238
CHAPTER 6 CONCLUSION	242
CONCEPTUAL FRAMEWORKS, METHODOLOGY AND PRACTICES	244
PURPOSE AND AIMS OF THE RESEARCH-CREATION.....	248
FINDINGS FROM THE RESEARCH-CREATION.....	252
Communicating with MTH Entities	256
Indigenous Informed Relationality and Inclusivity.....	258
Connecting as Intra-beings.....	259
MTH Agency: Recognizing Vitality	260
Affective Dimensions and Political Implications.....	261
Reflexivity and Ethical Responsibility	263
Practitioner’s Walk.....	265
Ecoliteracy	266
IMPLICATION OF THIS RESEARCH-CREATION	267
LIMITATIONS OF THIS RESEARCH-CREATION.....	269
FURTHER RESEARCH.....	274
CONCLUDING COMMENTS - A JOURNEY IN FLUX.....	277
REFERENCES	279
APPENDIX 1 List of 50 Cellphilms.....	376
APPENDIX 2 Cellphilms Descriptions and Link to YouTube Video	378
APPENDIX 3 Diary Table of Contents	386
APPENDIX 4 Sample Diary Entry.....	396
ENDNOTES	398

INTRODUCTION

Climate change discussions focus on integrating urgent action with economic growth and development, emphasizing the potential for a low-carbon economy to drive innovation and efficiency. While the integration of low-carbon and digital economies is advancing, progress is uneven across regions, with disparities in innovation capacity and vulnerability to climate risks. Climate-related physical risks remain significant barriers, particularly where infrastructure and adaptive capacities are lacking. The pace of change remains slower than required to meet global targets, and fossil-fuel investments still outpace climate finance in many areas, underscoring the need for accelerated action and investment (Burelli et al., 2025; Marques & Otero, 2025; Share, 2025; *UN Climate Change Conference - Belém, November 2025* | UNFCCC, 2025). There is necessity to transform these preferred national (un)sustainable systems of exploitation and consumption, to avoid heading toward an ecological cataclysm. This perspective is particularly resonant with many Indigenous communities, who see the collapse of current systems as an opportunity for transformation and healing from historical injustices (McGregor et al., 2020; Staff, 2017; Whyte, 2018). Early schooling, higher education and research institutions play a critical role in driving climate-related innovation, ecoliteracy and (un)sustainability education. However, policy uncertainty, misguided education, lack of funding, and ecological and social injustices are hindering progress.

Climate change, (un)sustainability, and the failures of environmental education pedagogies are deeply intertwined. Young learners are the most susceptible to ecology education because they form lifelong values and habits, making them uniquely open to transformative ecological ethics. Environmental education often fails young learners by focusing too much on facts and global problems while neglecting learners' emotions and local realities. This can leave learners feeling anxious or powerless, especially when education avoids discussing the bigger systems that drive environmental issues – such as consumerism, exploitation, social injustices, or inequality. Young learners are particularly open to learning about ecology, but if education doesn't empower them or address their real concerns, it risks making them cynical or disengaged. To be more effective, environmental education should emphasize hands-on projects and local action, encourage critical

thinking about justice and systemic change, and help learners process their feelings about climate change. This requires examining and practicing new perspectives for young learners' ecology education. This dissertation proposes one such new perspective in an ecopedagogic praxis: Cellphilmimg as a participatory, sensory, and affective method that disrupts Northern/Western 'traditional' environmental education's human-centeredness.

Environmental education faces sharp criticism for boosting awareness of ecological crises without spurring transformative action, leaving a persistent gap where knowledge fails to yield sustainable behaviors despite widespread concern. Pedagogies like Education for Sustainable Development and eco-literacy seek to instill skills, values, and empowerment for change, yet barriers such as inadequate teacher training, systemic constraints, and overemphasis on facts over engagement hinder progress, as seen in curricula often sidelining high-impact actions like reduced consumption or mobility shifts. Bridging this demands action-oriented, sustained interventions - think participatory projects, emotional resonance, and real-world opportunities - that evolve education from mere information-sharing to fostering lifelong agency for sustainability. Scholars argue that environmental education needs a fundamental overhaul to foster practical skills and behaviours that promote (un)sustainability, moving beyond mere awareness-raising to drive meaningful change (Blumstein & Saylan, 2007; Jickling & Wals, 2008; Kahn, 2010; Mannion et al., 2025; Miles et al., 2025).

The academic research recently undertaken around the Anthropoceneⁱⁱ affected by global warming and the so-called 'end of the world as we know it' is described by the work of Kyle Powys Whyte (2020), Bruno Latour (2017), Denise Ferreira da Silva (2014). The fate of our shared Earth is further addressed in *The dark mountain manifesto* (Kingsnorth et al., 2009), and the concepts in the *Gaia hypothesis* (Lovelock, 1988).ⁱⁱⁱ These perspectives present educators with the difficult task of teaching ecological (un)sustainability, eco-justice and transformative ecofriendly practices.^{iv}

Kahn (2010) proposes the need to address the ecological 'crisis' with one's own decision powers by transforming educational practices. The term crisis is "to be understood as a diagnostic philosophical concept that indicates the need for personal critical deliberation toward the possibility of affecting meaningful change" (p. 4).^v Critical problematizing allows for reflecting on deeper, systemic, or epistemological issues - how knowledge of environmental problems is constructed,

practiced with all its subsequent limitations. This means challenging the processes by which pedagogic decisions are made by learners and teachers, asking whether they are adequately informed, inclusive, or grounded in sound reasoning.

My research/creation inquiry aims to expand the application of environmental education defined comprehensively in this inquiry as Education of the Environment (EoE)^{vi} to help learners and teachers develop transformative, engaged practices and approaches to outdoor/indoor ecopedagogies. Misiaszek (2021) gives us a broad definition:

Ecopedagogies are grounded in critical thinking and transformability, with the ultimate goal being to construct learning with increased social and environmental justice. Rooted in critical theories and originating from popular education models of Latin America, ecopedagogy is centered on better understanding the connections between human acts of environmental violence and social violence that cause injustices/oppressions, domination over the rest of Nature, and planetary unsustainability. (p. 2)

Ecopedagogies therefore teach to disrupt the repetition of the unending cycle of extraction, bio-destruction, ecocide, oppression, injustice and anthropocentrism that a socio-cultural politics of (un)sustainable economics promises.^{vii}

This research-creation develops new skills for the 21st century in ecopedagogies in order to teach and learn belonging in:with Nature inclusive of the More-Than-Human (MTH)^{viii} in kinship and belonging.^{ix} I undertake self-reflexive pedagogic methods and practices with digital recording devices (smartphone, tablets, etc.) called cellphilm(ing).^x I engage with autoethnography to produce short films on my smartphone. I perform self-reflexive cellphilm(ing) to bring out the grounding principles and best practices for future ecopedagogies. I seek an ecopedagogic praxis that may re-align the fundamental thinking of learners vis-à-vis: science, (un)sustainability, the MTH, kinship and ecological justice and ethics.

Praxis is the act of putting a theory, lesson, or skill into action - making it tangible and practical in real-life situations. It involves engaging with, applying, and practicing ideas, turning abstract concepts into lived experience and meaningful practice. As Au (2009) states: “Freire’s liberatory pedagogy thus revolves around the central idea of ‘praxis’ (conscious action), where students and teachers become Subjects who can look at reality, critically reflect upon that reality, and take

transformative action to change that reality based upon the original critical reflection” (p. 231). Teachers could compliment their EoE with my proposed theoretical frameworks, practices, and relations with MTHs. This would include: to examine the causes of global warming and the ecological phenomenon with:in Earth; learn and problematize science from a non-anthropocentric perspective; experiment with autoethnography; and learn about, critique and engage with (un)sustainability, ecological justice, MTH inclusivity and ethics.^{xi}

BRIEF OVERVIEW OF THE DISSERTATION

The following are the main concepts and practices addressed by my research-creation:

1. Ecopedagogy has emerged as a critical approach to education that aims to foster a more holistic worldview.^{xii} Praxis is a fundamental cornerstone of the pedagogy.
2. Cellphilms would be used to perform short autoethnographies for a reflexive ecopedagogy. Non-representational cellphilms will be prioritized to induce and analyze belonging and kinship with MTH entities.
3. Belonging is all inclusive in:for:with kin. Kin includes humans, and MTH entities, existing or immaterial, real or imaginary, chaos and order, including actions, will, desire and inactions.^{xiii} Therefore, MTH includes mosquitoes, oil-patches, smartphones and the smell of sweet peas. MTH can also be phenomena like silence, a reactionary discourse, acts of love and empathy, and/or a set of cultural conventions, reinforced by institutions.
4. Affect induced emotions in pedagogic settings, have been shown to be key learning drivers.^{xiv} Belonging as a subjective experience could be understood as an affective:emotional state that allows a person to adhere to a group for purposes of identity, security, integration, affiliation, and survival.^{xv}
5. As a production and integration of the senses, cellfilming allows for an engagement with desire and reproduction not only through sight, hearing and touch, but also through hapticity when interacting with mobile recording devices and the MTH. The senses function through affect in the construction of community and are integrated with the physical, emotional, affective and communicational attributes of belonging.^{xvi}

Three distinct yet intersectional and overlapping educational theories inform the manner in which I address this research/creation framework and praxis for more inclusive ecopedagogies. Dewey's utopian democracy, Freire's process of '*Conscientização*' and Rancière's notion of 'translation'.

Dewey's utopian vision combines a strong emphasis on experiential learning, environmental awareness, and democratic participation to create a society that is continuously evolving and improving through collaborative problem-solving and scientific inquiry. Dewey states:

In an analogous way, since democracy stands in principle for free interchange, for social continuity, it must develop a theory of knowledge which sees in knowledge the method by which one experience is made available in giving direction and meaning to another. The recent advances in physiology, biology, and the logic of the experimental sciences supply the specific intellectual instrumentalities demanded to work out and formulate such a theory. Their educational equivalent is the connection of the acquisition of knowledge in the schools with activities, or occupations, carried on in a medium of associated life. (Dewey, 2001, p. 352)

Applying this to more contemporary pedagogies, this involves direct interaction with Nature, and hands-on experiences for learning through practical engagement.^{xvii}

Freire's *Conscientização* is a process that invites learners to critically examine the contradictions of their reality and develop awareness of social and environmental injustices. For Freire education is not solely acquiring information:

Implicit in the banking concept is the assumption of a dichotomy between human beings and the world: a person is merely in the world, not with the world or with others; the individual is spectator, not re-creator. In this view, the person is not a conscious being (*corpo consciente*); he or she is rather the possessor of a consciousness: an empty 'mind' passively open to the reception of deposits of reality from the world outside. (Freire, 2000, p. 75)

This perspective makes no distinction between what is accessible to consciousness and what enters it. However, the distinction is essential: the MTH/objects/environments/learnings that surround an individual are only accessible to their awareness, not contained within it. They are aware of the MTH/objects/environments/learnings, but they do not reside within them – therefore unembodied, unintegrated, non-inclusive. As Misiaszek (2022) further explains, "Freire argued for teaching to critically deconstruct oppressive 'development' to, in turn, reconstruct development within social

justice models” (p. 2320). The process of conscientization can help learners recognize colonial legacies and envision more equitable relationships with MTH entities.

Rancière's (1991) emphasizes learners' capacity to interpret, create and ‘translate’ meaning independently. He states:

We must ask the opposite question: how is intelligence possible without equality? Intelligence is not a power of understanding based on comparing knowledge with its object. It is the power to make oneself understood through an others verification. And only an equal understands an equal. Equality and intelligence are synonymous terms, exactly like reason and will. This synonymy on which each man’s intellectual capacity is based is also what makes society, in general, possible. The equality of intelligence is the common bond of human-kind, the necessary and sufficient condition for a society of men to exist. (pp. 72–73)

Carter and Martin (2022) note that in Rancière's approach, “the elevation of student to co-learner is reinforced by both the teacher's and the student's focus on an external artifact - a book or text, for example - which provides the intellectual stimulus for student investigation” (p. 1). This perspective encourages learners to engage directly with environmental texts and experiences, translating them into their own understanding without relying on colonial and hierarchized teacher interpretations.

All three theorists can be considered the primary inspirational teachers for my proposed praxis. Consequently, I suggest learners, by means of these three educational perspectives, can develop critical awareness of environmental issues while actively constructing their own knowledge, fostering a more engaged and decolonial ecopedagogical practice. These perspectives can engage learners in their praxis by broadening a conscientious ecological and global anthropocentric citizenship in order to reposition their manner of ‘being’ towards the more biocentric Earth (World).^{xviii} Education through a Freirean critical pedagogy informed by Rancière’s ‘translation’ and Dewey’s experiential, democratic utopianism not only allows for understanding a shared responsibility in their ecopedagogical practices, but challenge the ethnocentric perspectives of learners and their understanding of their relationship to other humans and MTH entities.

This inquiry explores the aesthetic, philosophical, and practical bases for a new ecopedagogical praxis. My experimental research-creation is a theoretical, creative, philosophical one-person

workshop using autoethnographic cellphilmimg. The problem of decentering anthropocentric views lies in what tools and kinds of praxis can effectively help in an inclusive ecopedagogy of the MTH.

WHY I PURSUED THIS RESEARCH?

My Position: Who am I?

In this inquiry, I position myself as a researcher with an accumulated knowledge and interest in filmmaking for over 40 years. I am a Caucasian, middle aged, pomogendered human. I am an atheist: *αθεοι* (atheoi) as ‘one who is without God’. I belong to a North American lower middle class and live in a ‘de-re-colonized’ country named Canada, founded on Indigenous homelands, in a traditionally de-re-colonizing province, named Quebec that is seeking national recognition based on dominant historically religious and linguistic identities.^{xix} I am an uninvited settler and live on traditional and unceded territory of the Kanien'keha:ka (Mohawk), members of the Haudenosaunee Confederacy. I am a landed immigrant of Arab and German heritage. My father is a victim of the Nakba and was forced out of Haifa where he grew up in 1948.^{xx} I have had a very difficult time integrating into the neo-liberal, capitalist, heteronormative, ‘bi-cultural’ society that has accepted me into their disparate yet ‘homogenized community’ with open arms and clenched fists. I am still an outsider despite my attempts at belonging.

I have spent much of my life learning in universities, and I am making personal, amateur films for subsistence and pleasure. I consider myself since 1996 an amateur filmmaker even though I had early on pursued the practice as a career. I also paint and sell art to make ends meet. I have owned several restaurants and am successful at landscaping and gardening. I align myself politically as an anarcha-feminist and enjoy good company and meals.^{xxi} I have raised three children, and I am a grandfather. Education through film is my defining mantra.

Driving Factors

The idea for this inquiry began during my master’s program at Bishop’s University in the Department of Education. My Master thesis inquired into exploring belonging and identity formation of learners engaged with digital recording technology.^{xxii} I inquired into how the use of multimodal mobile devices could generate new ecopedagogic practices from recent use of cellphilmimg in contemporary Participatory Action Research (PAR) in health care, social work and

education. I proposed a series of curricular cellphilmimg practices using ecopedagogies during EoE classes in order to support enriched ethical and moral development towards community living and belonging. I recommended cellphilmimg in the form of an autoethnography, and the curricular practice of Critical Radical Ecopedagogies (CREP)^{xxiii} through play. While I did not work directly with educators and/or learners for my Master thesis, I proposed a research-creation to lay the groundwork for an ecopedagogy-inspired curriculum that uses critical thinking that could problematize learners understanding of the causes of global warming and the ecological phenomenon of species extinction. This dissertation expands upon that effort.

I believe that the destabilizing climate events we are experiencing in our lives today stem largely from human actions that overlook the importance of inclusivity and a sense of kinship with other human communities and especially MTH entities. When we fail to recognize our interconnectedness with other people, species, MTH entities and Nature, our decisions often lead to environmental harm, social fragmentation, and a loss of balance in our ecosystems. Embracing inclusivity and nurturing kinship with humans and all MTHs are essential steps toward restoring stability and fostering a more resilient and harmonious future. This project sought to respond to Peterson's (2019) timely question: "how is it we can continue to educate ourselves in a manner that perpetuates the illusions of separation—Cartesian consciousness—from one another and from the Earth?" (p. 13). I would add the problematic issues of an education that maintains the separation from MTH entities that share Earth with us.^{xxiv}

How Substantial is my Positionality?

Positionality plays a crucial role in dissertation writing, particularly in autoethnographic research-creation. The researcher's unique perspective, experiences, and social position significantly shape the research-creation process, interpretation, and outcomes. This includes the challenges I have in perpetuating epistemic injustice that occurs when I as an immigrant non-Indigenous researcher writes in English in a French language colonial university.^{xxv} My autoethnography, as a method that combines personal experience with cultural analysis, inherently demands a deep exploration of the researcher's positionality.

Ellis and Bochner (2016) emphasize that autoethnography is “grounded in postmodern philosophy reflexivity and voice in social research” (p. 146). However, they also acknowledge the potential challenges: “The intent of autoethnography is to acknowledge the inextricable link between the personal and the cultural and to make room for nontraditional forms of inquiry and expression” (p. 146). The substantial nature of positionality in autoethnographic research-creation cannot be overstated. It provides a framework for understanding the researcher's role in knowledge production, uncovers hidden aspects of social and organizational dynamics, and generates unique insights and interpretive frames. By embracing my positionality, my process produced a more rigorous, ethical, and impactful autoethnographic research-creation that contributes to a deeper understanding of an intricate social phenomena.

BACKGROUND TO THIS INQUIRY

I have always been very engaged with Nature; driven by a childhood of cattle farming and dealing daily with MTH entities physically and emotionally. My youth was defined by spending large swaths of my time in the fields, forests, and orchards and tending to animals. Therefore, my decision to pursue educational theory and learning in my later years was tainted by the prejudice for the outdoors. So, it is not strange for me to adhere to the proposition that outdoor education is a powerful medium for fostering connections between humans and MTH entities. Yet outdoor education within Environmental Education (EE) has been dominated by anthropocentric worldviews (Ross, 2020). My exploration of more recent posthumanist and new materialist perspectives have challenged my Northern/Western ‘traditional’ anthropocentric approaches calling for a reconceptualization of Human-More-Than-Human-Nature (H-MTH-N) relations in Outdoor Environmental Educational (OEE) contexts.^{xxvi}

This dissertation argues that embracing MTH pedagogies and relational ontologies can enhance OEE’s capacity to address ecological precarity and cultivate ethical environmental dispositions. For example, I am informed by emerging research that explores how OEE educators can enact MTH pedagogies that decenter the human and recognize the agency and pedagogical potential of MTH entities. Jukes (2023) conducted an experimental practice that challenges hierarchical anthropocentrism by emphasizing relational ontologies and MTH assemblages in various OEE pedagogy settings. He describes this approach as a situated perspective where “I uncover things in

my writing, form ideas and make connections I had not thought of before. I am not following a strict method or recipe, but things unfold through my practice. I call this approach immanent praxiography” (p. 8).^{xxvii} Jukes *praxiography* proposal informs the manner I enact my research-creation’s framework for addressing ecological precarity through pedagogies that reorient human-environment relationships.

I propose that by integrating MTH perspectives with critical pedagogy and social justice approaches, we can work towards a more holistic vision of inclusivity and sustainability. I intend to empower learners to adopt and advocate for environmentally responsible behaviours. This includes incorporating traditional ecological knowledge and relational worldviews proposed by many Indigenous knowledge systems and practices. In my research, I recognize that while MTH entities align broadly with many but not all Indigenous kinship principles, conflating the two risks erasing the specificity of Indigenous cosmologies. For example, not all Indigenous groups frame their relationships with non-human beings through the term “MTH”, which is rooted in Western academic discourse.^{xxviii} Equating these concepts could also oversimplify place-based, ancestral relationships into universal frameworks, stripping them of their social, cultural and spiritual depth. Most critically, it risks appropriating Indigenous knowledge without accountability to the communities who steward these teachings, reducing lived traditions to abstract theory. I acknowledge these distinctions as vital in my inquiry to avoid epistemic harm and honour Indigenous sovereignty as I conceive a new ecopedagogical praxis.

Cellphilmimg Towards an Ecopedagogy

Cellphilmimg offers a unique way to involve participants in the research process, particularly when addressing sensitive or socially unaccepted topics. As noted by MacEntee et al. (2021) the quilted cellphilm method, “created a supportive community for vulnerable participants to generate products that challenged social stigma” (p. 1). Cellphilmimg as a PAR practice, raises ecological consciousness by sensitizing MTH inclusivity and promoting climate action through education. Integrating mobile phone technology and/or cellphilmms into participatory research methods enhances environmental learning and engagement (Hjorth & Richardson, 2018; Burkholder & Thorpe, 2019a). By incorporating familiar technology into EoE, educators can make ecopedagogical concepts more accessible and relevant to learners' daily lives. Cellphilmimg aligns

with ecopedagogical goals by encouraging critical engagement with environmental issues while fostering collaborative learning (Kahn, 2010; Francis, 2011; McLaren, 2013; Misiaszek, 2020a; Lal, 2021). Cellphilmimg can also be adapted to ecopedagogy by allowing learners to explore and document environmental issues in their communities, fostering a sense of agency and connection to local ecosystems.

The process of cellphilmimg supports multiple educational objectives. It nurtures technical skills while enhancing media literacy, ecoliteracy and promoting environmental awareness through (non)narrative construction. Additionally, it provides a platform for learners to share their perspectives - fostering a sense of agency and community (Mitchell et al., 2016; Schwab-Cartas, 2018; Berg et al., 2021; Mfeka-Nkabinde et al., 2024).

Cellphilmimg can be particularly effective in engaging young learners in climate activism and education. A recent study combined with activism utilized this method to explore perceptions of wellbeing, ecojustice and inclusivity among youth climate activists (Castelino, 2024; Lall & Gingrich, 2024). Their approach allowed young people to express their concerns, ideas, and experiences related to climate change through a medium they were familiar with, potentially increasing their engagement with ecopedagogical concepts.

Cellphilmimg can emphasize social justice and equity. This allows learners to create their own visual narratives about environmental issues. Cellphilmimg also helps incorporate diverse perspectives and experiences into ecopedagogical practices, addressing issues of environmental justice and decolonization of the curriculum (Schwab-Cartas, 2018; Van Borek & Abrams, 2023). Cellphilmimg therefore can offer a versatile, creative and engaging tool for implementing ecopedagogy in educational settings by combining participatory visual research, youth engagement, technology integration, and critical pedagogy. It can thus enhance learners' understanding of environmental issues and motivate them to take transformative action for a viable and just future.

Research-Creation: An Appropriate Strategy

St. Pierre (1997) calls for a change in how research is undertaken, proposing a decentered and post-qualitative “inquiry” into phenomena to be untangled and explained. She argues that the use of transcripts, data collection, coding, etc., and the subsequent detailed description of data align too

closely with modernist quantitative methods of analysis. St. Pierre explains that these orderly qualitative methods have quantitative epistemologies and ontologies (St. Pierre, 2018). I engage with these proposals - informing my research-creation path and framework. The process of this performative praxis combines ecopedagogy, autoethnography, Non-Representational Theory (NRT) and cellphilmimg. The acts of (re)presentation become the first phase of this performative collage involving digital storytelling with MTH entities. My research-creation doesn't just study MTHs, the World and Nature, I enact new relational possibilities through it. By foregrounding materiality, MTH agency, and creative experimentation, I practice what Braidotti (2012) calls nomadic thought: a fluid, situated way of knowing/being/valuing that remains ethically attuned to ecological precarity. My research-creation therefore becomes an ethico-onto-epistemological inquiry (Barad, 2007, p. 185).

The methodology and practice of research-creation offer an advantageous approach for my thesis. As Noury and Paquin (2021) explain, research-creation has a double objective “the production of knowledge through the production of an artefact, a performance or an original work, whether material or immaterial and the production of knowledge’ (Noury & Paquin, 2021, p. 3).^{xxix} They expand on their definition:

When asked to describe their practice or research-creation process, people tend to describe the various resulting artefacts or events, or the domain of the world to which it applies. Thus, one could say that their practice is transparent to themselves, completely turned, absorbed, as they are, in the ‘doing’ of the artwork: their intentions, the actions to be taken, the resolution of problems that arise, etc. To have access to it, the practice must be reconstructed a posteriori, and I claim that it is through the writing of a narrative that it is possible to achieve this reconstruction. I also claim that the practice narrative is where research-creation knowledge is produced. (Noury & Paquin, 2020, p. 39)

This innovative approach therefore enabled me to produce cellphilms and then integrate the theoretical knowledge into the inquiry’s narrative for pedagogical impact. What's more, research-creation values experimentation, and methodological innovation, which fits in with my innovative use of mobile technology and my engagement with the senses and affects.^{xxx}

Noury and Paquin state that creative research-creation produces ‘experiential’, ‘tacit’ and ‘situated and embodied knowledge’ (2020, p. 33). This defines the spirit of my research-creation, which values situated and embodied knowledge with MTHs.

Research-creation offers a flexible framework for articulating theory and practice in ‘ways in which the “the articulation modalities of the ‘research’ and ‘creation’ components are not defined, leaving it to researcher-creators to outline it in a convincing way” (p. 9). This flexibility enabled me to develop a tailor-made methodology that integrated filmmaking, autoethnography and theoretical reflection on ecopedagogy. I was therefore able to carry out an innovative dissertation project that values both artistic creation and the production of academic knowledge by adopting a methodology that explored new ways of articulating theory and practice in the field of ecopedagogy informing its praxis. Chapman and Sawchuk's (2015) propose that research-creation:

...requires recognizing the benefits of a network of terms and references linked to research-creation (critical making, creation-as-research, practice led research, digital humanities), each of which carries its own nuances in terms of explaining the different ways one can learn through doing. (p. 50)

My integration of the theory I research, the cellphilms I create and the action and theories I engage in my research-creation is defined by social convention and Western, Indigenous and Southern epistemologies.^{xxxi} My cellphilms and methodologies operate as performative theory-in-practice, bridging descriptive analysis (e.g., critiquing anthropocentrism) and actionable interventions (e.g., co-creating with MTH agencies). Brisset (2015) states that in the epistemological elaboration of performed concepts, a return to Austin’s theory of performativity brings about a definition of performativity by its limits, this means that “to be performative, a theory must take on a form that enables it to be used both as a descriptive object and as a guide for action” (p. 21).^{xxxii} As Haseman (2006) explains in his *Manifesto for performative research*, beyond qualitative and quantitative research is a third category - the performative. He explains:

The principal distinction between this third category and the qualitative and quantitative categories is found in the way it chooses to express its findings. In this case, while findings are expressed in non-numeric data they present as symbolic forms other than in the words of discursive text. ... And so when research findings are made as presentational forms they deploy symbolic data in the material forms of practice;

forms of still and moving images; forms of music and sound; forms of live action and digital code. (p. 5)

Therefore, it can be said that the performative aspect of research is particularly relevant for endeavours in which creative projects are bound by postdigital media such as cellphilm. Cellphilm operates within specific media constraints while offering unique opportunities for sensory and affective engagement. This allowed me to generate insights not only about ecopedagogies practiced through technology but also the process of autoethnographic cellphilm itself.

The collaborative aspect of research-creation is another benefit for my thesis. A dispersed authorship between the MTH and myself was difficult to navigate but is particularly relevant for my work with MTH participants, as it indirectly allowed for a more equitable and participatory research-creation process within the limits of non-sentient reciprocity. The interweaving of my experience and the MTH co-creator's vitality and indirect agency in our mutually performative praxis were fixed to a material support, the cellphilm. This mutually engaged co-creation allows in its very foundation a phenomenological opening put in tension with the writing of my experiences and feelings in my diary. Lather and St. Pierre call for a return of academic research to the subject that is more engaged with the 'data' (Lather, 1986; St. Pierre, 1997). I understood that the limits of my performative research-creation are the tensions between the subject and the object of my research.

The primary tension lies in that I have to navigate the paradox of simultaneous insisting on collaboration and shared authorship with a non-sentient entity (the MTH) while also recognizing that I remain the singular human subject who writes, interprets, and claims the thesis. Throughout this dissertation I state that I enact yet at times I state that we (the MTH and I) enact together in collaboration. These research-creation practices and evocations that I use may seem to anthropomorphize, confuse agencies, assert vitalities and subjectivities. I address and elaborate these choices in the chapters that follow, drawing on posthuman and non-representational theory perspectives.

Finally, this iterative research-creation process enabled me to continuously refine my methods and insights as I engaged with MTH participants and their affective experiences through cellphilmimg. I therefore propose that this performative praxis offers a viable proposition for future ecopedagogical performances in which learners enact similar cellphilmimg creations. In this inquiry,

RESEARCH-CREATION PROBLEMS

There are significant gaps in the peer-reviewed literature regarding the pedagogical directions that the comprehensive EoE has conventionally followed, as well as how learners' praxis can enhance education for eco-justice, (un)sustainability, and critical thinking beyond the dominant anthropocentric perspective. While ecopedagogy is framed within EoE, Misiaszek describes it as quite distinct from other forms of environmental and sustainability education - allowing for a critical, socio-environmental eco-justice, (un)sustainability, and transformation as its goals (p. 11). To investigate these distinctions and address the existing gaps in the literature, this inquiry required further analysis of four essential research-creation problems: The changing purpose and practices of EoE; Mobile device use in EoE; Inclusion of MTH entities in education and research; and Postdigital strategies.

Education of the Environment Issues and Transformations

Environmental and sustainability education in the Northern/Western world developed from a niche of ecology and conservation curricula.^{xxxiii} Environmental and sustainability pedagogies have been customarily science-grounded and anthropocentric. Yet, these pedagogies have changed and evolved over time from foundational ecology studies establishing distinct fields in education such as Environmental Education (EE), Education for Sustainable Development (ESD), Sustainability Education (s/SD), Critical Environmental Pedagogies (CEP) and ecopedagogies (EP) to name but a few. Differences, nuances, and semantics of education for e/ESD, s/SD, versus EE and/or CEP are debated yet many fundamental commonalities exist in the theory and practices of all these pedagogies, including ecopedagogy.^{xxxiv} In addition, Education for Environmentalism (EfE) Focuses explicitly and aims to promote environmental action and advocacy.

Action for Climate Empowerment (ACE) is a UNFCCC framework focusing on six key elements— climate education, training, public awareness, public participation, public access to information,

and international cooperation. It was implemented to empower society to engage in climate action.^{xxxv} It bridges Article 6 of the UNFCCC Convention (1992) and Article 12 of the Paris Agreement (2015), aiming to foster the systemic changes needed for a low-emission, resilient future. It was adopted as a user-friendly term at COP20 in Lima (2014).

Remarkably, many of these EE, ESD pedagogies, including Sustainable Development Education (SDE) goals and Eco-Literacy (EL) supported and promoted by various United Nations organization over the last 20 years, have recurrently failed or have had little positive effect (United Nations Decade of Education for Sustainable Development (2005-2014), 2005; Biermann et al., 2022; United Nations Department of Economic and Social Affairs, 2023).^{xxxvi}

UN climate education policies, embedded in ESD and ACE frameworks, reveal stark distinctions between the West and the developing World.^{xxxvii} Western implementations prioritize technocratic integration into curricula with better resources for climate literacy, while Global South efforts remain fragmented, project-based, and adaptation-focused amid resource scarcity. In developed nations, policies drive structured reforms like UK's curriculum mandates and EU-aligned training, yielding uneven but scalable literacy gains; in contrast, developing countries like Cambodia, Argentina, and Brazil pursue community initiatives (school gardens, resilience networks) that emphasize survival skills over emissions cuts, often without binding national strategies. These gaps between top emitters who rarely mandate Climate Change Education despite Paris pledges, versus vulnerable regions that innovate locally, underscore how UN sanctioned pedagogies reinforce inequities, delivering symbolic awareness in the North but minimal structural change in the South (*UNESCO Report (2021)*, 2021; Eliason, 2022; Marques & Otero, 2025).

Early on most EoE's pedagogies such as EE and ESD lacked the nuanced distinctions with regards to eco-justice, d/Development, sustainability, and stewardship. They offered an education whether in theory, pedagogy, curricula, praxis that could not and cannot distinguish and correct the issues affecting our environment. This means that there is a necessity to transform the manner many of the early ecology pedagogies within EoE are generally taught and practiced. Such changes require long term application and as we now understand time is running out. Ecopedagogy influenced by critical pedagogy has been proposed as a new approach to address these EoE lacunae.

Notably for this inquiry the major problem to be tackled is that most Northern/Western ‘traditional’ educational practices within a recently more defining EoE exclude the MTH (Waltz, 2006; Sayes, 2014; Carvalho et al., 2020). Recent developments in acknowledging animal sentience, cognition, and emotion have proposed engaging empathetically with the MTH (see several publications by Bekoff, deWaal and Midgley). Braidotti (in Grusin, 2017), incites us to encompass the wider *zoe*, or animal and MTH life, into our everyday discourses of the utopian imagination as it is de/re-imagined (p. 30).^{xxxviii} Ecopedagogy is also more recently paving the way for a more MTH inclusive pedagogy (Kahn, 2008; Horsthemke, 2020; Bayer & Finley, 2022; Misiaszek, 2025; Chbib & Misiaszek, 2025).^{xxxix} Teaching young learners to understand the problems inherent with their anthropocentric views and educations seems to be more important than ever.

In summary EE is about environmental knowledge. EfE is about advocacy and action. ESD is the broadest, integrating environment, society, and economy to empower learners for sustainable futures. EoE emphasizes holistic understanding of environmental systems, interconnections, and human impacts alongside fostering responsible citizenship through skills like critical thinking, stewardship, and action for sustainability. Recent ecopedagogy critiques all branches if they lack justice, critical reflection, and transformative action (Misiaszek, 2018).

Mobile Recording Devices in Education

According to the Ericsson Mobility Report, by the end of 2025, there were approximately 8.83 billion mobile subscriptions worldwide, with 7.41 billion being smartphone subscriptions. (Davis, 2025) This indicates a global smartphone penetration rate of about 84%. It is evident by the numbers, that the smartphone revolution has made the use of phone cameras very accessible for the majority of the World’s human population. The popularity of the smartphone has generated many possibilities for use in various fields - including EoE.^{xl}

Research suggests that mobile devices can indeed enhance EoE and promote sustainable practices (Schaal & Lude, 2015; Jong, 2020; Mettis et al., 2023; Van Kraalingen, 2023; Hills et al., 2024; Adeyemi & Akinrimisi, 2024; Burke et al., 2025). Mobile devices including smartphones in EoE offer unique affordances, such as real-time data collection and multimedia capabilities, their effectiveness ultimately depends on how they are integrated into broader educational strategies.

However, mobile devices in environmental education can distract, reduce direct Nature engagement, and raise sustainability concerns if not thoughtfully integrated. The tool's effectiveness is contingent upon thoughtful integration into broader pedagogical approaches that prioritize critical thinking, experiential (in)formal education, and meaningful engagement with MTH entities.

Smartphone and other mobile digital recording device use has been shown to enhance learner (in)formal education in various curricula (Hillman et al., 2016; Hjorth & Richardson, 2018; Burkholder & Thorpe, 2019a; Manyeredzi & Mpofu, 2022). In recent years, practices with new 'intelligent' technologies such as smartphones and tablets have been introduced in PAR in the fields of social work, healthcare and pedagogy (Milne et al., 2012; Mitchell & de Lange, 2013; MacEntee et al., 2016a; Burkholder, 2018). Mobile devices can enhance environmental education and potentially foster a sense of belonging, they should also not be viewed as a panacea but as a helpful educational tool.

For this inquiry smartphone use presents several problems that need to be addressed. Smartphones are themselves unsustainable and polluting (Conocimiento, 2020; "How Smartphones Are Contributing to Climate Change," 2022; Moen, 2025); smartphones are considered disruptive and are banned in many schools (Ward et al., 2017; Root, 2024). There have been recent international institutional warnings against smartphone use in education (Butler & Farah, 2023; Goodyear et al., 2025).

In addition, the smartphone is itself MTH and comprised of all sorts of properties in its creation that are exploitative, including labour exploitation, pollution energy use and extraction. This includes mining for rare metals, and ecologically non-acceptable exploitation of other MTH. The benefits of smartphones in pedagogy is still under investigation and conclusions are still far from reaching a consensus (Rosaline & Johnson, 2020; Manyeredzi & Mpofu, 2022; Butler & Farah, 2023; Rahali et al., 2024). Hence, this research-creation addresses the problems of smartphone use in ecopedagogic research-creation.

Inclusive Ecopedagogy and the MTH for Praxis

A MTH inclusive approach not only enriches our understanding of Nature and Earth but also equips learners with the tools to address complex ecological challenges, fostering ecologically literate, empathetic, and responsible global citizens capable of navigating the environmental challenges of the climate crisis. Incorporating MTH perspectives into ecopedagogy requires a fundamental shift in how we conceptualize EoE. This includes our relationship with MTHs and our shared environment - Nature and Earth. Haraway's work has been instrumental in shaping this perspective. Haraway (2016) argued that in this age of the Anthropocene we need to change ways of thinking and learning to transcend human exceptionalism and embrace our entanglements with other species. She adds: "Our task is to make trouble, to stir up potent response to devastating events, as well as to settle troubled waters and rebuild quiet places" (p. 1). Building on Haraway's early ideas, Braidotti (2013) explores the implications of posthuman theory for environmental education and MTH inclusivity. She states:

The posthuman dimension of post-anthropocentrism can consequently be seen as a deconstructive move. What it deconstructs is species supremacy, but it also inflicts a blow to any lingering notion of human nature, anthropos and bios, as categorically distinct from the life of animals and non-humans, or zoe. What comes to the fore instead is a nature-culture continuum in the very embodied structure of the extended self (p. 8).

Braidotti's posthuman approach aims to deconstruct most Northern/Western 'traditional' dualisms in education, such as the separation between human and MTH learning, the divide between verbal and embodied forms of learning and the distinction between Nature and culture.

Bayne (2018) adds: "For education, the implications of seeing the human as inseparable from the networks or ecologies within which it is assembled are profound, in that they challenge the very possibility of the rational cognition and individual agency which we have seen education as existing to nurture" (p. 7). Combining ecopedagogical principles with MTH perspectives allows for transformative educational experiences and research practices.

Research has consequently ventured into new directions to address the recent inclusion of MTH entities in ecopedagogy informed EoE.^{xli} This shift reflects a growing recognition of the importance of MTH perspectives in educational contexts. Chbib and Misiaszek (2025) state: "Recognizing the

democratic rights and agency of more-than-human entities emerges from ecopedagogical spaces by providing more inclusive and ethical approaches to sustainability that challenge anthropocentric democratic political thought” (p. 450). Incorporating MTH perspectives in environmental education can confront corporate, local, regional, national oppressive power structures and fosters global ecological citizenship and inclusive belonging. However, translating these theoretical insights into practice is not without obstacles. Despite its potential, integrating ecopedagogy and MTH approaches into existing educational structures remains challenging for teachers because they lack the training in posthuman ecopedagogy. Practical applications often involve experiential learning and direct engagement with Nature. This lack of preparation often results in uncertainty about how to meaningfully engage with MTH concepts in the classroom. Payne reports that embodied field-based activities that encourage learners to observe and interact with MTH beings can foster a sense of connection and care that extends beyond the classroom (Payne, 2014, 2015). Ecopedagogy praxis with MTH entities can take various forms, from structured cross-species dialogues to immersive natural experiences.

Throughout this project I had to address ontological and epistemological roadblocks. the thesis proposes a shift from human-human collaboration to human-MTH co-creation, but the conceptual and practical passage between these two relational configurations remains under-theorized. What appears as a “*glissement de sens*” is not simply a stylistic slippage; it points to an unresolved tension between different understandings of agency, collaboration, and embodiment that are mobilized at different moments in my research-creation. Posthuman and new materialist approaches insist that agency is distributed, emergent, and relational, but the cellfilms sometimes re-centered the human as the primary narrator and mediator of MTH action, leaving the status of MTH ‘co-creation’ somewhat equivocal if not absent. Rather than a conflation, this “slippage” reflects an ongoing theoretical negotiation aimed at expanding traditional autoethnography toward ecological relationality, thus bridging personal reflexivity and collective ecological becoming.

I am obliged to acknowledge the practical tensions in representing MTH agency through cellfilms and stress that these tensions are productive points for further methodological refinement rather than shortcomings. In this dissertation it is understood that collaboration between human and MTHs is slippery and will meander between the two poles throughout the dissertation but importantly it remains situated within the same collective ecological praxis that is

environmentally constituted and technologically mediated. The MTH is not just included it is enacted.

In addition, even as these innovative practices offer promising avenues for fostering deeper connections with MTH entities, educators often encounter significant emotional and systemic barriers. The complexities of implementing such transformative approaches reveal not only practical challenges but also deeper affective responses that shape the experience of ecopedagogic work. I often struggled in this inquiry with what I term ‘*Circular Ecological Melancholy*’ in my attempt at a new ecopedagogic practice. Circular ecological melancholy is the persistent sense of frustration and fatigue that arises when efforts to change human - MTH relations through education continually run up against entrenched systems and the normalization of (un)sustainable practices. It describes the emotional cycle of aspiring toward meaningful transformation, only to encounter institutional inertia and the dominance of capitalist or anthropocentric paradigms, making real change feel elusive. I found some relief by focusing on small, meaningful changes, connecting with like-minded allies, and sharing transformative ideas. These approaches helped me sustain my commitment, even when real transformation seemed out of reach.

My *circular ecological melancholy* concept emerges in this ecopedagogical praxis as a cyclical affective response to the unresolved tensions in human-MTH co-creation. It echoes Freud's (1917) notion of ‘circular insanity’ in melancholia, where depressive and manic phases alternate without a fixed object, now extended to ecological relationality (Freud, 1999). This builds on environmental melancholia, described as a troubled incomprehension from ecological loss and disrupted human-Nature bonds, which fosters existential insecurity amid anthropocentric ‘slippage’ in my cellfilming praxis (Cunsolo & Ellis, 2018). This also resonates with critiques of (un)mourned planetary grief, positioning the "glissement de sens" as productive negotiation rather than deficit (Hickman, 2015; Žižek, 2000; Oliva, 2023).

Postdigital Ecopedagogies

The last research-creation problem that needs to be addressed is the recent integration of environmental concerns with the realities of our increasingly digitalized ‘World.’ Research in what is termed digital ecopedagogies acknowledges the inseparable nature of digital and analog realms

within our contemporary postdigital ecosystems (Jandrić & Ford, 2022a; Korsant, 2024; Payne, 2015). As Jandrić and Ford (2022) explain:

The postdigital is hard to define; messy; unpredictable; digital and analog; technological and nontechnological; biological and informational. The postdigital is both a rupture in our existing theories and their continuation.' ...thinking the postdigital as an ecosystem means that they—like all ecosystems—are not stagnant or fixed but living, breathing, expanding, and fluid. (p. 5)

Postdigital ecopedagogies aim to address the multifaceted challenges of our time, by cultivating educational practices that emerge from, negotiate, and potentially transcend the evolving landscapes of human-machine-Nature interactions.

However, incorporating technology in EoE pedagogy can be problematic for learning MTH inclusivity. Abram's (2017) phenomenological approach emphasizes the importance of direct sensory engagement by reconnecting with MTH entities through sensual and embodied experiences. He states:

Direct sensuous reality, in all its MTH mystery, remains the sole solid touchstone for an experiential world now inundated with electronically-generated vistas and engineered pleasures; only in regular contact with the tangible ground and sky can we learn how to orient and to navigate in the multiple dimensions that now claim us. (p. 9)

He acknowledges that the dominance of digital technologies in our postdigital World presents impediments to fostering direct human-Nature integrated experiences. The integration of technology and EoE pedagogy can challenge anthropocentric worldviews. Educators can help learners develop a more holistic, empathetic, and ecologically grounded understanding of their place in the World by fostering direct engagement with Nature and developing new conceptual pedagogic frameworks aided by new technologies.

RESEARCH-CREATION QUESTION, PURPOSES AND OBJECTIVES

This inquiry sought to contribute to the understanding and praxis of ecopedagogies in order to imagine/sketch/create a model of EoE which incorporates the MTH into EoE pedagogies and practices. This was done through the use of cellphilmaking in kinship development with MTH entities through an affective and sensual performative understanding of autoethnography (see methodology

in Chapter Three). I also was determined to explore alternative ecopedagogical, ecological, and environmental practices that mobilizes autoethnography using mobile recording technology and other first-person forms. The guiding research-creation question of this inquiry is: *How does autoethnographic filming using mobile cellphilm technology engaged with the participant's senses and affects contribute to ecopedagogies that connect humans to MTH entities?*

Specifically, the inquiry researched the affective engagement with the learner's senses during autoethnographic cellphilm, to induce belonging with the MTH. I argue throughout that a strengthening of the emotional relationship with the MTH can only provide a stronger understanding of the mediated relationship between the ecopedagogic autoethnographer and the subject:object of study. This methodological and creative perspective has allowed for a more intertextual and reflexive dialogic comprehension of the (self)-data experienced and collected.

The goals remain a conscientization through critical and politically engaged teaching, ecopedagogical ecoliteracy, and (in)formal (un)sustainability education.^{xliii} The primary objective was also to innovatively combine an ecopedagogic praxis together with MTHs for kinship and inclusivity, and this to contribute academically to the theory and practice for future research application.

METHODOLOGY AND RESEARCH-CREATION

I argue throughout this research-creation that an affective audio-visual cellphilm interaction causes kinship tensions of identification and embodiment in relation to the MTH. I performed an ecopedagogic technique (praxis) not only to show technology plays an interactive role in our sensory relation with Earth but also inadvertently and affectively forms kinship with the MTH. Thus, the methodological challenge for this inquiry is expanded into EoE pedagogy in a way that understands, problematizes, and engages this interconnectedness. I experimentally generate in this research-creation knowledge, techniques, and explanations through affective, self-reflexive, autoethnographic methods and practices with cellphilm.

Why Cellphilm?

I acquired a smartphone with a good camera from my Fido mobile phone service provider in 2009. My initial hesitation in purchasing such a device was in the disappointment in image quality that I would have to endure. As a filmmaker this potential problem was important and the inability to exhibit low quality images was informed by producing motion pictures first on super 8, then on 16mm, followed by years of 35mm productions and finally more recent digital support. Over time, shooting became simpler, less costly and more controllable. Once I received my latest cellphone, a Galaxy S-9+ with its state-of-the-art smartphone camera (digital capture) in 2018, I quickly shot a few films using the new device and was relatively pleased with the final product. I used this smartphone for most of the cellphilm in this inquiry.

In my previous research while I was studying at Bishop's University for my masters, I started to look at how I can join filming with pedagogy now that the tool is so light, accessible and easy to use. I attended a cellphilm festival (*10Th Annual Cellphilm Festival - Re-Imaginings, 2022*), which introduced me to the concept of educational use in PAR by Claudia Mitchell (Milne et al., 2012). Originally developed in the context of cinema studies and later applied to agricultural and climate change research, cellphilms were effectively adapted for a wide range of environmental research projects (Dockney & Tomaselli, 2010; MacEntee et al., 2016a; Mitchell et al., 2016; Burkholder, Aladejebi, & Joshua Schwab-Cartas, 2022).

The widespread availability of smartphones made cellphilms an accessible tool for researchers and participants alike (Schleser, 2014; Wali & Omaid, 2020; Turner, 2024). Cellphilms were used to empower local communities to document and share their environmental experiences and knowledge (Chan et al., 2016; Van Borek & Abrams, 2023). Visual data captured through cellphilms provided insights that may not be easily conveyed through most Northern/Western 'traditional' research methods. In addition, cellphilm still required a set of creative steps that facilitate the diffusion of the message to be conveyed by the cellphilm maker for their targeted audiences. These steps were clearly delineated in the *McGill International Cellphilm Festival* blog prepared by the Thompson et al. (2014). They outline the method to proceed while researchers and participants are making a cellphilm. The recommendations in Thompson et al. were very simple to follow and film amateurs could easily tell their stories in a straightforward, coherent manner. At

this stage the purpose of cellphilms was limited to academic research and cultural, educational and social engagement for participants. They prompted activism, engagement, community participation and social, health and educational transformation.

The asynchronous nature of cellphilming, where filming occurs in one time-space and viewing occurs in another, created a layered spatio-temporal engagement. This duality allowed for reflexive praxis, where memory, imagination, and embodied experience intersect during both the creation, sharing and analysis phase. From a creative perspective, the ease with which films of various lengths could be shot became evident and yet the speed of making these short digital films did not make them more engaging, informative or more aesthetically pleasing. Form could not compete with content - a story still needed to be the driving factor for cellphilms. The representational narrative remained dominant, there was no exception because the intention was to present a cohesive short cellphilms to an audience that needed to understand the cinematic message.

My research-creation intended to use cellphilming as an embodied practice seeking affective, sensorial and emotional attunements and engagements with the MTHs. Cellphilming in my inquiry was intended as a non-representational interlocutor between the filmmaker and the MTH entities. It was not about telling a story for reviewing on video platforms. The story was the *in situ* shared interaction, the kinship and the reflexive writing in the diary. The MTHs and I were the only narrative that the research-creation sought to understand and feel. I chose to use this research-creation tool for my ecopedagogic praxis because if it is well framed pedagogically, it could become an easy technological practice for young EoE learners to experience, embody, and learn how to belong with the MTH participants.^{xliii}

Choosing cellphilming with MTHs off course does not come without ontological problems. As a white, privileged cellphilming practitioner, I had to be weary and confront the pitfalls of cellphilming through Walsh's (2016) lens, recognizing how my positionality risks entrenching the “dangerous romance of liberalism” and of “community” she critiques inherent to participatory video (pp. 405–406). Walsh warns of research ‘relevance’ in that such methods often promise empowerment and voice while masking technocratic presumptions and uneven power dynamics, allowing facilitators like me to frame narratives that serve institutional agendas rather than disrupt them (p. 406). In my ecopedagogical praxis, this manifests as a slippage where I, holding the

camera and editing tools, might recenter human (and privileged white) agency over MTH co-creation, demanding constant reflexivity to avoid co-opting relationality into liberal individualism (p. 410).

Yet, this realization about the dominance of representational narratives also revealed the ethical tensions within my own cellphilmaking praxis - raising questions about authorship, voice, and relationality that echo Walsh's (2016) critique of liberal participatory methods. These are further addressed in Chapters Four and Five.

My Research-Creation Praxis

I used the smartphone as a useful tool aimed at answering my research-creation question. I put into practice alternative methods emerging from non-representational and postphenomenological theory. Thrift (2009) describes the manner I perceive non-representational theory for my research praxis:

Non-representational theory IS about practices, mundane everyday practices, that shape the conduct of human beings towards others and themselves in particular sites. This is not, then, a project concerned with representation and meaning, but with the performative 'presentations', 'showings' and 'manifestations' of everyday life...Non-representational theory is concerned with the practices of sub-jectification (note the crucial 'ion'), not with the subject. A number of consequences follow. First, the subject is radically decentred...But, second, the subject is still embodied. This means much more than the actual shape and innate capacities of the human body. It also involves basic general skills and cultural skills. (pp. 126–127).

My smartphone, as both tool and mediator, became a vehicle for capturing these 'showings' of socio-environmental relations, grounding theoretical concepts in material, experiential inquiry.

Postphenomenology (aka. experimental phenomenology) proposes technology as a way of understanding the (h)Human/(w)World/Earth intrinsically as a relational experience (O'Neal Irwin & Ihde, 2016; Ash & Simpson, 2019).^{xliv} In other words, we hear something - we do not just hear.^{xlv} Taking its roots from Brentano (intentionality), Husserl (lifeworld), Heidegger (being-in-the-world) and Merleau-Ponty (perception), postphenomenology as theorized by Ihde (1979) is pragmatic and proposes that we look at how we experience the human/Human/World/Earth relationship, change our perception, and offer new ways to experience phenomena as corelated and interrelated with

technology. The aim of this methodological exploration was to explore opportunities for re-inventing human-MTH belonging and to erect a method that might dislodge, critique, transform and re-invent the anthropocentric discourse that has been so hegemonic for decades even in ecopedagogical research.

I filmed over a consecutive twenty-week period, approximately 200 cellfilms consisting in duration mostly two to three minutes each. The films covered various themes related to the MTH as understood through contemporary ecopedagogic theory aiming to understand and disrupt such (un)sustainable phenomena as the repetition of unending extraction, bio-destruction, ecocide, MTH and human oppression, injustice and anthropocentrism. The cellfilms also incorporate ecopedagogic concepts that rely on biophilic intentions, ecopedagogical literacy and social justice.

Finally, I posted on a YouTube channel fifty selected cellfilms and allowed space for the general public to reflect and make comments about their embodied relationship with MTH entities that participated in the cellfilms. The cellfilms will remain online for five years accessible through YouTube algorithms and through my dedicated website www.ecopedagogy.ca

MAPPING THE THESIS – WORK PLAN

The 600-page diary that I have written as part of my inquiry outlines the step-by-step process of my research-creation and academic pursuit (see my diary's *Table of contents* and an excerpt in Appendix 4). In summary, this research-creation started when I was admitted to the PhD program at Université du Québec à Montréal (UQAM) in September 2022. In August 2024 the PhD thesis proposal was accepted by my jury. This initiated the research-creation process including the 120 days of cellfilming that produced approx. 200 cellfilms as creative data for this research. I only took detailed notes on 150 of the 200 cellfilms produced. I started the analysis and writing process in November 2024.

In preparation, I attended in the month of April 2024, the 4th International *Holistic Teaching & Learning Conference*. I presented a workshop where teachers practiced autoethnography using cellfilming as an ecopedagogic practice. Attendants shared their thoughts reflexively after cellfilming. They also discussed the emotional, kinship and identity formation as they engaged with the MTH of their choice. I included in my diary a reflexive analysis of the comments and

experiences made by the educators performing the suggested praxis. Their comments were not included in this inquiry for ethical reasons. Consequently, this informative conference and my workshop outcome further grounded this research-creation by clearing out impediments and insecurities that tainted my original dissertation process – a trial run of sorts that got rid of perceived barriers and issues.

SUMMARY

In this introduction the nature, background, aims and purposes of this research-creation were introduced and highlighted. I have outlined my research-creation dissertation to generate through knowledge, techniques, and explanations regarding affect in self-reflexive autoethnographic ecopedagogic methods and practices with *cellphilms*. I have identified the main concepts and defined the terms informing my research. The creation aspect of this research-creation which covers the filming of approx. 200 cellphilms will be described in Chapters Three. I include in this research-creation the details of the agential participation of the MTH through an affective audio-visual interaction. This research-creation also prepares the theoretical, experiential and practical grounds for further ecopedagogic practices using cellfilming. Specifically, research-creation with learners and teachers that can advocate a more grounded, just, (un)sustainable, and *in situ* perspective on EoE inclusive of MTH entities.

CHAPTER 1

LITERATURE REVIEW

INTRODUCTION

This chapter examines the progressions of meaning, practices and theoretical discourses concerning three basic concepts underlying the research: ecopedagogy, cellphilm and affect. The history, breakthroughs, recent research, and gaps are critically examined. Furthermore, the limited cellphilm literature involving affect and ecopedagogy makes defining the phenomenon hard to grasp. The literature is selected from a variety of relevant disciplines incorporating themes and practices that can be adapted to the practical aims of this research-creation.

Part One examines the history, and theory behind pedagogies of the environment, ecology, fatalism and global citizenship. Part Two delves into cellphilm, the MTH and embodiment. Part Three investigates affect, emotion and belonging. The selection of information on theory, methodologies and practices involved the search for peer reviewed articles and books on the Université du Québec à Montréal (UQAM) library and search engine and on internet data bases including Sofia, Eric, Google Scholar, the use of Augmented Intelligence (AI) generators, and the perusal of various academic websites including the Internet Archives, Academia and Researchgate.^{xlvi}

In addition to the literature and research data, I inquired into available visual data including cellfilms, participatory video, multimedia photo and voice texts on YouTube, Vimeo and various other platforms for getting an overall perspective on the work in progress, including the *cellfilms* presented at *the 10th Annual McGill International Cellphilm Festival*^{xlvii} preceded by lectures titled the *Re-visioning Cellphilm Methodologies Virtual Symposium*.^{xlviii}

PART ONE: ECOPELAGOGIES

Ecology Education: Historical Legacies

Early Western centric education of ecology and subsequently the environment was preoccupied with the relationships between the flora, fauna, humans, and the environment. Ecology was predominantly researched and studied in relation to human activity from a Western historical and Eurocentric academic perspective. In this section, I identify the development of ecology in

environmental and (un)sustainability education in order to untangle the main educational and communicational problems that inform my research. I then outline the development and recent research in ecopedagogy. This section of the literature review tries to understand why and how environmental and (un)sustainability education's effectiveness is hindering the advancement of more inclusive, critical, and transformative approaches - such as ecopedagogy - by examining persistent challenges related to utopian thinking, fatalistic attitudes, and Eurocentric biases within educational and communicational practices.

The term 'ecology' (in German *Ökologie*) was coined in *The general morphology of organisms* (1866) by the German biologist Ernst Haeckel.^{xlix} Historically, Ecology was predominantly researched and studied in relation to human activity in Northern/Western academia. Prevalent research and scholastic writing by Greek, Roman, and Islamic philosophers, and later Renaissance and Enlightenment thinkers concentrated on biology, plant sciences and geology. This included such notables as Aristotle, Al-Jahiz, Ibn-Bassal, Fuchs, von Gessner, Leeuwenhook, Aldrovandi, Rousseau, Froebel and Darwin to name but a few. Borden (1985) tells us:

Though many ecological notions have been traced to pre-Socratic philosophy as well as various Native-American and non-western ways of thought, the stage for modern ecological thought was not firmly set until the publication of Darwin's *Origin of the Species* in 1859. Additional foundations were laid with Humboldt's *Kosmos*, Huxley's *Man's Place in Nature*, and Haeckel's *Natural History of Creation*. (p. 1)

Carter and Simmons (2010) stated in *The history and philosophy of environmental education*, that in the nineteenth century United States, John Muir, Enos Mills, and biologist Liberty Hyde Bailey popularized 'wild nature'^l emphasizing its intrinsic value and spiritual significance.^{li} They also explain how Anna Botsford Comstock's (1911) publication, *Handbook of nature study* offered lasting pedagogic reading for conservation education (p. 11). Decades later, Aldo Leopold in *A Sand County almanac* (1949) recommended sensible resource consumption for maintaining habitats (p. 11). Finally, they add that more recently the environmentalist movement was re-invigorated by Richard Louv's *Last child in the woods* (2005),^{lii} a portrayal of child/Nature relationships and the consequences of contemporary society's environmental mischiefs (in Bodzin et al., p. 11).^{liii}

Environmental and (un)sustainability education can be understood as a broad field encompassing several distinct but interrelated approaches. At the foundational level is Environmental Education (EE), which focuses primarily on instructing scientific knowledge about ecological systems, natural processes, and environmental issues. EE is largely concerned with understanding the environment as an object of study, emphasizing facts and analytical skills but not necessarily aiming to change attitudes or behaviours. Ecopedagogy scholars critique this approach as reductionist, arguing that it risks separating the environment from its social, ethical, and political contexts (McLaren & Houston, 2004; Kahn, 2010; Misiaszek, 2018). They contend that by focusing solely on knowledge transmission, EE can neglect the interconnectedness of environmental and social justice issues and may fail to inspire the critical consciousness or transformative action needed to address today's complex ecological crises. Misiaszek (2014) provides a critique of EE that justifies a need for change:

All human acts of environmental devastation are done for the profit of groups of individuals; however neoliberal influenced EE pedagogies hide who is benefiting and who is negatively affected...What makes this neoliberal defining of sustainable development even more problematic is that the economics of all (i.e. the masses) is not considered as much as the sustaining and strengthening the existing socio-economic hierarchies with a few becoming increasingly powerful. (p. 7)

His description reduces EE to individual actions (e.g., recycling, energy conservation and green purchasing). Without a critical focus on the root causes of environmental problems - such as colonialism, capitalism, and systemic inequality - EE risks remaining superficial and insufficient for transformative change. This reduces EE to everyday behaviors promoted as sufficient for sustainability, diverting attention from collective critique while sidelining critiques of corporate greed, policy failures, and global injustice. To transform EE, pedagogy must expose the hidden hierarchies, center justice and equity in solutions, and empower learners to challenge (un)sustainable systems. Adding that we should use the term, “ ‘education of the environment’ to signify pedagogies about the environment either with or without the goal of environmentalism, as opposed to environmental pedagogies which have the expressed goal of environmentalism” (p. 25).

Building on this, Education of the Environment (EoE) serves as an umbrella framework that not only includes the knowledge-focused dimension of EE but also integrates affective and behavioural components. EoE aims to foster environmental literacy by combining scientific understanding with

the development of values, attitudes, and skills necessary for responsible citizenship. It encourages both learning about the environment and engaging with it through interdisciplinary and experiential methods. EoE can advance truly sustainable, equitable futures by fostering critical awareness of structural inequalities and equipping learners to demand systemic change. EoE integrates affective (values and attitudes) and behavioral (skills for action) dimensions. It frames sustainability holistically through interdisciplinary lenses like science, ethics, and citizenship. Yet, Misiaszek (2018) points out that even EoE, while more holistic than EE, can fall short if it does not critically engage with issues of power, justice, and global inequities.

Within or alongside EE is Education for Environmentalism (EfE), which shifts the focus toward advocacy, activism, and the cultivation of pro-environmental behaviours. EfE is designed to inspire learners to adopt values and take actions that support environmental protection and sustainability. Ecopedagogy scholars, however, critique conventional EfE for sometimes being limited to individual actions or apolitical advocacy (Misiaszek, 2018; Ardoin & Bowers, 2020; Jandrić & Ford, 2022b; Chen et al., 2025; Iyengar et al., 2025). They advocate for a more critical, justice-oriented version of EfE which emphasizes systemic change, social justice, and planetary citizenship. This approach encourages learners to critically analyze the power structures and global systems that drive environmental crises, linking local actions to broader social and ecological justice. The distinction between EE, EoE and EfE represents an important nuance in environmental education approaches. While they aim to increase environmental awareness, they differ in their focus and objectives.

Expanding further, Education for Sustainable Development (ESD) takes an even broader perspective. ESD addresses not only environmental issues but also the social and economic dimensions of sustainability. Its goal is to empower learners to contribute to a just and sustainable future by fostering critical thinking, problem-solving, and collaborative skills. ESD is closely aligned with global policy frameworks such as the *United Nations Sustainable Development Goals* (SDGs) and emphasizes the interconnectedness of environmental protection, social equity, and economic well-being (United Nations Decade of Education for Sustainable Development (2005-2014), 2005; United Nations Department of Economic and Social Affairs, 2023).

Overlapping branches of environmental and sustainability education such as EoE, EE, ESD, EfD, and SDE have mostly been in place for over 40 years and have been criticized for encumbering an education for sustainability and for lacking the needed pedagogy for fighting climate change (Blumstein & Saylan, 2007; Wardani et al., 2018; Bonnett, 2019; Payne, 2020; Misiaszek, Popoff, et al., 2022).^{liv} These developing educational practices are said to lack the informing of environmental knowledge through democracy and hope (Orr, 2011, 2016) and limit alternative perspectives (Young & Malone, 2023). They also constrain knowledge (Crow, 2007), reduce allotment for EoE in curricula (Sanera, 2008; Larson, 2021), and hamper transformative political praxis in EoE (McLaren & Houston, 2004; Kahn, 2008; Misiaszek & Rodrigues, 2023). But mostly they lack a clear understanding of an educational integration of ecojustice, critical reflection, and transformative action that ecopedagogy proposes.

In sum, inclusive environmental and sustainability education such as, land ethics, deep ecology, social ecology, ecofeminism, ecoliteracy, critical pedagogy, ecopedagogy, and biocentric and/or eco-centric education, to name a few, approach pedagogy differently in epistemological and ontological theory and praxis. This has an effect on the pedagogies, curricula and praxis especially the manner different EoE, EE, EfE, ESD pedagogies address (un)sustainability, ecoliteracy and development.^{lv}

Ecopedagogies

Critical Pedagogy (CP) sometimes referred to as Radical Pedagogy was introduced by Freire in the 60s (2000, 2004).^{lvi} Freirean CP focuses on challenging the ‘banking model’ of education, developing critical consciousness, and promoting dialogue between teachers and learners thus empowering learners to become critical thinkers and agents of social change.^{lvii} Critical pedagogies aim “to engage in critical praxis to reinvent societies – indeed, this reinvention might include both traditions and modern processes” (Misiaszek & Misiaszek, 2016, p. 29).^{lviii} The recent reinventions of Freirean pedagogy for more radical approaches includes addressing critique fatigue, incorporating psychoanalytic perspectives, adapting to contemporary contexts like neoliberalism and digital literacy, emphasizing learner autonomy, and expanding beyond literacy education (Springer et al., 2016; Payne, 2017; Boodman, 2019; Korsant, 2024). There are several offshoots of EoE informed by CP, such as place-based EoE (Blenkinsop, 2012; Sobel, 2020) and eco-literacy

(Orr, 1992; Capra, 1996).^{lix} However, they do not promote learning through liberatory praxis, in the same way as ecopedagogy (Kahn, 2010; Misiaszek, 2023; Kopnina et al., 2024). Ecopedagogy influenced by CP emerged as a new approach to EoE to address these lacunae. Misiaszek (2018) delineates the term: “Ecopedagogical models are inherently education of the environment (as an environmental pedagogy) that centers socio-environmental justice as the goal” (p. 25).

Informed by Antunes’ and Gadotti’s (2005) thematic essay titled *Eco-pedagogy as the appropriate pedagogy to the Earth Charter Process*, Kahn describes ecopedagogy as a new form of environmental and sustainability education to deal with the weakness of different forms of ecoliteracy (EL) and sustainability education.^{lx} Kahn (2010) defines the practice:

Ecopedagogy seeks to interpolate quintessentially Freirean aims of the humanization of experience and the achievement of a just and free world with a future oriented ecological politics that militantly opposes the globalization of neoliberalism and imperialism, on the one hand, and attempts to foment collective ecoliteracy and realize culturally relevant forms of knowledge grounded in normative concepts such as sustainability, planetarity, and biophilia, on the other. (p. 18)

Kahn's (2010) approach to addressing the ecological crisis through educational transformation raises important questions about the limitations of individual decision-making abilities and critical reflexivity, particularly regarding epistemological insight. Kahn acknowledges that our capacity to make informed choices about environmental issues is often limited by cognitive biases and incomplete knowledge. At the base of this is the duality that separates humans from Nature. Kahn’s insight highlights the challenge of developing critical thinking skills in the face of complex environmental problems perceived by this kind of dualism. He also challenges the notion that individual critical thinking alone can resolve environmental crises. This concept of limited epistemological insight is particularly relevant to Kahn's approach leading him to propose that Western environmentalist educators and researchers learn from Indigenous knowledge and traditions (pp. 106–112). For Kahn, ecopedagogy is aimed to inspire transformative action towards environmental and social justice through a critical, revolutionary, and radical pedagogy.

Revolutionary critical ecopedagogical practices require ethical co-creation, equitable technological access, and recognition of MTH agency to foster transformative, reflexive, justice oriented EoE. McLaren states:

Some would argue that ecopedagogy is already revolutionary and critical and should simply be denoted as “ecopedagogy”. But the term revolutionary critical pedagogy draws attention to my conception of ecopedagogy as denoting a transformation of capitalism to a democratic socialist alternative, that is, a transformation of institutions of power on behalf of social justice. (2013, p. 89)

McLaren’s conceptualization of revolutionary critical ecopedagogy builds on this foundation by explicitly linking ecological crises to capitalist structures, arguing that transformative education must address systemic inequities and envision post-capitalist alternatives. His work intersects with Kahn’s (2010) critique of mainstream sustainability education, which often neglects the colonial and neoliberal frameworks exacerbating environmental degradation. Both scholars stress the need for critical ecoliteracy that centers various versions of Indigenous epistemologies and grassroots movements, reflecting Freire’s *conscientização* (critical consciousness).

Building on Freire's ideas, ecopedagogy emerged as a critical environmental pedagogy. Misiaszek (2012) synthesizes the Freirean re-invention:

A reinvention of Freirean pedagogy towards a Freirean ecopedagogy focuses on raising consciousness (*conscientização*) about societal oppression caused by environmental degradation. Environmental problems must be deconstructed and re-constructed within social justice frameworks, through critical dialogue to enhance ‘reading of the world’ through various knowledges and theoretical frameworks. (p. 429)

Misiaszek bridges McLaren’s revolutionary praxis with the movement’s historical commitment to planetary justice, thus completing the theoretical arc from Latin American critical pedagogy to contemporary decolonial ecopedagogical frameworks by framing ecopedagogy as a continuation of Freire’s legacy.

Similarly, Kahn (2010) and Gadotti (2010) advocate for a radical vision of ecopedagogy that challenges dominant ideologies and promotes global sustainability and solidarity to re-educate misinterpretations of basic environmental ideas by re-reading and re-inventing, engaging locally and learning through multiple epistemologies.^{lxi} Gadotti tells us Freire's pedagogy is grounded in ethics, a deep respect for the dignity of learners, and the cultivation of critical consciousness. Misiaszek (2020) in turn explains: “Ecopedagogy is essentially literacy education for reading and rereading human acts of environmental violence with its roots in popular education, as they are

reinventions of the pedagogies of the Brazilian pedagogue and philosopher Paulo Freire” (p. 1).^{lxii} Ecopedagogy grounds education in ‘real-world’ experiences. It creates opportunities for practical, hands-on (in)formal education that reflects the complexities of environmental issues.

Ecopedagogy also differs from most Northern/Western ‘traditional’ EE, ESD, EfE, within all EoE because it relies on communal (in)formal education rather than individualized environmental education. Korsant (2022) tells us, “echoing Bourdieu (1977), a successful ecopedagogy should constitute a ‘community of practice’ (Lave and Wenger 1991) that bolsters its own sense of community cohesion” (p. 4). Ecopedagogy thus integrates the ideas, tools, and skills of all participants involved (academics/teachers, workers, community members, and learners) in multiple ways to produce ‘transformative’ knowledge in ‘re-invented’ knowledge spaces, in other words in a contextualized ‘real world’ inside the parameters of Earth.^{lxiii} This requires ‘community-led sustainability initiatives’ (Kahn, 2010), local and an integrated (in)formal education that is place-based with democratic civic involvement, understanding the limitation of positionality, and a historical understanding of the unjust relationships between *e*/Earth and *w*/World (Misiaszek, 2020a, p. 20).^{lxiv}

Ecopedagogy teaches to disrupt the repetition of unending extraction, bio-destruction, ecocide, oppression, injustice and anthropocentrism that (un)sustainability (un)intentionally and intrinsically promises. Ecopedagogy addresses violence by critically examining how social and environmental harms are interconnected. Rather than treating issues like pollution or deforestation as separate from problems like racism or colonialism, ecopedagogy reveals how these forms of violence reinforce each other. Misiaszek (2018, 2020b, 2023; Misiaszek et al., 2022) has consistently reminded us, “what are the costs of environmental violence and who suffers from it?” (Misiaszek, 2020a, p. 1).^{lxv} Through dialogue and critical thinking, learners are encouraged to recognize the roots of violence in society and the environment, question who benefits from these systems, and imagine more just and sustainable alternatives. Ultimately, ecopedagogy aims not just to understand violence, but to inspire action that challenges and transforms the structures that cause harm to people and the planet.

New research allows for re-invention, by *de/re*/constructing through the lens of ecopedagogy such contested fields as *d*/Development, local versus global belonging, *de/re*-coloniality, post-digital

identity, MTH inclusivity, and (un)sustainable education. Ecopedagogy as an extension of critical theory and ecology, considers the intersections of social justice, ethics, care and love taking into consideration that knowledge is structured horizontally. Ecopedagogy thereby maintains an ‘unfinishedness’, ‘re-invention’ and ‘fluidity’ of the (in)formal education experience.^{lxvi} Abdi and Misiaszek (2022) ask for a contextual historicism, they state: “overall fluidity signifies that critical theories cannot be ahistorical with the past as nonconsequential of current and future happenings, nor static for future usages. This coincides with Freire’s (1992, 2000) essence of reinvention” (p. 6).^{lxvii} It rejects static interpretations of globalization by framing historical economic systems as dynamic forces that require continuous problem-posing to expose their evolving mechanisms of environmental exploitation. Historical frameworks are neither discarded nor venerated but recontextualized through praxis-driven dialogue.

Mayo (2011) wants ecopedagogy to consider a continuum that acknowledges and integrates the past liberal humanist visions of globalization.^{lxviii} Rather than outright rejecting earlier ideals of universal progress or human-centric development, Mayo advocates for a variety of understandings that recognizes historical contexts while reorienting toward systemic critiques of power, inequality, and ecological harm. This approach emphasizes reflexivity in education for sustainability (E/ESD) and EoE, where actions are rooted in deliberate, contemplative analysis of their societal, economic, and ecological impacts.

Ecopedagogy is based on “praxis oriented, fluidity, radical, utopic with countless possible futures, and using bottom-up approaches” (Misiaszek, Popoff, et al., 2022, p. 6). Ecopedagogy uses bottom-up approaches to center the voices and experiences of those most affected by violence, drawing on diverse cultural and local knowledges to challenge dominant, often oppressive, narratives. In this way, ecopedagogy’s foundational values are inseparable from its mission to identify, analyze, and transform the interconnected violence shaping our shared World.

In these continuously adapting times there have been convincing arguments that there are more than one kind of ecopedagogy, hence the term ecopedagogies would be more appropriate (Misiaszek, 2020a, p. 4). Ecopedagogies encompass multiple approaches, yet they share foundational principles. Each ecopedagogy adapts to its specific environment and community needs while still sharing common tenets. The plural term allows for a more inclusive, flexible, and

context-sensitive framework that is *in flux* and vital for responding to the diverse challenges of sustainability and justice across the globe.

In my ecopedagogical praxis, cellphilmaking embodies these multiplicities in approaches, practices and theoretical pathways. For example in my proposed cellphilmaking praxis, I pose ecological problems via single-take filming of human-MTH interactions, I suggest sharing videos online or in communities, and propose to drive praxis through Indigenous knowledge perspectives on MTH co-participants - as has been recently researched - that counter anthropocentrism and marginalization (Mitchell et al., 2016; Schwab-Cartas, 2018; Mfeka-Nkabinde et al., 2024). In addition, a 'just transition' as proposed by Iyengar et al. (2025) through Freirean processes like problem-posing, dialogue, and praxis, can directly enhance my cellphilmaking practice by framing it as a tool for critical conscientization and earth-justice. Critical consciousness, action-oriented participation, emotional bonding with/in Nature, and creative expression further align cellphilmaking with ecopedagogical levers. This occurs as the smartphones capture and engage with vitality, affect, including (non)representational narratives to cultivate empathy, belonging, so that learners can challenge post-colonial dualisms, and inspire planetary citizenship for sustainable transitions

Western Fatalism and Indigenous Frameworks

The belief that environmental destruction is inevitable, and that individual or collective action is ultimately futile brings about a kind of trained apathy, where people disengage from environmental responsibility because they feel powerless to make a difference. Ecopedagogy seeks to challenge and overcome fatalism by fostering critical hope and empowering learners to see themselves as agents of change, rather than passive bystanders. Fatalism is understood in ecopedagogy as counterproductive.

While fatalism can sometimes protect individuals from eco-anxiety or guilt, its long-term effect is to normalize inaction and perpetuate destructive systems. By addressing fatalism directly, Freire theory informed ecopedagogy has been aiming to replace resignation with engagement, helping learners move from despair to meaningful action in the face of ecological crisis. Understanding these foundational and historical dynamics of ecopedagogy is crucial for developing new

transformative ecopedagogic approaches that promote agency and social responsibility in the face of systemic challenges.

Neoliberal ideology often promotes a form of fatalism that accepts market forces as inevitable. This is evident in how neoliberalism shapes education policies. Since Reagan in the early 1980s much of education in the United States (further adopted by most developed and many developing countries) has been reconstituted under neoliberalism as part of the market. Davies and Bansel (2007) argue:

There is no longer a conflict between the self-interest of the economic subject and the patriotic duty of the citizen: the newly responsabilized individuals fulfil their obligation to the nation/state by pursuing economic well-being for themselves and their family, for their employer, company, business or corporation... freedom is rearticulated as freedom from want, and is to be gained through self-improvement obtained through individual entrepreneurial activity. (p. 252)

Neoliberal education policy produces fatalism that leads to a sense of powerlessness in the face of market forces, discouraging collective action and promoting individualistic solutions to systemic problems (Hill & Kumar, 2009; Juergensmeyer & Benz, 2020; Melanson, 2023).

This is further complicated by institutional hypocrisy, such as religious organizations who advocate for environmental stewardship but continue to invest in industries that harm Earth. For example, the relationship between neoliberal fatalism and Catholic epistemes is often contradictory with some interpretations of Catholic doctrine potentially reinforcing fatalistic attitudes (Cloutier, 2012; Tilley, 2014). While neoliberalism promotes a form of economic fatalism, Catholic social teachings often resist this view in their preachings but nevertheless promote it in their actions by commodifying human life, suppressing human agency, diverging from moral responsibility, and acting against the transcendence of economic determinism. The Catholic church engages actively in financial markets, seeking tax credits, indulging participating in banks (in some cases that evade taxes), and adopting neo-liberal welfare models in their institutions (Burke, 2012; Muehlebach, 2012). Fatalism in the context of critical education and social education policy is deeply influenced by both neoliberal thinking and Catholic epistemes whether directly or indirectly. The Catholic church needs and works within a regulated market economy that protects and serves the common good. Nevertheless, this perspective suggests that Catholic thought could offer a critique of both

neoliberal fatalism and socialist determinism, advocating for a middle ground that recognizes human agency within social structures.

Freire is foundational in the ultimate formulation of many ecopedagogy tenets. Freire's work was strongly informed and based on Marxist and Hegelian theory, proposing a 're-invented' Marxist:humanist ideology as an educational philosophy of conscientization and emancipation directed against the social injustices suffered by class segregated and oppressed populations. More significantly, Freire was also influenced by progressive Catholicism.^{lxix} Gadotti (2019) worked closely with Freire and has listed some of the thinkers that Freire relied on for his work.^{lxx} Gadotti tells us: "I believe that the two most influential sources of his thinking were humanism and Marxism...the influence of Marxism followed that of Christian humanism" (p. 48).^{lxxi} Catholicism was a major inspiration for Freire's ideas on non-violence, emancipation and liberation.^{lxxii} Mayo (2019) clarifies:

Freire's pedagogical ideas began to become more robust through his exposure to a whole range of writings, extending beyond those of the Brazilian Catholic Left; the French Catholic Left, especially Jacques Maritain, Emmanuel Mounier, and Pierre Teilhard de Chardin (Leopando, 2017); and those of writers such as John Dewey, the latter also through the mediating influence of Anisio Teixeira. (p. 305)^{lxxiii}

Rexhepi (2019) adds that, "Freire, despite Marxist ideological bearings, remained deeply moved by his own Catholic beliefs" (p. 214). This is evident in Freire's foundational discourses on hope, utopia, fatalism and emancipation which are prominent Christian concepts in all of his work. Misiaszek (2012) adds that Freire advocates utopia as an, "overarching goal for any pedagogy (Teodoro and Torres 2007)...Without the ability to dream of utopia, education cannot be transformative and fatalism will override the ability to comprehend any alternatives (Freire 1998a)" (p. 436).

Catholic and Protestant doctrines often emphasize human dominion over Nature, fostering a perspective that can lead to fatalism regarding environmental degradation, as Nature is viewed primarily as a resource for human use. These worldviews contradict many Indigenous knowledge systems that typically promote stewardship and a reciprocal relationship with Earth. Misiaszek (2022) expands:

Non-anthropocentric worldviews are deeply ingrained in almost all Indigenous epistemologies, but anthropocentrism grounds Northern languages as commonsense with systematic epistemicide as reinforcing it as such to largely justify socioenvironmental violence, crush alternative/new imaginaries, and systematically hide leverages of change, although far from being impossible to unveil. (p. 139)

Ecopedagogy tries to reconcile these contradictory worldviews through social justice and inclusion.

In addition, Christian fatalism tends to be deity-centered, focusing on God's direct intervention as interpreted from doctrine based on someone else's story. Young and Morris (2011) found that "Christian belief in fate is more focused on immediate retribution and is deity centered" (p. 2). In contrast, many Indigenous beliefs see fate as part of a broader cosmic order, not solely determined by a single deity (Stevenson, 1905; Akoto & Piésold, 2008; Castro, 2012). Christianity's tendency towards dualism (e.g., spirit vs. matter, good vs. evil) can reinforce fatalistic thinking by categorizing events as either God's will or not.

Christian theology, particularly in some Protestant traditions, emphasizes the concept of predestination and God's sovereign will (Grislis, 2003; Paulson & Klotz, 2016). This also leads to a fatalistic outlook where events are seen as predetermined by God. As noted by Norenzayan and Lee (2010): "Independently of ethnic culture, Christians were found to endorse fate attributions more than did the nonreligious" (p. 702). This contrasts with many Indigenous worldviews that emphasize human agency and interconnectedness with Nature (Bruchac, 2014; Cyprian Obiora, 2015; Absolon, 2019; Tom et al., 2019). Furthermore, Christian eschatology often presents a linear view of time, culminating in a final judgment. This can foster a fatalistic attitude towards earthly events as part of God's plan. Many Indigenous perspectives, however, often embrace cyclical time concepts.

Furthermore, Woodley (2022) explains that in most Indigenous spiritual frameworks, there is no separation, truth is conveyed not in doctrines but stories:

Tribal stories, then, are considered sacred and are not to be used lightly. These sacred stories reinforce other Indigenous values, much in the way ceremony and songs do. Naturally, stories, both shared tribal stories and one's own personal stories, are a primary vehicle for teaching and sustaining life. (p. 117)

Several Indigenous worldviews embrace a more holistic perspective. Woodley (2022) notes that rather than focusing on narrative and story, “Western folks understand themselves apart from or distinct from the land” (p. 57). He adds that they understand themselves primarily as individual disconnected from Nature and they understand truth through facts and propositions. They emphasize a separation between humans and Nature, viewing the environment as something to be studied, managed, or conquered rather than as an integrated system of which humans are a part of (Thornton et al., 2024, pp. 85–87). Many Indigenous perspectives on the other hand prioritize communal harmony and balance with Nature and most Indigenous peoples understand themselves to be part of the land (Datta, 2017; Absolon, 2019; Blenkinsop & Fettes, 2020). Several Indigenous ways of knowing provide a more holistic, communal, and nature-oriented perspective that may mitigate extreme fatalistic attitudes. Some West African cosmologies incorporate ancestral fatalism via soul transmigration, yet communal rituals restore cosmic order rather than passive acceptance, and certain Mesoamerican views (e.g., Maya) link fate to calendrical cycles, but mediators and human actions negotiate outcomes within the cosmic structure (Stevenson, 1905; Akoto & Piésold, 2008; Castro, 2012).

The rejection of fatalism and reliance on hope in ecopedagogy can therefore be problematic, as critical pedagogic concepts such as utopia, hope and fatalism often stem from religious or Western philosophical traditions that may not align with more effective and ethical approaches to (un)sustainability and eco-justice pedagogies. While fetishism is often critiqued as a form of ideological fixation or misrecognition, it can offer productive potential within educational praxis by revealing how certain ideas or systems become obscured or "fetishized," thus opening space for critical engagement and transformation.

For instance, Gadotti (2008) builds on Freire to emphasize that fetishism helps highlight how neoliberal ideology makes the world seem static and unchangeable (p. 26). Gadotti's (2008) states:

That is why educating for another possible world means to do what Paulo Freire called ‘fetishising’. The fetishism of neoliberal ideology holds that the world is immutable. Fetishism transforms human relationships into static phenomena, as if it were impossible to modify them. When fetishised, we are incapable of acting because the fetish blocks our capacity of doing. When fetishised, we only repeat what has been already done and said, what already exists. (p. 26)

Freire's concept of 'fetishizing' challenges the notion that social structures are immutable and reveals how such fetishism can block human agency. Instead of seeing fetishism solely as a barrier, it can act as an educational tool to make visible the constructed and changeable nature of social relations, allowing learners to question and transform them.

For example, education scholars caution against uncritical reliance on technology fetishism in classrooms, urging reflective engagement with the tools to avoid passive acceptance and enhance meaningful learning (Alvi, 2011; Harari-Kermadec, 2013; Balyer & Tabancalı, 2023). This reflective stance aligns with fetishism as an educational tool by provoking critical dialogue rather than passive consumption. Fetishism in education serves as an analytical lens and practical means to disrupt reified perceptions, fostering critical consciousness and empowering transformative action toward sustainable and just futures.

Therefore, instead of rejecting fatalism outright - as Freire frames it as an impediment - it can be productive to reconsider its role. Drawing on non-religious and some Indigenous perspectives, practices and ways of knowing may provide a more grounded and actionable framework for ecopedagogy in praxis. This follows many Indigenous proposals accepting that we must live 'with the troubles' and acknowledge past losses that we have endured, and then build upon them (Tuck & Yang, 2012; Whyte, 2020). In this research-creation I accord fatalism its due place as an active and progressive agent informing me towards a transformative and inclusive ecopedagogy praxis. This underlines my engagement with many Indigenous and Northern epistemologies to mitigate and include fatalism in my inquiry process.

To comprehensively integrate fatalism into a revised ecopedagogy that enhances EoE, I strategically employ it as a diagnostic tool and catalyst for deeper engagement, rather than an obstacle to overcome. By explicitly naming and unpacking fatalistic narratives - such as neoliberal market inevitability, Christian predestination, or anthropocentric dominion - within EoE, I confront these as constructed ideologies that obscure agency, drawing on Indigenous epistemologies of 'living with troubles' (Nesterova, 2020a; Reed & Diver, 2023) and fetishism critiques (Gadotti, 2008) to reveal hidden leverages for change. Through this approach fatalism becomes an ecopedagogical pivot: first acknowledged to mitigate eco-anxiety and normalize past losses, then deconstructed through comparative 'world' views (e.g., cyclical Indigenous cosmologies versus

linear eschatology) and thereafter engage with praxis-oriented activities like: Community storytelling, autoethnographic cellphilmimg or systemic mapping, empowering learners to co-create transformative, equitable environmental actions that bridge individual responsibility with collective justice.

Eurocentrism and EoE

Early environmental and ecological education was indeed heavily influenced by Eurocentric perspectives, which shaped the epistemology and theoretical foundations of the field. Eurocentric bias in early ecology and environmental studies can be traced back to influential thinkers like Rousseau, Suess, Vernadsky, Tansley, Elton, and Cowles, whose work predominantly reflected Western worldviews and approaches to Human-More-than-Human-Nature (H-MTH-N) relationships.

As European powers established educational and research institutions in their colonies, they exported their ecological paradigms, often at the expense of local environmental knowledge and practices (Njoh et al., 2024).^{lxxiv} This Eurocentric bias has had lasting impacts on the field of ecology and environmental education. It has led to the marginalization of non-Western ecological knowledge and practices, potentially limiting our understanding of complex ecosystems and sustainable environmental management techniques (Thornton et al., 2024, p. 86). Recent scholarship has begun to critically examine and challenge this Eurocentric legacy in ecological and environmental education (Roberts & Parks, 2007; Cyprian Obiora, 2015; Nesterova, 2020a; Rodrigues et al., 2020; Iftekhar et al., 2022). Unfortunately, environmental pedagogies such as EoE still frequently teach within these oppressive-grounded ideologies and reproduce and intensify social oppressions and ecological unsustainability.

There is a growing recognition of the need to decolonize environmental curricula and incorporate diverse knowledge systems, particularly those of many Indigenous peoples who have long-standing, sustainable relationships with their environments (Lalujan & Pranjol, 2024, p. 20). Efforts to address this Eurocentric bias include:

- Incorporating versions of Indigenous ecological knowledge into academic curricula and research methodologies (Thornton et al., 2024, p. 87);
- Promoting interdisciplinary approaches that bridge Western scientific methods with other ways of knowing and understanding the environment (Lecocq & Keukeleire, 2023, p. 170);
- Encouraging critical reflection on the historical and cultural contexts that have shaped ecological thought and practice (Lalujan & Pranjol, 2024, p. 21);
- New EoE pedagogical approaches that challenge the human-Nature dichotomy and promote a more holistic understanding of ecological systems (Thornton et al., 2024, p. 88).^{lxxv}

EoE pedagogies can teach more inclusive, diverse, and comprehensive understanding of our Earth's ecosystems and our place within them by acknowledging and addressing the Eurocentric foundations of early ecological and environmental education. This is where ecopedagogy can be transformative.

Indigenizing Ecopedagogies

Indigenizing means integrating Indigenous knowledge, perspectives, and values into institutions and practices. It involves respecting and prioritizing the variety of Indigenous voices, building genuine partnerships with Indigenous communities, and ensuring their diverse worldviews are authentically represented. Indigenization is an ongoing, collaborative process that supports recognition, respect, and meaningful inclusion of Indigenous peoples and their varied and complex worldviews in social, political and educational settings.

Therefore, ecopedagogies informed by Indigenous ways of being in the World must teach values of respect, humility, reciprocity and interconnectedness. Nesterova (2020) proposes that Indigenous ways of knowing and Traditional Ecological Knowledge (TEK) can transform environmental education by fostering a more harmonious relationship with the environment (p. 1047). Many Indigenous pedagogies not only challenge conventional methods of knowledge transmission but also reinforces the significance of Nature as a teacher, showing how ecosystems are integrated into cultural and educational processes (Wildcat et al., 2014; Maira & Kauka, 2018; Jimenez & Kabachnik, 2023).

Nesterova (2020) cautions ‘Indigenous knowledge’ is not one monolithic system but rather a diverse array of context-specific epistemologies shaped by unique cultural, ecological, and historical realities across communities. She states: “As each Indigenous group inhabits a unique natural community, they all have developed place-specific epistemological processes including relationships with the Land, knowledge systems and approaches to (in)formal education, to respond to their local needs” (p. 1051). An example of such a praxis informed by Indigenous systems is *the Linnunsuo peatland restoration project* led by the Skolt Sámi in collaboration with academic researchers. This initiative integrates TEK with scientific methods to revive degraded ecosystems while centering Indigenous sovereignty and relational worldviews (Mustonen, 2013; Snowchange, 2017).

Another example as an ecopedagogy praxis comes from Stewart's study on canoeing through Murray Cod River habitats. A.J. Stewart describes how paddling a long river allows for intimate, embodied encounters with MTH entities. He explains that his ecopedagogic approach was, “to aid students in re/considering the complex relationships between the ecological health of native fish (and other riverScape inhabitants) and the sociocultural conceptualizations and use of the river” (Stewart, 2018, p. 134). This immersive approach facilitates a deep, sensory engagement with aquatic ecosystems and their inhabitants aligning with Indigenous knowledge systems.

Ecopedagogy learners can also immerse themselves in their local Indigenous perspectives through books, podcasts, and documentaries created by Indigenous people about their relationships with the land (Corwin, 2016; Maira & Kauka, 2018; Ferguson & Weaselboy, 2020; Harwood et al., 2020). Nature is a teacher in many Indigenous knowledge systems and is part of a complex cultural pattern of storytelling and oral histories. Kellner et al. (2019) add:

Indigenous pedagogy provides examples of the power of oral storytelling, the use of metaphor and analogy to convey ideas beyond the literal meanings of words, the social value of interviewing elders and people whose voices are often marginalized or ignored, and the importance of nature-based knowledge (Arrows, 2013). (Kellner et al., 2019, p. 60)

MTH entities and/or non-humans are considered kin in many Indigenous knowledge systems. Several Indigenous knowledge systems integrate identification, compassion, and solidarity with

non-humans and MTHs through oral traditions and kinship structures that embed these values into their practiced daily life and cosmology. Peterson (2019) states, “Naess (2008) makes a vital connection between the process of identification - with other humans or with other members of MTH entities - and the life-sustaining characteristic that is ‘compassion and, among humans, solidarity’” (p. 20). In ecopedagogies, this requires spending time outdoors, pay close attention to the cycles, patterns, and beings around you, and reflect on your place within these systems, not from above them. Learners need to practice gratitude and reciprocity such as considering how they can give back to the land, even in small ways. This underscores the profound relationality embedded in many Indigenous knowledge systems, where (in)formal education surpasses surface-level interpretations, transmitting intergenerational wisdom via storytelling, metaphors, and the insights of elders which is frequently sidelined by dominant paradigms.

Integrating certain Indigenous methodologies into mainstream ecopedagogy and MTH cellphilm praxis presents practical challenges, particularly around maintaining Indigenous autonomy within institutional frameworks. Indigenous knowledge systems are diverse, place-based, and relational, emphasizing cyclical time, reciprocity, and kinship with MTH entities, which contrast with Western linear and individualistic approaches. Incorporating Indigenous knowledge systems into academic or policy structures often risks diluting their sovereignty, as institutions demand standardization that clashes with the fluidity and nation-specific diversity. For instance, Anishinaabe relationality differs markedly from Sámi place-specific epistemologies, both emphasizing kinship with MTHs but varying in ceremonial protocols (see Nesterova, 2020), Woodley, 2022). Similarities across Indigenous knowledge systems include cyclical time, non-anthropocentric ethics, and resistance to commodification, contrasting sharply with ecopedagogy's Freirean linearity and utopian hope, which can inadvertently perpetuate epistemic violence through ‘inclusion’ without ceding control (see Misiaszek, 2022; Whyte, 2020). In my research-creation, I navigate these tensions by prioritizing Indigenous protocols, while refusing institutional co-optation, thus honoring autonomy amid hybridity.

In MTH cellphilm participation, this means centering Indigenous perspectives that recognize MTH beings as active co-participants with agency, not merely subjects to document. My research-creation engages this by allowing MTH entities to guide the narrative, fostering relational accountability and resisting extractive methodologies common passively and intuitively in

academic incorporation. This challenges ecopedagogy's Eurocentric foundations by valuing some Indigenous storytelling and refusal of assimilation, ensuring that diverse Indigenous epistemologies maintain their integrity amid collaborative knowledge production (Whyte, 2020; Absolon, 2019).

Navigating the tensions between some aspects of Indigenous sovereignty and institutional demands requires ongoing reflexivity to avoid epistemic erasure and superficial inclusion, positioning MTH cellphilm as a transformative site for genuine Indigenous knowledge enactment within and beyond academic spaces.

My research-creation relied on these knowledge systems to center my relational accountability and kinship by framing the land, plants, animals, or elements as active co-participants, not passive subjects. I drew on certain Indigenous methodologies that prioritize storytelling, reciprocity, and transcendent connection to place when cellphilm MTHs. I cellphilm by 'listening' to MTH entities, documenting interactions that reflect mutual care (e.g., filming seasonal changes while offering gratitude to the land). I integrated some Indigenous teachings about the beings that I cellphilm, and let their agency guide my narrative rather than impose my personal frameworks. I acknowledged the territories I work within and the histories they hold, grounding my process in ethical responsibility to place. I also treated cellphilm as a practice of relational witnessing. My autoethnography became a bridge between some Indigenous epistemologies - where all beings are kin - fostering a research-creation that resists extractive methodologies.

Ecopedagogies Re-Invented in Constant Flux

In their post-development dictionary, Kothari and Escobar's (2019) analyse the theories of development and sustainability that allow for a communal implementation of ecopedagogic practices. They advocate for a pluriversal approach that honours diverse cultural visions and systemic critiques of modernity, capitalism, and state domination, aiming for ecological wisdom and social justice. For example, ecopedagogy theory and its practice have undergone recent transformations toward Global Citizenship Education (GCE) (Bourn, 2014; Misiaszek, 2016; Jenkins, 2021). Including an integration of indigeneity, politics of decoloniality, participative social work, architecture and even sound art as portrayed in *Postdigital ecopedagogies* (Jandrić & Ford,

2022a). Chbib and Misiaszek (2025) propose that ecopedagogy offers teachers and learners the practical and theoretical tools they need to engage critically with the World around them to work toward more sustainable and equitable futures inclusive of MTHs. They state:

Ecopedagogy provides a comprehensive model for fostering the kind of inclusive democracy necessary to create a more equitable world and sustainable planet. Global and planetary inclusive framings of citizenships are also particularly important in the context of climate justice, where marginalized communities - both human and more-than-human - are disproportionately affected by the impacts of climate change. (p. 456)

In addition, Payne for example proposes an eco-aesthetic ecopedagogy (2010), others looked at ecopedagogies from alternative perspectives such as, eco-literacy education (Buell, 2011), education for eco-communities (Marouli, 2021), eco-justice education (Bowers, 2001), eco-psychology (Roszak, 1992), Indigenous ecopedagogies (Nesterova & Jackson, 2019), eco-art education (Inwood, 2013), ecofeminism (Lloro-Bidart, 2018), Planetary Citizenship (PC) (Misiaszek, 2018), queer ecopedagogies (Russell, 2013, 2021) and more recently post-digital ecopedagogies (Jandrić & Ford, 2022a), and Black feminism ecopedagogies (Jones, 2023).^{lxxvi} Darder (2011) defines ecopedagogies *in flux*:

An educational process of estrangement functions to alienate and isolate students from the natural world around them, from themselves, and one another. In contrast, an ecopedagogy that sustains life and creativity is firmly grounded in a material and social understanding of our interconnected organic existence, is a starting place for classroom practice and political strategies for reinventing the world. (p. 333)

This interconnected foundation paves the way for contextual adaptation, where decentralizing curriculum to integrate a local:global perspective means blending local knowledge with global issues.^{lxxvii} This could involve contextualized (in)formal education where local environmental and social issues are linked to global challenges, incorporating local Indigenous knowledge into lessons, and fostering global solidarity projects. Collaborative cross-cultural (in)formal education through digital platforms and critical examinations of global institutions' impacts on local communities can also help learners understand their role in both local and global contexts.

In addition, ecopedagogy has recently embraced the recent digital transformations. Postdigital ecopedagogies integrate humans, technology, and the environment, addressing contemporary

challenges like climate change and social justice (Jandrić, 2019). A postdigital approach in (in)formal education prepares learners for the complexities of our World, exploring the relationships between young people, networked spaces, our embeddedness in Nature and our human Nature engagements. It involves a continuous transfer and sharing of information and practices. It also encourages critical thinking about environmental challenges, bio-informational impacts, and the non-chronological present, pushing Northern/Western 'traditional' educational boundaries.

Ecopedagogies Informed by World-Earth Distancing

Ecopedagogies endorse a more holistic understanding of our place within ecosystems. The term world:Earth distancing refers to the theoretical split between 'the world' (as a human-centered, constructed and technological environment) and 'Earth' (as the physical, ecological, and MTH biosphere).^{lxxviii} This distancing reflects how modern worldviews - especially in Western systems of thought tend to prioritize human systems (economic, political, cultural) over ecological interdependence. Misiaszek (2024) argues: "Unlearning Northern epistemologies that engrain world-Earth distancing is innately included in such exploration to deepen and widen students' understandings and inherent connections with the rest of Nature/Earth" (p. 5). An ecopedagogical perspective on world-Earth (de)distancing challenges the prevalent ideologies separating humans from Nature and the various MTH entities. The terminology critically examines the notion that humans are distinct from or superior to Earth and its ecosystems. Instead, it promotes a holistic understanding of humanity's place within Nature. The term emphasizes the need to bridge the perceived gap between human society (the "World") and the planet (the "Earth"). The 'distancing' concept aims to foster a more integrated and sustainable relationship between humanity and Nature (see Misiaszek, 2018; Misiaszek & Torres, 2019).

Grounding world-Earth de-distancing in Freire's work enriches ecopedagogy by integrating critical pedagogy with ecological consciousness. The process of conscientization becomes crucial in recognizing the interconnectedness of social and environmental issues, fostering an understanding of humans as integral parts of Earth's systems. Freire's emphasis on praxis - the combination of reflection and action - is fundamental to this ecopedagogical approach, encouraging learners to not

only understand their relationship with Earth but also to take action to transform it. This aligns with the goal of cultivating environmental responsibility and stewardship.

The Freirean concept of co-intentional education emphasizes a dialogical, participatory process. It creates a non-hierarchical learning space for collectively reimagining our relationship with Earth and developing sustainable ways of living. Furthermore, Freire's focus on unveiling and challenging oppressive structures extends to examining human domination over Nature in ecopedagogy. This critical analysis helps learners recognize how societal attitudes and practices have contributed to environmental degradation and encourages the development of more sustainable alternatives. Reimagining ecopedagogy in these various transformative ways allows learners and teachers to engage in a co-creative process that confronts Northern/Western 'traditional' power structures in both social and ecological contexts. Ecopedagogy informed by postdigital, MTH inclusivity, global responsibilities and local practices can be a powerful tool for furthering ecojustice and sustainability.

In essence, ecopedagogy rejects top-down education, instead fostering collective inquiry into how world-Earth distancing perpetuates crises like climate collapse or ecocide. By dismantling these divides, ecopedagogy reimagines learning as a tool to nurture solidarity with all MTHs, grounding justice in the understanding that humans are threads within Earth's web - not masters above it.

Ecopedagogies Global Citizenship Inclusive of the MTH

Global Citizenship Education (GCE) has emerged as an important framework, aiming to cultivate learners' understanding of global interdependence, cultural diversity, and shared responsibility for addressing worldwide challenges. GCE encourages learners to see themselves as active participants in a global community, fostering solidarity and collective action across borders. Building on this, Planetary Citizenship Education (PCE) takes the concept further by emphasizing not only global social responsibility but also the ethical and ecological obligations humans have toward the planet as a whole. Ecopedagogy is closely aligned with planetary citizenship, as it seeks to empower learners to become critical agents of change who challenge systemic injustices and work toward planetary justice (Misiaszek, 2018). While global citizenship focuses on human societies and their interconnectedness, planetary citizenship engaged with ecopedagogies extends learners' concerns

to MTHs and the biosphere, advocating for a holistic, justice-oriented approach that prioritizes the well-being of all life on Earth.

There is a plethora of ecopedagogical, (un)sustainability and environmental theories and proposals. Yet there are much fewer publications of documented ecopedagogy practices inclusive of MTH entities compared to Northern/Western ‘traditional’ EoE praxis. In advancing ecopedagogy theory and praxis, Gadotti (2008) proposes inclusivity and re-invention of the academic legacy of EE and ESD theory and practices, so as not to lose the ‘cultural capital’ already gained. Some practical ecopedagogies could expand on their praxes and learn and adapt from: critical pedagogy of place, intergenerational (in)formal education, MTH kinship education, storytelling and narrative practices, experiential learning and outdoor education, eco-feminist pedagogy, PAR, art-based pedagogies, decolonizing ecopedagogy, and ecopedagogic-literacy education. Incorporating these diverse research practices into an expanded ecopedagogy fosters a truly inclusive planetary citizenship that honors MTH entities and decolonizes traditional EE and EoE frameworks. By weaving in these forms of critical pedagogies into praxis, educators can bridge Northern/Western knowledge with Indigenous and global south wisdoms, amplifying cultural capital while dismantling anthropocentric hierarchies. This inclusive expansion equips learners to co-create justice-oriented futures, where human agency aligns with biosphere reciprocity, transforming environmental education from profit-driven individualism into collective, regenerative stewardship for all Earth kin.

Ecopedagogies and ESD have been practiced in Latin America since the 70s but are a relatively new form of EoE and have been urged to develop a variety of innovative praxis in changing learner understanding vis-a-vis climate change (Kenis & Mathijs, 2012; Payne, 2016; Zocher & Hougham, 2020). This would transform learner behaviour towards a more inclusive approach to MTH kin. Brantman et al. (2012) informs us that, “environmental behavior can often be predicted by the degree to which a person identifies himself or herself with the natural world/Earth—the higher the sense of ‘belonging,’ the greater the likelihood of sustainable actions in ‘lifestyle patterns, ecological behavior, and curriculum decisions among students” (p. 129). EoE attentive to the MTH would require not only a science based rational education but also more interactive and emotional ecopedagogies that might foster empathy, acceptance, commitment and communal dialogue.^{lxxix}

I argue that integrating the MTH is still problematic for most human-centric ecopedagogies despite current promising patchwork developments. In more recent work, Misiaszek (2024) critiques the anthropocentric focus in Freire's pedagogy. He explores posthumanist and postcritical perspectives to determine whether Freire's ideas can be expanded beyond human struggles to include MTH entities. As Misiaszek (2025) explains:

Freirean teaching through dialectics centers praxis towards bettering the world but where the rest of Nature is positioned is extremely complex to answer. The pedagogies, including ecopedagogies rooted in Freire's scholarship, create a dualism; humans (sub)consciously develop (or de-develop) while the rest of Nature adapts and evolves. Posthumanist approaches are essential to deconstruct and reinvent critical He teaching that disrupts anthropocentrism entrenchment from this development:non-development dualism, including possibilities of arguing against the dualism's existence. (p. 14)

More specifically, ecopedagogies can expand on a flexible base for re-invented, liberatory, literacy based educational practices of eco-justice and social transformation for all kin. Freire informed ecopedagogies would be experienced in a manner that disturbs the power dynamics and renders the learner conscious of their positionality vis-à-vis: their teacher, their society, their MTH kin, their 'Other' and Earth. This would preferably occur within the fuller biocentric context of a kinship with the MTH. Thus, ecopedagogies in (in)formal education could teach a comprehensive, biocentric and holistic posthumanism through an affective, reflexive and embodied kinship.

PART TWO: CELLPHILMING, MTH AND EMBODIMENT

The experimental cellphilming praxis in this research-creation attempts to understand and demonstrate how to create a kinship through identification and embodiment in relation to the MTH. This section looks at the diversity of academic research that can enlighten and inform the intersection of cellphilming, MTH and embodiment in academic theory and praxis.

Smartphones

Martin Cooper^{lxxx} who worked at Motorola made the first mobile phone call on a prototype DynaTAC model on 3 April 1973. Twenty years later, Francis Canova invents the first handled device phone in 1992 and named it the 'Angler' a precursor to the commercially sold Simon Personal Communicator.^{lxxxii} Hjorth and Richardson (2018) inform us that the first video phone^{lxxxii} was produced,

In 1999, Japanese company Kyocera launched the first inbuilt camera “Visual Phone” which, in turn, established Japan as a pioneer in the growth of mobile visuality. Camera phone images have played a dual role as both a mode of intimate sharing and as a way of providing users with the ability to create personal archives as an extended form of diarisation (Kato 2014). (p. 77)

Those early smartphones were not a commercial success. Soon after, the very first commercial camera phone was sold in Japan and was called the J-Phone.^{lxxxiii} Outside of Japan the trend started in 2002 with the Blackberry, T-Mobile, etc.

In addition to the Ericsson report mentioned in the introduction other research has confirmed the wide reach of cellphone technology. By 2025 mobile phones had a worldwide market penetration of 71 percent considering 6.7 billion subscriptions worldwide.^{lxxxiv} According to the *Global Overview Report 2025*, almost 87% of those phones were smartphones (Digital, 2025). This widespread adoption means that smartphones are readily available to document and share moments, creating opportunities for connection and shared experiences. Martinez Gasca & Van Campenhout (2024) highlight the smartphone's compact dimensions and constant availability, noting that these devices have become integrated into every aspect of daily life.

However, there are still many people who do not have access to the web for various reasons. The International Telecommunication Union, a United Nations specialized agency for information and communication technologies states that there are now multiple digital divides causing several forms of inaccessibility in developing countries.^{lxxxv} It is evident by the numbers, that the smartphone revolution has made the use of phone cameras very accessible for the majority of the World's population and is now more readily being taken up by educational curricula and practices.

Smartphone technology has revolutionized creative expression and collaboration, democratizing content creation and enabling new forms of artistic and journalistic endeavours (Hartley et al., 2023). However, this technological advancement comes with a complex duality of empowerment and constraint (Richardson et al., 2018; Wacks & Weinstein, 2021). Smartphone technology needs to be addressed from both enabling (creative, pedagogic) and constraining capacities. Many factors are at play such as the situatedness of cell technology, accessibility, ecocide, extraction and pollution all caused and driven by market design, technological accessibility and corporate

profiteering (Conocimiento, 2020; “How Smartphones Are Contributing to Climate Change,” 2022; Alexnmitchell, 2024).

The ubiquity of smartphones has fostered distributed creativity and collaborative innovation across geographical boundaries (Schleser, 2013; Hjorth & Richardson, 2018; Wali & Omaid, 2020; Adeyemi & Akinrimisi, 2024).^{lxxxvi} Yet, the reliance on proprietary platforms and algorithms can inadvertently reinforce existing power structures and limit creative diversity (Crow, 2007; O’Neal Irwin & Ihde, 2016; Pöttsch, 2019; An & Oliver, 2021; Cordier, 2024). In educational and cultural contexts, smartphones have enabled new forms of (in)formal education and cultural preservation. However, their integration often raises concerns about data privacy, cultural appropriation, and the long-term societal impacts of smartphone-mediated creativity (Frohman, 2021; Adams, 2022).^{lxxxvii}

Sharing these experiences, whether through technology or cultural practices, invites others to connect with and share a sense of place, blending cognitive empathy with sensory and cultural connection. Renata et al. (2024) explain the concept of Visuospatial Perspective Taking (VSPT), involves understanding the perceptions of another person. This engages mentally adopting another person's spatial position to infer their visual perspective, which can be done through strategies such as imagining oneself physically relocated to that differing viewpoint or mentally rotating the scene to align with it. Thus, when we cellphilm with a smartphone, we are actively engaged in VSPT, capturing our own perspective while also considering how others might perceive the scene.

In addition, Cameron (2022) notes that some Indigenous ways of knowing utilize human-sensory engagement to strengthen the relationship with Nature, and that interpreting ‘Country’ (Nature/environment) through all the senses shifts our thinking from basic spatial understanding to an immersive activity that builds a stronger connection with our cultural landscapes. Similarly, when we share these filmed experiences with others, we are inviting them to connect with our environment into our sense of place. Lowan-Trudeau (2015, 2023) investigates the role of smartphones in Indigenous cultural preservation, noting that, “mobile technologies have enabled Indigenous communities to document and share traditional knowledge in new ways” (2015, p. 623). However, he adds: “The digital nature of smartphone-based cultural preservation efforts can raise concerns about data ownership and cultural appropriation” (p. 625). Thus, integrating sensory-rich filming and mobile technologies into ecopedagogy not only revitalizes Indigenous connections to

‘Country’ but also invites broader participation in place-based learning, provided ethical protocols safeguard data sovereignty and cultural integrity.

This brings to the forefront that smartphone technology's potential for empowerment is consistently balanced against its embeddedness in complex market dynamics and platform capitalism (Zuboff, 2015). Ultimately, smartphone-enabled creativity exists at the intersection of technological innovation and commercial interests. This dynamic presents both unprecedented opportunities and new challenges for creators, educators, and cultural practitioners, reflecting broader tensions between technological advancement and creative expression in our increasingly digital World (Jandrić & Ford, 2022a). In sharing experiences through smartphones or cultural practices, we invite others to engage cognitively and sensorially with our environment, fostering a shared sense of place. However, this intersection of technology and culture also raises complex issues around data ownership, cultural preservation, and the influence of commercial interests on creative expression.

Research has been unable to effectively determine the pros and cons of smartphone use in education, but a clearer picture is developing. *The 2023 global education monitoring report* emphasizes that technology should only be used in class when it clearly supports learning outcomes (GEM Report UNESCO, 2023). This allows teachers and learners to co-create an environment that prepares for the digital future while maintaining focus on learning and transformation.

Cellphilms in PAR

Milne et al. (2012) describe participatory video as a reflexive, critical, research method that aims to “relocate participatory video; to trace accounts of its use in research; to engage critically with it as a research methodology and method; and to interrogate assumptions about its emancipatory nature and potential for social change” (p. 2). The use of mobile media participatory technology not only allows for this kind of expression, emancipation and ‘giving of voice’ through sharing in classrooms but transcends spatial limitations through online distribution. The importance of space and locality in contemporary participatory video allows for a greater accessibility of the message. Waugh et al. (2010) articulates it clearly: “mobile media—as a probe, tool, content and vehicle - plays a key role in both the collecting and contextualisation of ethnographic data. Mobile media

shifts between being the researcher's and participant's tool, medium and subject matter" (p. 41).^{lxxxviii} Ultimately, participatory video facilitated by mobile media not only empowers participants to share their stories but also expands the reach and impact of these narratives by bridging physical and digital spaces.

Flicker and MacEntee (2023) demonstrate how cellphilmaking enables marginalized groups to create short videos that foster learning and drive social transformation through accessible technology. In pedagogy, the method applies by equipping educators with tools to facilitate student-led video projects that deepen critical engagement with real-world topics, enhancing teaching through collaborative analysis and public dissemination that builds skills in communication and ethics. For ecopedagogies, a cellfilm educational praxis extends this by enabling participants to visually capture MTH interconnections, environmental injustices, and transformative narratives, aligning with participatory methods that critique anthropocentrism and foster ecological awareness via embodied, community-driven expressions of sustainability and change

Cellphilmaking is generally shot in a single take or with minimal editing (Milne et al., 2012; Mitchell & de Lange, 2013; MacEntee et al., 2016a). They are often used in educational settings to encourage creativity, collaboration, and digital literacy among learners (Schleser & Berry, 2018). However, new applications now offer significantly enhanced editing capabilities, enabling much more creative adjustments and in-phone captioning, thereby expanding the potential uses and accessibility of cellfilms. Cellfilms can also serve as tools for social justice, community activism, and heritage preservation (Mitchell et al., 2016; Sadati, 2018; MacEntee et al., 2021). Cellfilms have become integral to various social movements, helping to raise awareness about issues such as disability rights and systemic oppression (Chan et al., 2016; Schwab-Cartas, 2018; Noreiga, 2022). Cellfilms have been used to raise awareness about social issues such as gender equality, minority rights and community challenges (Chan et al., 2016; Burkholder & Thorpe, 2019a; Thompson et al., 2019; Van Borek & Abrams, 2023). In addition, new applications now offer significantly enhanced editing capabilities, enabling much more creative adjustments and in-phone captioning, thereby expanding the potential uses and accessibility of cellfilms.

My master's thesis inquired into the literature and recent theoretical PAR exploring the specific workings of belonging, kinship, and identity formation of learners in ecopedagogical practices

engaged with digital technology, using the practice of cellphilmaking imbued with affect and emotions. The goal was to inquire into the cognitive, affective, and emotional workings of belonging and identity formation of learners in ecopedagogical practices, engaged with cellphilmaking for the purpose of understanding the Anthropocene and respectful kinship. I explored methods that assist teachers and learners to enhance their Critical Radical Ecopedagogy (CREP).^{lxxxix} I described the theory proposed by Freire and his disciples for a critical pedagogy. I then outlined a PreK to grade nine set of cellphilmaking pedagogic proposals for outdoor and indoor environmental education informed by CREP. Mitchell et al. (2016) in their fieldwork with rural teachers in South Africa, outlined a useful framework for the practical use of cellphilm technology in PAR (p. 437). They presented eight key steps which I modified for my purposes by adding a couple of steps concerned with ‘ethics and ‘audience’ in order to make it a more inclusive, respectful and responsible approach to PVR. My CREP informed method promotes the use of everyday technology to create media (ie. Cellphilmaking), making it accessible to a wide range of participants, including learners and community members.

Cellphilmaking help learners develop essential digital literacy skills, including video editing, storytelling, and the effective use of mobile technology (Dockney & Tomaselli, 2010; Milne et al., 2012; Sadati et al., 2024). Learners learn about the processes involved in media production, including planning, filming, and editing (Milne et al., 2012; Mitchell & de Lange, 2013; MacEntee et al., 2021). This hands-on experience prepares them for a digital-World where media creation is increasingly important (Center for Education Statistics and Evaluation, 2018; Jandrić & Ford, 2022a). This understanding can lead to a critical analysis of media consumption and the role of technology in society (Connolly & Parry, 2018; Kellner et al., 2019). Connolly and Parry, in *Media literacy education in primary years: Carrying on regardless* consider contemporary changes in research about cognition, constructivism and curriculum in the teaching of recent media vocabulary.^{xc} They note a particular change in media literacy education and state that, “the development of media literacy education and media studies as a subject has hit numerous policy and curriculum roadblocks which are hampering progress” (p. 72). Relying on Leslie Baxter and Barbara Montgomery (1988) Connolly et al. (Connolly, 2013, 2014; Connolly & Parry, 2018) and Parry (2014) suggest an approach that uses “dialectic of familiarity” - whereby the teacher and children inhabit a particular conceptual understanding through creative production activity,

generated by memory and perception (Connolly & Parry, 2018, p. 74). Again, pursuant to Poyntz (2015) they propose a widening of pedagogical practices for a more interconnective, global media and information literacy agenda. They state: “we suggest that there is still important work to be done in terms of developing pedagogy which enables complex concepts to be understood, operationalized and questioned by children” (Connolly & Parry, 2018, p. 71). Ecopedagogy educators can help learners connect personal experiences with broader ecological concepts, by engaging learners in creative media production and encouraging critical analysis of technology’s role in society, thus promoting more informed, reflective, and active participation in environmental stewardship.

Lynch and Thomas (2024) explored how video-making activities could disrupt place-based Outdoor Environmental Education's (OEE) emphasis on direct embodied experience. They found that: “Video-making has educational potential for learners to create, consume and share their knowledge and expertise about OEE with others beyond the physical place” (p. 300). Postdigital ecopedagogies can thereby inform such a transitionary widening of pedagogic practices that incorporate smartphone use in embodied EoE pedagogy.

Far from supplanting the in-vivo practice of a forest-walk for example, technology emerges as a complementary form of ecopedagogy by entangling digital mediation with embodied immersion, where smartphones enable learners to document sensory encounters with trees, soil, and wildlife in real time, layering multisensory data onto shared narratives that amplify relational awareness without severing the immediacy of place-based presence.

EoE pedagogy research often highlights the potential mental health benefits of connecting with Nature. Richardson et al. (2017) argue that human relationships with Nature bring mental well-being benefits at a time of huge demand on health services, and “threshold levels can be established for anxiety and nature connectedness using a robustly calculated cut-off score on the Problematic Smartphone Use Scale” (p. 297).^{xc1} This is especially relevant given the growing concerns about the negative psychological impacts of excessive smartphone use, including anxiety and the need for educators to balance that with the advantages of (in)formal education in Nature in a postdigital World.

It is important to note that postdigital pedagogies don't advocate for a ban on technology (Reed & Dunn, 2024), instead, they promote a more balanced approach to technology use in education (*Media Education at School: Should Smartphones Be Banned in Schools?*, 2024; Rahali et al., 2024). The difficulty is in creating a technological culture that is also more connected to Nature and MTH entities. Ecopedagogies can help strike this balance by incorporating technology in ways that enhance MTH and Nature connection during (in)formal education, rather than detract from it. Ecopedagogies offer a multifaceted approach to countering the negative impacts of smartphone use in educational settings by promoting Earth's connectedness, enhancing mental well-being, fostering face-to-face interactions, encouraging physical activity, improving focus, and stimulating creativity. As educators and policymakers grapple with the challenges of technology in education, incorporating ecopedagogical principles could help create more balanced, engaging, and effective (in)formal education environments (Jandrić, 2019). Ecopedagogies provide a holistic alternative to smartphone-centric (in)formal education in line with Freire's transformative and literacy teachings.

More-Than-Human Cellphilm

MTH ecopedagogy is an educational approach that emphasizes the interconnectedness and reciprocity of human and MTH entities within ecological systems. In general pedagogy must address the MTH in order to teach learners to be inclusive and become integrated into the holistic 'knowing' of the World. For example, Pacini-Ketchabaw et al. (2016) study how to teach learners to co-live with MTH entities by integrating racoon families into children's playgrounds in schools. They argue: "We have to learn how to stay with these awkward multispecies relations, that continuously make us ambivalent and throw us into grappling with the trouble of mutual flourishing in messy colonialist spaces" (p. 165). This kind of practice encourages learners to engage with the World beyond anthropocentric perspectives, recognizing the agency and significance of MTH actors in shaping our environments and experiences.

Burkholder and Thorpe, (2019), utilize cellphilm as a posthuman research practice with queer, trans, and non-binary youth to both "challenge and deconstruct" the ongoing social erasure that perceives them to a less-than-human status. They state: "The intra-actions between nonhuman objects and agentic matter pictured within hallways, classrooms, kitchens, and walls, and the queer, trans, and non-binary youth that inhabit these spaces, are made visible throughout the cellphilm"

(p. 301). By foregrounding these intra-actions, cellphilmaking disrupts human-centered narratives of education and agency, aligning with posthuman critiques of anthropocentrism.

The use of cellfilms can challenge anthropocentric views in education by technologically engaging with MTH entities (Nesterova, 2020b; Ducros, 2021). This encourages learners to consider their place within larger ecological systems and their postdigital interconnections with MTH actors. Cellfilms can be particularly effective in exploring H-MTH-N relationships and the agency of MTH entities through participatory observation and subsequent reflection and dialogue. As Mitchell and De Lange (2012) state: “‘participatory’ refers not only to the ways in which community members are involved with creating the video narrative, but also to the ways in which the video text itself can function as a catalyst or trigger in post-screening discussions” (p. 2). Thus, cellphilmaking emerges as a transformative posthuman tool, amplifying marginalized voices and MTH agencies to foster participatory dialogues that dismantle anthropocentrism and cultivate ethical, interconnected ecological literacies.

Peterson and Bayne (2015) argue that digital technology needs to be seen beyond the binary interaction between the human and a tool. They propose a posthuman merged perspective: “Such machinic fusions are important for the ways in which they bring us to an understanding of our mutual dependence on the non-human, and the inadequacy of ‘common-sense’ assumptions of human exceptionalism and centrality, or ‘anthropocentrism’” (p. 8). Digital ecological posthumanism offers new possibilities for engaging with ecological education by allowing learners to document and reflect on their encounters with MTH entities in an ‘intra-active’ manner.

Cellfilms additionally provide an avenue for including Indigenous and local ecological knowledge, challenging dominant Western narratives in environmental education. Indigenous perspectives have long acknowledged the inseparability of human and MTH entities (Kulnieks et al., 2013), and the importance of a holistic view of Land, Country (Redvers et al., 2022, p. 156). Van Borek and Abrams, (2023) created cellfilms with Indigenous caretakers to reveal how different perspectives on local waterways might contribute to decolonizing water management (p. 663). They state:

The embodied, multi-sensorial learning that took place through the various situated mapping/storytelling processes with water enabled non-verbal, critically affective knowledge to be present in ways that might influence behaviours towards more respectful relations with water by producing expressions of water as an intelligible and visible living being; co-producing knowledge; and expressing affectivity through audio/visual aesthetics connecting us all in a watery community. (p. 670)

Several researchers highlight that many Indigenous ontologies discard the dualistic separation of humans and MTH entities, understanding all entities as part of a shared, living web of existence (Maira & Kauka, 2018; Nesterova, 2020b; Horsthemke, 2020; Tierney & Morgan, 2022).^{xcii} Similarly, Payne (2018) clarifies that ecopedagogy challenges the dominance of Western paradigms in education by foregrounding diverse epistemologies that respect and honour MTH relationships (p. 72). As Misiaszek (2020b) explains,

...understanding development must emerge from a multitude of diverse knowledges, including local/indigenous knowledges. This coincides with Tierney's discussion on positioning and fusing epistemologies and Boaventura de Sousa Santos' argument of epistemologies of the South are essential to counter oppressive ones from the North. (p. 12)

Freirean ecopedagogues recognize that critical pedagogies have foregrounded anthropocentric worldviews, yet the project is 'unfinished and transformable' (Misiaszek & Torres, 2019, p. 470).

Another distinction needs to be addressed when (in)formal education is practised via cellphilm storytelling. It is important to understand narrative as a form of knowing from a situated perspective as when Indigenous elders share a story with participating learners. This perspective constantly changes. The epistemology of the story needs to be negotiated, translated, interpreted and intertextualized when the transition occurs from a narrative state into the recording. Storying should include such elements as beauty, emotional intersubjectivities and various narratives of belonging. The meaning making when learning through story can unintentionally create new symbolic meanings which could enhance or undermine critical thinking. This happens both in the making and the viewing of the cellphilms.

Kopnina et al. (2020) asked business students to view a radical environmentalist film and write a reflective essay-writing on the documentary through an ecopedagogical perspective. Then the researchers analyzed how it prompts students to uncover hidden assumptions and behavioral

patterns behind labels like “radicalism,” while relating their own upbringing to their judgments. They state: “ecopedagogy, even by brief exposure of learners to the documentary film, stimulated learner understanding of the underlying power structures of society and reflections on moral relativity, complexity and citizen engagement” (p.7). This kind of learning process can be applied specifically to cellphilmimg itself not just viewing film. Cellphilmimg reimagines ecopedagogy as a dynamic, student-led practice that transforms passive film viewing into active creation, fostering critical reflections on power structures, moral complexity, and MTH agency. By generating discourses free from conventional cinematic constraints, it equips learners to challenge anthropocentric paradigms and cultivate engaged ecological citizenship

Learners can further document their interactions with MTH entities, fostering a sense of agency, creativity and having a voice. Perry et al. (2015) describe the role of voice when storytelling:

Digital media, as digital storytelling, can provide students with a voice to truly connect globally by using mediums with which they are familiar. This takes the learning experience beyond the classroom, beyond the interactive teacher–student learning environment fostered by an experientially based approach of teaching, helping students to connect with the global community, and potentially to become truly engaged global citizens, empowered with voices to evoke change. (p. 328)

This aligns with ecopedagogic perspectives on citizenship and belonging fostering ecological social responsibility and a deeper understanding of H-MTH-N relationships (Jenkins, 2021; Misiaszek & Misiaszek, 2016; Salonen et al., 2024).

Schleser (2022) underlines the necessity for ‘smart storytelling’ (i.e. cellphilmimg) to have accessibility to an audience. The audience will be their own class peers for a starter, and networks can develop with other learners in collaborative schools who are involved in (in)formal eco-education. Online browsing by learners not only allows for sharing of ideas but also their practices by viewing the multiplicity of various production, editing and distribution tools used by others which they can use in their own future cellphilmimg practices. He states:

Access to documentary filmmaking tools combined with their dissemination via social media networks can be vital in sharing representations from within a community. Such tools provide opportunities for filmmakers to collaborate with communities to create and disseminate documentaries on their own terms. While most industry initiatives are

operating on a revenue model, smart storytelling facilitates sustainable production approaches, integrating community arts models of workshops and more recent developments for peer-generated content characterised by the social value of connectivity. (Schleser, 2022, p. 98)

Classmates, friends, or random viewers online, can participate in a coordinated effort with other teachers/classrooms. This allows learning from other perspectives in other communities giving their experiences a global reach.

Once completed, the cellphilms could be shared with the broader community during workshops or town meetings. These gatherings would serve as a platform for collective discussions about the river's health, the impacts of human activities, and potential conservation efforts. By presenting these visual narratives, the films become catalysts for dialogue, fostering a shared understanding of ecological issues and encouraging collaborative solutions (Rose & Cardinal, 2018; Häggström, 2019; Nesterova & Jackson, 2019; Flicker et al., 2020; “Sharing Research Results with Individual and Community Participants,” 2021).

For example, Schwab-Cartas’ (2018) uses cellphilm facilitated learning in the community of Union Hidalgo, Mexico as a workshop to address new technologies which can inform the transfer of Indigenous ancestral knowledge, language, and embodied practices in the twenty-first century. The cellphilms are used to foster an “intergenerational dialogue between youth and Elders, with the specific goal of preserving the Zapotec language and ancestral practices” (pp. 363–364). Schwab-Cartas tells us that while brainstorming with their elders, the participants experienced a deep cultural learning experience in that, “the activity also engendered discussion among the youth themselves about these practices and their understandings and experiences with a given tradition, thus fostering a peer-to-peer learning-and-teaching cycle” (p. 378).

Cellphilms can thus help include respective Indigenous ecological knowledge in environmental education, challenging Western views that separate humans from Nature. They promote holistic, respectful relationships with land and water, supporting decolonization and diverse ways of knowing. However in reviewing recent research, I discerned that more focus is needed on practical use, wider community involvement, pedagogic challenges, and policy impact. The participatory and communal aspect of cellphilm can create spaces where humans and MTH entities are

equally acknowledged, allowing for a rethinking of ecological relationships and responsibilities. Cellphilm offers a powerful tool for implementing MTH ecopedagogy in educational settings. By combining participatory visual research, technology integration, and CP, this method can enhance learners' understanding of environmental issues and motivate them to take action for a sustainable future that recognizes the agency and importance of MTH actors in our shared World.

Recent Research Involving Autoethnography and Ecopedagogy

There are few examples of autoethnography in ecopedagogy research and even less examples of using cellfilms combined with autoethnography and ecopedagogy. Recent research that combines autoethnography with ecopedagogy shows that it harnesses personal narrative and critical reflection to engage with environmental and social issues (Blades, 2021; Windhorst, 2016). Ultimately, an ecopedagogic perspective contributes to autoethnography's potential as a tool for emancipation and reinvention (Whitehouse, 2018). This section looks at some of what has been published in recent years that combines autoethnography in ecopedagogy.

Eryaman et al. (2010) base themselves on the UNESCO's *Hamburg Declaration* (Adult Education, 1997) and additionally follow the directives of Kahn (2010) to explore different ways to develop awareness for change and initiate action. They relied on critical and innovative ecopedagogy to “go beyond creating understanding and awareness in order to develop a sense of commitment for individual and collective action” (p. 26). Constructing their practices on critical community-based activities, the team of participating teachers collectively engaged in “various strategies for designing and implementing eco-pedagogy program(s) that include sustainability, biodiversity, ecological restoration, scientific discourse on nature”, including various environmental literacy programs to conscientize the importance of Nature and ecology education for adults (p. 27).^{xciii}

Nicol (2013) completed a 700-kilometre, 30-day solo journey by canoe and sea kayak around the Cairngorm massif in the British Isles. Her self-reflexive approach concluded that, “due to human influence, polar and mountain ice sheets are melting, the atmosphere is altering, biodiversity is diminishing, and at the same time poverty and famine continue to exist around the world (Intergovernmental Panel on Climate Change [IPCC], 2007)” (p. 4).^{xciv} Her research combined autoethnography with a personal form of ecopolitical activism. Nicol (2013) states drawing on

Anderson (2006), and Spry, “autoethnography includes not just experiences of self but also those of others”, which includes MTHs (p. 9).

Autoethnography combined with ecopedagogy can also be a praxis of emancipation allowing for political engagement enhanced by ecoliteracy, empathy and re-invention. Ecopedagogy views the cultivation of deep empathy and an expanded sense of self as catalysts for critical reflection on toxic educational practices that perpetuate H-MTH-N separation.^{xcv} Llorot-Bidart (2018) ecopedagogic autoethnography relies on Appadurai anthropocentric concept of ‘scapes,’ by interlacing the theory with “feminist posthumanism, ecofeminism, and the political ecology of education to develop a MTH ecopedagogy in/for/with animalScapes” (p. 152).^{xcvi} She relies on embodiment, affect, and emotion to generate a discussion on belonging to the community of humans and MTH entities sharing Earth. She concludes, ‘going beyond human’ in ecopedagogies in/for/with animalScapes became complicated because animals have never been ‘fully human,’ and because ‘some groups of humans have historically been denied full humanity’ (p. 159). Her autoethnographic *scapes* inquiry identifies an insightful ontological mindfulness of her situatedness which allows her to develop a fluid identity through a translated consciousness of her emotions. She also engages her autoethnography with affective reflections on the ethico-onto-epistemology of intentionality in the relationship between humans and MTHs.^{xcvii}

Whitehouse (2018) in *OceanScaping/scoping and the ecopedagogy of snorkeling* focuses on the educative value of immersive saltwater experiences as pedagogical experience/s within coral reefs offshore from the tropical Australian city of Cairns (p. 142). Whitehouse, a teacher and researcher analyzes coral reef transformation and ecocide, based on a series of autoethnographic accounts of snorkeling journeys (2015–2017). She explains that a deeper sense of understanding an integrated theoretical and practical ecopedagogy in the age of the Anthropocene can help in educating with authenticity and expose “the timeliness, or not, of the antecedents and consequences of anthropogenic climate destabilization” (p. 142). She proposes that difficult terrains as (un)sustainability explored through ‘dialogic praxis’, can transform and re-invent, in continuous negotiation, and thus help learners and educators to engage in social justice for human and MTH kin.

Blades (2019) provided an inspiring, comprehensive and rewarding research-creation on the use of digital recording devices in an ecopedagogic autoethnography. Although Blades did not use cellfilms in her research-creation she did use digital sound recording devices with her participants. Her thesis explores the ecopedagogical qualities of walking in nature within the context of OEE in Australia. Blades employs an innovative autophenomenographic approach, utilizing sound recording practices to capture and analyze her embodied experiences while walking in various natural environments or “scapes”.^{xcviii} This methodology allows her to decenter human subjectivity and explore less anthropocentric ways of thinking about and representing the nature of walking. Her work challenges Northern/Western ‘traditional’ approaches to environmental education by emphasizing the importance of embodied, sensory experiences in developing ecological consciousness and fostering a deeper understanding of H-MTH-N relationships.

Shugurova (2023) teaches education practices at the University of Manitoba. She uses her dialogic, reflexive, poetic, narrative inquiry to investigate her learners’ engagement with MTH entities. She discovered that her learners have an ontological shift with ‘nature’ and that they have found ‘new ways of seeing’ and experienced ‘peacefulness’ (p. 1).^{xcix} As with all the preceding examples of ecopedagogy expressed through autoethnography, Shugurova (2023) describes the emancipatory, playful and inspirational aspect of the ethnographic practice. This requires empathy, acceptance, commitment and dialogue.^c

A final example is Rodrigues (2018) who proposes a movementScapes perspective to ecopedagogies informed autoethnography.^{ci} He describes a living body interacting in/with Nature through his perspective of economotricity in movementScapes.^{cii} He states:

This interaction is ludic (where pleasure or joy/ happiness gives meaning to the lived experience) and ecological (ecosomaesthetic-environmentally ethical-ecopolitical) and provides for revitalized and animated ecopedagogical practices (and research). Critical examples and insights are presented as praxical evidence of how the ecophenomenological and ludic essence of economotricity challenges individuals in particular movementscapes to question their ways of being in-the-world as a form of ecobecoming potentiality. (p. 88)

Rodrigues (2018) argues that an ontological repositioning in the manner ecopedagogy re-invents the education of the environment by bringing in a human:non-human perspective allows for a diversity of experience (p. 96).^{ciii} He adds,

Ecomotricity can be greatly distinguished from other normalized, often instrumentalized and commodified, body-environment relations of performativity: in opposition to an anthropocentric ‘connection to’ nature, ecomotricity is expressed as an immanent movement of humans-and-other-than-humans-being-in-nature. (Rodrigues, 2018, p. 92)

These experiences allow for a more integrated spatio-temporal praxis of identity formation and belonging. Ecomotricity, as Rodrigues describes it, moves beyond Northern/Western ‘traditional’ anthropocentric notions of connecting to Nature. Instead, it posits an immanent movement where humans and MTH entities co-exist and co-create experiences in Nature. This perspective on H-MTH-N relationships challenges normalized and commodified body-environment relations, offering a more holistic and integrated approach to environmental education.

Ultimately, as all these research examples show ecopedagogy enhanced by autoethnography strives to reintegrate the human into the MTH-Nature ecological web of life through educational practices that nurture a planetary consciousness. This fosters a deeper understanding of our interdependence with all MTH entities and challenges the educational norms that reinforce disconnection from the environment.

Cellfilming ontology

My research-creation adopts a posthumanist ontology that recognizes the vibrant agency of MTH actors, an epistemological stance rooted in relational Indigenous and new materialist knowledges that privilege sensory, affective encounters over anthropocentric dualisms, and an ethics of reciprocity that honors mutual entanglement, consent, and accountability in human-Nature kinship. This ontological repositioning manifests through embodied interactions in cellfilming praxis, incorporating experiential learning that emphasizes sensory engagement with Nature and recognizing the agency of MTH actors, thereby challenging anthropocentric ‘worldviews’. This framework underpins a cellfilming praxis that disrupts human exceptionalism through embodied, in-vivo interactions - capturing fleeting vitalities of MTH co-participants via single-take

smartphone filming to foster visceral empathy, ecological stewardship, and decolonized planetary consciousness.

Complex theories of affective relationality and MTH interconnections translate into ecopedagogical outcomes by weaving cellphilmaking into autoethnographic practices that empower learners to document sensory engagements with Nature, fostering digital literacy, critical media analysis, and ontological shifts toward reciprocity with MTH entities. Through hands-on processes of planning, cellphilmaking in single takes and sharing via social networks, teachers can show learners how to develop visuospatial perspective-taking and immersive storytelling that disrupts anthropocentric views, as seen in examples like intergenerational Zapotec language preservation workshops and decolonizing water management dialogues with Indigenous caretakers.

A cellphilmaking ecopedagogy engaging with affect and vitality in intimate encounters with MTH co-participants - where the smartphone extends the learner's embodied senses to capture their subtle agency - can foster visceral intimacy that dissolves anthropocentric boundaries. This sensory reciprocity - via visuospatial perspective-taking and raw non-representational filming - can ignite empathy and joy, mirroring Indigenous ontologies. In turn, this intimacy yields a profound sense of belonging and community within Nature, weaving human-MTH narratives into collective ecological kinship. Ecologically, these theories yield outcomes such as heightened environmental stewardship and mental well-being from Nature connectedness, where cellfilms catalyze community discussions on river health, challenge Western human-Nature dualisms, and promote postdigital ecopedagogies that balance smartphone use with embodied outdoor experiences to nurture planetary consciousness and collective action for sustainability.

PART THREE: AFFECT, EMOTION AND BELONGING

Affect Perspectives

Affect has been subject to intense research since the turn of the century, with several distinct visions from multiple theoretical fields.^{civ} For the purpose of this research-creation, I explore which approach best elucidates how affect contributes to feelings of belonging in the process of autoethnographic cellphilmaking.

Many contemporary theorists of affect draw inspiration from Spinoza's philosophy of immanence and relationality. This philosophical lineage positions affect not merely as an individual emotional state but as a distributed process within vibrant matter's vitality, and echoes Spinoza's emphasis on bodies' conatus and capacity for relational transformation. Spinoza's view of affect as the capacity of bodies to affect and be affected underpins a dynamic understanding of the entanglement between bodies, emotions, and environments.

Posthumanist and postdigital approaches have frequently been informed by feminist new-materialist theory and NRT with complex theoretical tensions between the two approaches and overlaps in describing the manner affect functions and is understood. I'll expand on the predominant theories of affect by including theoretical challenges from Spinoza, Deleuze, Massumi, Thrift, Zembylas, Bennett, Pedwell, Seigworth, Ley, Ngai, Ahmed and Berlant.

Zembylas (2018) examines the role of emotions in environmental education, positing that "emotions are central in an agonistic approach to citizenship education because emotions are considered an essential aspect of political and democratic life" (p. 1).^{cv} However, measuring the long-term impact of emotionally driven sensory experiences on environmental attitudes and behaviours remains challenging despite all the qualitative research up to date. Emotions are contested in citizenship discourses not trusted by reasonable, rational argumentation (Tryggvason et al., 2022). As we navigate an increasingly interconnected World, understanding how emotions affect our senses in these human-more-than-human-Nature interactions become paramount as does its interpretation in my research-creation engagement with data - I expand on this in Chapters Five and Six.

The concept of vibrant matter, as proposed by Bennett (2010), contends that recognizing the agency and vitality of MTH matter can evoke profound emotional responses, which in turn heighten our sensory attunement to the World around us.^{cvi} In addition, the relationship between affect and emotions play a crucial role in shaping our sensory experiences. The complex interaction of senses with emotions creates fervent backdrops to the feelings of belonging that are experienced in this research-creation praxis. This complex interplay encompasses our relationships with animals, plants, all living entities, and inanimate objects in intimacy with Nature. Shugurova (2023) argues

that emotions serve as a channel for deeper connections with MTH entities, amplifying our sensory awareness and fostering a sense of ecological empathy.

New materialist feminist affect theory examines how affect and emotions are gendered, racialized, and shaped by power structures. In the context of postdigital ecopedagogy, I rely on feminist affect theory that encourages educators to critically examine how social categories and power dynamics influence learners' affective experiences using digital technologies and MTH entities. This approach can help create more inclusive and equitable (in)formal education environments that acknowledge and value diverse affective responses.

NRT, often associated with the work of Nigel Thrift, focuses on the pre-cognitive, embodied, and relational aspects of affect. Thrift (2004) proposes affect as an intertextual power dynamic that generates emotions driving the manner space and time are thought out and onto-epistemologically processed into feelings. In addition, Boler (1999) states:

Certain emotions are culturally classified as 'natural,' benign, and normal, while others are seen as outlaw forms of political resistance. The determination of the normalcy and deviance of emotions can be generalized to some extent according to social class, gender, race, and culture, but are also highly determined by particular social contexts and power dynamics between given subjects in a situation. (p. 2)

This is significant when considering the non-representational aspects of filming MTH entities. For example, when young learners engage in cellphilmimg MTH entities, non-representational affect theory encourages us to attend to the embodied, sensory, atmospheric and even political, social and cultural dimensions of their experiences. This approach moves beyond representational modes of understanding to consider how affect emerges through bodily encounters, movements, and sensations. In the context of postdigital ecopedagogy, non-representational affect theory informs educators to create EoE practices and experiences that engage socio-politically with the embodied, sensory, and atmospheric dimensions of digital-Nature-MTH encounters.

Notably, feminist theorists of affect criticize models that neglect the social and cultural factors and argue instead that affects are not simply 'in' the subject or the object but are produced as effects of circulation. Berlant's (2006) work in *Cruel optimism* sees risk as a necessary component of change and challenges the concepts of both *risk-as-feeling* and *affect heuristics*. For Berlant, "cruel

optimism” describes our attachment to promises of the good life, particularly in neoliberalism where these attachments prevent us from flourishing. Berlant points out that we have a magnetic attraction to cruel optimism, with its suppression of the risks of attachment. She describes a relation where an object of desire actually impedes the very flourishing it promises. People remain attached to material objects or fantasies despite their potentially harmful effects. Attachment to cruel optimism involves a willingness to take risks in pursuit of change or a better life, even when those risks may be detrimental (p. 35).

Here, Berlant aligns with Thrift and challenges this narrow focus on the individual’s cognitive shortcuts, instead highlighting affect as a broader, more embodied and spatial form of thinking that transcends conscious, deliberate reasoning: “affect is understood as a form of thinking, often indirect and nonreflective, it is true, but thinking all the same. And, similarly, all manner of the spaces which they generate must be thought of in the same way, as means of thinking and as thought in action” (Thrift, 2008, p. 60). Berlant and Thrift emphasize an understanding of affect that goes beyond individual decision-making processes and relies on intra-actions, intra-affects and holistic interconnectedness. This interpretation conditioned how I negotiated questions of affect when engaging with the MTH in the research-creation aspect of this work - which relies heavily on agency and intention.

Several feminist affect theorists who argue for a more socially embedded view, base their ideas of affect on Tomkins. Clough and Halley (2007) state:

Tomkins understood affect in terms of specific physiological responses that then give rise to various effects, which may or may not translate into emotions. Affect therefore precedes emotions; affect is not conscious, but it has a dynamism, a sociality or social productivity. The effects of affect, however, are not predictable; affective change from passivity to activity, from inertia to motivation, for example, is not reducible to a single stimulus. In fact, a “circus of affective responses” can result from a single stimulus and differ in any one body at different times. (p. 232)

Tomkins (2008) views affect as innate, pre-conscious physiological responses that precede and shape conscious emotions. Although Tomkins does not explicitly address agency and intentionality philosophically, feminist affect theorists build on his work to argue that affect forms a foundational layer from which relational, embodied agency and intentionality emerge. Affect’s pre-reflective

movements open possibilities for bodies to be motivated into action beyond conscious control (Wilson & Frank, 2020; Clough et al., 2023).

In cellphilming praxis, agency and intentionality are vital as they integrate affective responses - sensory, emotional, embodied - as creative and generative forces. Recognizing that affect precedes conscious emotion but still motivates socially highlights that intentionality here arises through embodied, affective engagement rather than solely deliberate cognition. Thus, Tomkins' (2008) affect theory supports understanding agency in ecopedagogy and cellphilming as deeply intertwined with affect's social dynamism, where intentionality is an embodied capacity to respond and act within complex affective fields, not just conscious choice. Intentionality and agency are imperative in my cellphilming praxis as they both integrate affect in their operations.

I furthermore tend to agree with Leys' (2017) proposal that contemporary affect theory has reached an impasse 'without consensus'. She explains in an interview with Knatz and Caomhánach (2020) that, "these fundamental differences concern the question of meaning, that is, whether we should understand emotions as intentional states or as unintentional processes" (p. 3).^{cvi}

Perhaps we can break the multiple impasses of affect theory by searching for an alternative epistemological perspective related to the ontology and ethics of a distinct experimental 'phenomenology of affect.' Our knowledge starts with sensing the World through our senses, which are then organized into ideas - mental representations that can be true or false. These ideas evoke emotions (affect), linking belief and feeling. Emotions play a crucial role in shaping our ethical and moral reasoning by making abstract concepts of right and wrong personally meaningful. Through this emotive cognition, influenced by both true and false beliefs, our minds gain the capacity to imagine the World in multiple ways. This imaginative process transcends a simple, monistic view of truth, acknowledging that our understanding of the World is shaped by a blend of perception, emotional experience, and representation. In this way, emotions grounded in our ideas about the World become a foundation for ethical thought, opening the door to richer, more nuanced moral and philosophical inquiry.

Cellphilming allows us to explore the tension between reality and representation. This emotional engagement helps us imagine the World in varied ways, moving beyond a fixed notion of truth.

The creative aspect of the inquiry can tap into what is real and what is represented, causing tensions of identification and embodiment. It is then possible that this emotive cognition allows the mind to imagine the world/Earth as true or false transcending the bounds of monism.

This also takes the tripartite phenomena of affect, emotions, and sense a step closer to the performative and the non-representational. Spinoza suggests that an imagining of the world while excluding the actual existence of the things imagined within that construct can be considered virtuous (p. 63):

For if the mind, as it imagines non-existent things as being present to itself, also knew at the same time that those things do not in truth exist, it would certainly value this power of imagining as a virtue not as a fault of its nature, especially if this faculty of imagining depended solely on its own nature, i.e. (by 1def7) if the mind's faculty of imagining were free. (Spinoza & Kisner, 2018, p. 63)

However, this passage implicitly acknowledges that in reality, people often do not maintain such a clear distinction between imagination and reality, which can lead to misunderstandings or the formation of false beliefs.^{cviii} Spinoza is thus highlighting the potential of imagination while also cautioning against its misuse or misunderstanding. By stating “especially if this faculty of imagining depended solely on its own nature,” Spinoza is emphasizing the value of an imagination that is free from external influences, suggesting that such an autonomous imaginative capacity would be even more virtuous. The tension lies in that Spinoza idealizes an autonomous, aware imagination as virtuous but acknowledges the human tendency to blur the line between imagination and reality, which has problematic consequences - therefore imagination may not always be so virtuous. He praises imagination yet recognizes that in practice imagination often becomes improperly mixed with belief, causing errors. His arguments highlight that imagination is not just a purely mental or isolated faculty but is grounded in our embodied experience and how we engage with and sense both our social environment and the physical World around us. It's a nuanced point about how imagination can be both ethically valuable and epistemically risky depending on our awareness and control over it.

I suggest affect:emotions as constructed occurrences not only rely on cognitive process, corporeal affects, agentic feelings, emotional intensities, and inducibility but also address the complex

interplay between individual experiences and broader social and political structures - imagined or reasoned. This more appropriately aligns with ecopedagogic principles of justice and transformation and can set a path for how MTH actors participate in the emergence of emotional experiences.

Weaving Belonging, Affect, and Planetary Citizenship

Belonging discourses traditionally deal with various forms of anthropocentric citizenship within the nation state, tribe or community. Historically, citizenship is defined as responsible agency with regard to community which until recently excluded MTH entities.^{cx} Furthermore, civil society is understood to be the standard arena for the performance of citizenship, a domain that has not traditionally included the MTH.^{cx} Central to my project are theories of belonging that can encompass and expand upon this limited idea of citizenship and will be used interchangeably from here on forth.

I define citizenship/belonging as the willful, moral, physical and ethical production of a (non)living entity's *appartenance* into a social, cosmic and existential structure, with all the concomitant benefits, freedoms, responsibilities and duties of such a merger, notwithstanding the legal right to end such a merger.^{cx} In other words, one can be a citizen of many communities, but belonging entails an important shift in ethics and language.^{cxii} This means that belonging is not just about legal rights or official membership; it is about an active, ethical participation and integration into a community or system. Belonging expands on citizenship to include the ethical, moral, and physical integration of both living and nonliving MTH entities into social, cosmic, and existential structures. Unlike citizenship, which is often tied to legal rights and responsibilities, belonging emphasizes ethical relationships and language, allowing for multiple, overlapping memberships and a deeper sense of connection beyond legal status. Citizenship is a formal recognition (e.g., a passport, rights), but belonging is an ethical, lived, and relational process that involves mutual responsibility, respect, and various forms of communication and languages as mediators. The ethical dimension of belonging calls us to engage with others in ways that do not reduce, appropriate, or dominate them but honor their alterity (otherness). This broader view aligns with much of Indigenous and Southern epistemologies that advocate for inclusive, planetary citizenship

recognizing MTH beings as part of a shared community. However there have been recent transformations in ethico-onto-epistemological standpoints.

A change in perspective on co-existence, citizenship:belonging can be addressed through South/North/Indigenous epistemologies. These frameworks offer a compelling expansion of sustainable citizenship, environmental citizenship and Global Citizenship (GC) which includes recent developments calling for a more MTH inclusive Planetary Citizenship (PC) (Gutierrez & Prado Rojas, 1999; Santos, 2016; Misiaszek, 2018; Bosio & Torres, 2019; Rodrigues et al., 2020; Epstein-HaLevi, 2021; Chbib & Misiaszek, 2025). Jenkins (2021) states:

The dominant model for citizenship is a liberal one based on civil, political and social rights; other recognised models include the civic republican and communitarian (Dobson, 2003, 2005; Heater, 2013), where an ethic of civic virtue prevails, and serving the common good is how people fulfil their potential as citizens. Critical global citizenship education informs and stimulates political participation and questions moral norms (Bourn, 2014); however, there are many pathways to, and expressions of, global citizenship. (p. 96)

Recent iterations/definitions/elaborations, such as sustainable citizenship and environmental citizenship reflect this shift, highlighting the ethical and civic dimensions of environmental responsibility (Dobson, 2007; Huckle, 2008). Oxley and Morris (2013) identify environmental global citizenship as a category that centres on ethics, offering a way to reframe both sustainability education and GCE. GCE aims to foster an awareness of humans as part of the broader ecological system, promoting environmental justice and sustainability. This approach emphasizes our interdependence with Earth and all its inhabitants, moving beyond anthropocentric views of citizenship. As Misiaszek (2015) explains:

Planetary citizenship expresses a set of principles, values, attitudes and behaviours that brings a new perception of the Earth as a single community. Frequently associated with the concept of ‘sustainable development’, it is much broader than simply a relation with the economy. (p. 11)

It builds on GCE by explicitly including the rights of Nature and MTH entities, as advocated by the UN *Harmony with Nature Knowledge Network* (Secretary-General, 2016).

Planetary Citizenship Education (PCE) teaches the tenets of PC. This reinvention of GCE emphasizes transformative learning, intercultural perspectives, MTH inclusivity and the development of ecological literacy, ultimately aiming to create more environmentally conscious and globally responsible citizens. The inclusivity of the MTH in belonging education such as GCE and other PC proposals involves decentering the anthropocentric perspective (Goren & Yemini, 2017; Cantón & Garcia, 2018; Davies et al., 2018).^{cxiii} Moraes and De Almeida Freire (2016) state: “Planetary citizenship building with the ecology of knowledges contradicts presentism and narcissism by insisting on the inclusion of knowledges originated outside a Western-based space and time of reference” (p. 45). The responsibility remains anthropocentric as Misiaszek (2016) states: “Planetary citizenship is based on nature’s right not to be destroyed; however, this is not the responsibility of nature, since humans are the only beings which are reflexive, historical and capable of transformation (Dewey 1963; Freire 2000)” (p. 602).

Learners could apply autoethnographic cellphilmaking with MTH by cellphilmaking their embodied encounters with trees, insects and wind during walks, synthesizing personal reflections on belonging with non-representational footage of swaying branches for example. This can demonstrate how these elements foster planetary citizenship in teaching practice, thereby avoiding abrupt shifts between narrative and theory. Cellphilmaking's sensory capture directly informs ecopedagogy by weaving learners' feelings of ethical integration with MTH passive agency. And this can be later shared in classroom viewings and discussions that guide the understanding of reciprocal planetary relations.

In sum, seeing co-existence and belonging through the lens of Southern, Northern, and several Indigenous epistemologies not only broadens the concept of citizenship but also deepens our ethical and civic responsibilities to each other and Earth. Including the MTH shifts our perspective by embracing sustainable, environmental, global, and planetary citizenship leading us toward a more just, interconnected, and sustainable World. Ultimately, the challenge and opportunity before us is to foster a planetary consciousness that honours diverse ways of knowing, centers ecological justice, and empowers all citizens to participate in the ongoing transformation toward a thriving Earth community.

Belonging and Non-Representational Entanglements

MTH approaches in GCE and PC proposals share the goal of decentering anthropocentric perspectives with NRT. NRT emphasizes embodied experiences, material interactions, and affective relationships that include MTH entities: they foster a more holistic and ecological understanding of belonging. This shift encourages learners to develop a sense of responsibility and care that extends to the entire Earth, promoting a more inclusive and sustainable approach to Global citizenship paving the way for a more comprehensive understanding of our place within the broader planetary ecosystem.

The development of a NRT inclusive of the MTH also corresponds to the post-structuralist decentering proposed by Derrida, Latour and Foucault that leans beyond the “modern” (Latour et al., 2005). NRT reveals the necessity of co-existence, symbiosis, interdependence, “intra-action”, and “entanglement” of the human and MTH (Barad, 2003, 2007). Haraway (2016) has also described it as “sympoiesis”^{cxiv} and “knotted beings”.^{cxv}

In addition, flat ontologies propose a more egalitarian perspective, namely that all entities have their own powers and capacities (DeLanda, 2006; Reid, 2021).^{cxvi} Flat ontologies allow us to look at knowledge production as a point of departure beyond the entanglements of power in order to include for example: local knowledge, suppressed discourses (discourses of the oppressed) and abuse of powers. This allows us to look beyond the binary distinctions that define our conceptualization of Earth. Hence, there is no difference in fundamentality between objects that are relegated to the same level, replacing the former distinctions between subject and object, and consequently between human and MTH. Accordingly, we can understand networks that are hybrid in which the human is just one being among kin. This allows for positioning the situated self within the broader sense of a shared kinship between humans and MTH entities as a form of justice, a stoic *oikeiosis*, a sense of belonging and appropriation to oneself. Whiting et al. (2018) demonstrate that fostering a shared sense of kinship that does not ignore or deny Nature’s interconnectedness strengthens solidarity and ethical accountability, thereby providing a rationale for pursuing socio-environmental justice:

Oikeiosis allows us to conclude that all humans, as rational and social animals, are capable of choosing thoughts and actions for progressing towards virtue, and that

education is essential for this process. It also contributes to the philosophical rationale of ecopedagogy, which promotes the idea of a truly global citizenship. (p. 7)

Oikeiosis aims to disrupt oppressive power structures and various forms of exploitation and thus provides a model of social change that imagines our living *together* in a sustainable community with the determined personal and social praxis to eliminate colonization, violence, oppression, exploitation, and to concomitantly counter environmental degradation and species extinction.^{cxvii}

In an applied ecopedagogical praxis, learners would employ autoethnographic cellphilm to capture non-representational moments of entanglement, such as hands tracing moss on rocks while filming subtle shifts, directly linking them to subsequent classroom teachings by using footage to illustrate embodied kinship with MTHs and preventing disjointed exposition. Their feelings of belonging during the praxis can be worked through and reflected upon. Such synthesis articulates how filming concretely shapes ecopedagogical outcomes, transforming atmospheric intra-actions into practical lessons on flat ontologies for student co-creation.

In addition, learners could integrate autoethnographic cellphilm with MTH by recording tactile interactions with smartphone screens amid forest sounds for example. This can concretely inform teaching through edited clips that merge digital feedback loops with natural rhythms, thus synthesizing reflection and digital tools without obscuring relational belonging. These cellphilm segments would guide postdigital ecopedagogy by vividly demonstrating how technology amplifies MTH affective ties in instructional contexts.

Affective Technology

Technology, particularly social media and digital communication tools has significantly influenced how people experience and express emotions, as well as their sense of connection to others such as MTHs. Digital platforms (streaming, social media, learning, gaming etc.) offer new avenues for forming communities, maintaining relationships across distances, and exploring identity. While digital platforms can enhance feelings of belonging and facilitate emotional expression, they can also lead to feelings of isolation, anxiety, and disconnection. The way individuals emotionally engage with technology shapes their experiences of belonging in digital spaces (Lamb et al., 2022). Conversely, the desire for connection and emotional fulfillment drives patterns of technology use

(Beaudry & Pinsonneault, 2010). This interplay has transformed Northern/Western ‘traditional’ notions of belonging, creating new forms of social connection while also presenting challenges to interpersonal relationships (Black et al., 2022). The key to harness its potential lies in mindful engagement with technology - for fostering positive affect and meaningful connections while mitigating potential negative impacts on emotional well-being and social relationships (Roberts, 2019). So how do technology and affect fit into these non-representational belonging proposals when experiencing ecopedagogic learning inclusive of MTH entities?

Braidotti (2018) proposes an altered perspective and a posthuman ontology.^{cxviii} In Bozalek et al. (2018) she tells us the posthuman is brought to the forefront as a concept,

...as a result of the great technological advances, any lingering notion of human nature is replaced by a ‘naturecultures’ continuum (Haraway 1997, 2003). This also brings to an end the categorical distinction between life as bios, the prerogative of Anthropos, as distinct from the life of animals and non-humans, or zoe (Braidotti 2006). What comes to the fore instead is new human-non-human linkages, new ‘zoontologies’ and ‘posthumanities’ (De Fontaney 1998; Wolfe 2003), and also complex media-technological interfaces and media ecologies (Fuller 2005) in the context of the Anthropocene. (p. xvi).

Braidotti explains that a posthuman pedagogy of the oppressed must foreground the missing people, the feminist, queer, migrant, poor, decolonial, diasporic, diseased members of humanity. She adds that posthumanism united in:by the Anthropocene must not be re-inscribed with “the corporate pan-humanism, military interventionism and UN humanitarianism” (p. xix).^{cxix} This is integral to the manner new technologies in our postdigital World are used. They re-inscribe authority by delegating propaganda, and *false truths* to further planetary exploitation and this is enforced through new forms of (un)sustainable pedagogies of the environment (Carr, 2022; Jandrić & Ford, 2022a; Lamb et al., 2022).

Reminiscent of Thrift (2004) and Deleuze and Guattari’s feedback mechanisms (1987), the role of affect in the digital domain - specifically the mechanism, by which personalized information is mediated in the technological and digital age - is succinctly explained by Bolter and Davis (2018):

...“affective feedback loops” are central to the creation of these personalized emotional and informational ecosystems, as they are the mechanism by which affect circulates

from the user, into the algorithmically determined product, which returns “desired” content back to the user — as per the basic logic of web search browsers, “likes”, recommendation services, etc. In this movement, the relations established by social media platforms are as much relations between people and econo-technologically instantiated version of self, as they are between separate individuals “mediated” by technologies. The role of technology as “mediator” and technology as actual “interlocutor” are blurred. (p. 76)

Boler and Davis contest the binary of emotion /affect in affect theory advocated by theorists like Massumi.^{cxx} They argue that the recent celebration of affect theory has several lacunae that namely promote an autonomous affect that escapes the limits of language and ideology (p. 80). Boler and Davis explain ‘feeling rules’ as: “the prescribed emotional behaviors that situate people in different social contexts through affective expectations, and norms determined according to gender, age, occupation and other factors” (p. 78).^{cxxi} They propose a continued theorization of affect and emotions beyond Massumi and explain: “how affective computing methods, especially with regard to social media, could benefit from (feminist) scholarship that emphasizes the social and relational nature of emotions” (p. 81).^{cxxii} They further state:

Affect all too often comes on the scene as an elaborate gymnastics that allows scholars to discuss emotional, felt and sensed experiences while avoiding the mark of emotionality. That is, to speak of emotions in the context of presumed rational academic or political discourse has its own affective politics: it is to be ‘contaminated’ by the feminine, as emotions — in their messiness, complexity, and corporeality — are linked to the feminine as the lesser half of the heterosexual gender binary. (p. 82)

Feminist theorists of affect like Boler and Davis thus reveal these critical ambivalences about the political and ethical implications of contemporary affect theory in the postdigital, posthuman context. Posthumanism decentralizes the human subject and embraces relationality - with the role of media technologies as integral, co-constitutive elements in contemporary human and MTH entanglements. Is this redemption or negative re-inscription?

In the end Boler and Davis summarize the phenomenon:

Studies of affect and emotion are critical for understanding the relationships between digital media, subjectivity and politics. Ideally, the language of affect helps scholars to outline processes and configurations of sensibility in ways that work to undo the Cartesian opposition of cognition and feeling. One of the central values of thinking about affect for studies of (social) media is that it allows the researcher to slow down

— to not have to jump from the empirical or experiential to its codification as a political “effect”. Focusing on the burden of proof demanded to state a political “effect” itself already circumscribes what can be understood as political in the first place. Thus, the language of affects expands studies of media effects, creating possibilities for re-imagining the sphere of the political. (p. 84)

It is with this in mind that I propose to elaborate on the use of *cellfilms* to re-imagine the *political* of identity formation by connecting MTH perspectives with feminist affect theory to untangle the affective induction of belonging through technology.

Indigenous Ways of Folding Affect and MTH entities

Whyte (2020) describes the reality of our ‘affect’ predicament from an Indigenous perspective. In *Too late for Indigenous climate justice: Ecological and relational tipping points*, he explains that the urgency to stop climate change needs to be acted upon by all, but he proposes that the tipping point of no return may have already been reached, “because we know that the needed relational qualities for coordinated response are missing” (p. 9). He adds that the “the relational tipping point got crossed long ago thanks to systems of colonialism, capitalism, and industrialization” (p. 5). Whyte adds that we need to additionally address the deep injustices afflicted on Indigenous people such as “increases in the gravity of economic damages, health harms, political conflicts, geographic displacements, and cultural losses” (p. 3). This is part of the reciprocity and healing that is needed for reaching eco-justice and Indigenous led sustainability.

Several Indigenous knowledge systems and MTH inclusivities offer powerful approaches to address the challenges of sustainable development and ecopedagogies (Maira & Kauka, 2018). These perspectives can help resolve the issues of co-optation, inequality perpetuation, and ethico-onto-epistemological uncertainties by providing a holistic, interconnected World view that resists reductionist interpretations. Indigenous knowledge systems, developed over generations in many communities through close observation and interaction with local ecosystems, provide specific, context-appropriate criteria for sustainability (Cajete, 2020; Bettini, 2024). These criteria are often rooted in principles of reciprocity, respect for Nature, and long-term thinking, which can help counter vague definitions that leave room for misinterpretation and co-optation (Berkes, 2009).

Several Indigenous knowledge systems provide context-specific, ethical, and relational criteria for sustainability that resist reductionism and support transformative ecopedagogies. Indigenous practices like the Māori concept of *kaitiakitanga* and the Anishinaabe water protection practices offer holistic, MTH inclusive, relational approaches to sustainability. They emphasize stewardship, respect, and long-term care for ecosystems, recognizing Nature as a living entity and guiding ethical, context-specific environmental actions that challenge reductionist views (Maira & Kauka, 2018; Nesterova & Jackson, 2019).

The Indigenous concept of “*Buen Vivir*” or “living well” offers an alternative to conventional notions of development (Chassagne, 2023).^{cxiii} This philosophy emphasizes community well-being, harmony with Nature, and cultural identity over material accumulation (Veltmeyer & Lau, 2020). Another concept is Ubuntu, an ancient African philosophy from Nguni Bantu traditions, embodying the essence of humanity through others: "I am because we are." It celebrates interconnectedness, where compassion, sharing, and communal harmony define personhood over self-interest. Popularized by thinkers like Jordan Ngubane and formalized by Stanlake Samkange in 1980, it calls for empathy as the root of true community (Le Grange, 2012; Kyei-Nuamah & Peng, 2024).

Integrating such concepts into sustainability discourse can help shift the focus from perpetuating inequalities to promoting genuine empathy, equity and environmental stewardship. In addition, land-as-pedagogy frameworks root pedagogic projects in specific ecosystems, countering Western environmental education's abstraction and situating environmental narratives within many Indigenous cosmologies (Simpson, 2014; Wildcat et al., 2014). Critical implementation challenges the academic Eurocentric paradigms by dismantling anthropocentric frameworks through engagement with MTHs. Their power lies in embodying Nature in the same manner the transformative potential of many Indigenous methodologies makes visible the networks of connections that sustain life beyond colonial paradigms.

Many Indigenous ontologies and epistemologies can play a crucial role in strengthening the philosophical grounding of ecopedagogies (de Oliveira Andreotti, 2014; Simpson, 2014; Misiaszek, 2020b; Cajete, 2020; Guttorm et al., 2021). One successful approach is Bartlett et al.'s research which successfully weaved Indigenous and mainstream knowledges for research into science

educational curricula, by including in the research process recognized holders of traditional Indigenous ecological knowledge along with Western methods of research (2012). They affirm that most elders were satisfied with their approach because Elders were involved not just as consultants but as co-creators, ensuring that their perspectives and teachings were genuinely integrated and respected alongside Western scientific methods.

Recent ecological research has been informed by the works of two key publications: Tsing's (2017) *The Mushroom at the end of the world* and Kimmerer's (2013) *Braiding sweetgrass*. Tsing and Kimmerer are both scholars that reject extractive research models, instead emphasizing collaborative co-production of knowledge. Tsing's engagement with Mātauranga Māori (Māori epistemology) highlights the necessity of Indigenous self-determination in environmental governance, while Kimmerer's 'Campfire model' outlines protocols for equitable partnerships between Indigenous communities and Western institutions. Their methodologies share a commitment to decolonial praxis, yet they acknowledge the tensions inherent in translating the variety of Indigenous ontologies into academic frameworks. For example, Tsing interrogates the colonial legacies embedded in techno-scientific 'fixes' for ecological crises, whereas Kimmerer critiques the marginalization of Indigenous perspectives in mainstream environmental science.

Greenwood (2017) analyzes Tsing and Kimmerer's work in his exploration of place-based learning inclusive of MTHs. Greenwood states,

...unlike so many environmental writers (many of them male and White) that critique our sorry state of affairs and propose remedies, Tsing suggests something bolder: that we live in a world that cannot be saved and made right again. There is, in other words, no political, scientific, or technological fix for our mounting problems. (p. 207)

This aligns with Stein et al., Andreotti and Whyte's Indigenous knowledge perspectives (de Oliveira Andreotti, 2014; Stein et al., 2020; Whyte, 2020). They share a recognition that the state of the Earth is not merely a technical or managerial problem, but a profound crisis of relationality, rooted in the ongoing legacies of colonialism, extractivism, and human exceptionalism. While avoiding techno-solutionism, they each independently assert that there are creative, collective pathways emerging from our man-made catastrophe (de Oliveira Andreotti, 2014; Whyte, 2020). For example, the emphasis on creative, collective pathways reflects Indigenous approaches

prioritizing community-based solutions and collaborative efforts. Furthermore, some Indigenous knowledge systems emphasize adaptation and resilience. This suggests a shift towards more holistic, pluralistic approaches to addressing environmental challenges, emphasizing the importance of diverse knowledge systems, collective action, and creative responses in navigating our complex ecological realities (Stein et al., 2020).

Greenwood concludes that “both Tsing and Kimmerer offer a vision of life on earth that is not guided by neat ideological certainties, but by the complexity of diversity that is both our evolutionary inheritance, and our intellectual and moral responsibility to embrace” (p. 212). I take these arguments not as a rite of passage into cultural appropriation but as an invitation to share with respect and reciprocal intent. For my research-creation Indigenous approaches inclusive of MTH entities provide clearer definitions, more robust criteria for (un)sustainability, and stronger philosophical groundings that can withstand scrutiny and resist co-optation. Through praxis, as emphasized by Freire (2000), we can integrate these perspectives into practical, transformative actions that promote genuine environmental and social well-being.

Learners engaged in autoethnographic cellphilmaking by filming respectful pauses with river flows as kin would deepen their ecological empathy through a process that honors Indigenous epistemologies of reciprocity and relationality. This practice involves recognizing the river not merely as an object but as a living entity with agency and moral significance, fostering an ethical engagement rooted in Indigenous knowledge systems (Wilson & Inkster, 2018). By capturing these interactions non-representationally - focusing on embodied sensations, sounds, and movements rather than conventional human-centered narratives - learners can document the intra-activity between themselves and the river, emphasizing affective and sensory resonances that unfold in real-time.

In an ecopedagogy praxis, for example, cellfilms become a vehicle for learning that resists fragmentation between reflection, theory, and practice by situating personal narratives alongside moments of affective encounter, where learners visibly share their experience of relational belonging. This approach concretizes the abstract principles of Indigenous-inspired reciprocity, such as stewardship, respect, and mutual care, showing how these values are enacted in embodied engagement with MTHs. Moreover, it models a form of land-based pedagogy that challenges

colonial epistemologies by decentering anthropocentrism and foregrounding MTH agency as integral to social and ecological justice.

CONCLUSION

Bruno Latour (2017) warns that the nation-state has become irrelevant because it can no longer defend us from the destructive power of Nature. He adds, “in the epoch of the Anthropocene, all the dreams entertained by the deep ecologists of seeing humans cured of their political quarrels solely through the conversion of their care for Nature have flown away. For better or for worse, we have entered into a postnatural period” (p. 142). Latour's (2017) approach to Lovelock's ‘Gaia concept’ involves distilling it into its essential elements, distancing it from goddess imagery to avoid restricting agency to humans and their hierarchies. He grapples with expressing Gaia's resistance without deifying or domesticating her, seeking to understand agency and connectivity without presupposing totality.^{cxxiv} Latour sees Gaia as bridging pre-modern and non-modern futures, offering potential for a new Anthropocene discourse where humans adopt a more realistic image of who they are:

Neither nature nor society can enter intact into the Anthropocene, waiting to be peaceably “reconciled”. What happened to the landscape, for earlier generations, is now happening to the whole Earth: its gradual artificialization is making the notion of “nature” as obsolete as that of “wilderness. (Latour, 2017, pp. 120–121)^{cxxv}

Latour's perspective inverts the conventional understanding of the Nature-culture divide. Rather than seeing this distinction as giving rise to the concept of Gaia, he argues that Gaia itself is the source of our perception of a separation between Nature and culture. (pp. 219, 226). Latour argues that the Nature-culture distinction derives from Gaia, not vice versa. I take notice of Latour's description of Gaia as he reminds us that Gaia in Hesiod's account, is not a Goddess but a power of beginnings, bound by violence and duplicity. In this view, there is nothing maternal about her, she commits abominable crimes, yet she is very astute, “Gaia, the outlaw, is the anti-system” (p. 87).

Acknowledging systemic barriers can motivate the seeking of radical solutions (Robinson, 2021). As Boler (1999) proposes, a ‘pedagogy of discomfort’ may be a proactive solution. She introduces a relevant educational prospect that disturbs the normalization of emotion in pedagogy. She also

describes it as a critical inquiry. She explains, “both an invitation to inquiry as well as a call to action. As inquiry, a pedagogy of discomfort emphasizes ‘collective witnessing’ as opposed to individualized self-reflection” (p. 176). She adds that in her research and teaching experience the practice is a mode of self-reflection, and an inquiry into how emotions define how and what we choose to see,

defensive anger, fear of change, and fears of losing our personal and cultural identities. An ethical aim of a pedagogy of discomfort is willingly to inhabit a more ambiguous and flexible sense of self. My hope is that we are able to extend our ethical language and sense of possibilities beyond a reductive model of ‘guilt vs. innocence.’ (Boler, 1999, p. 176)

Questioning predetermined outcomes can encourage creative thinking about alternatives. Embracing uncertainty can free educators and learners from rigid expectations, allowing for more experimental approaches. Confronting limitations can build resilience and adaptability in learners. By engaging with these ‘fatalistic’ perspectives, educators can create a more authentic (in)formal education environment that acknowledges the complexities of education and society. This fatalistic approach imbued with uncertainty can empower learners to think critically about their role in shaping their educational experiences and future. This drives transformative actions.

Ultimately, while Boler’s ‘discomfort’ seems to be a fatalistic perspective, it can serve as a powerful tool for engaging learners in meaningful change, fostering a more honest, innovative, and transformative educational environment. A transformative jolt into our Earth’s middle class, neo-liberal, and life threatening, heartbeat. As Le Grange (2018) states, “if deep ecology as a movement is to be sustained, then its project should be to change the focus of its ethical expression to all of life (the more-than-human-world) and not to extend human morality to all of life” (p. 8). This is also already part of many Indigenous philosophies and ways of knowing.

I consider autoethnography through cellphilmimg to be transformative research jolt. Cellphilmimg participants can learn and integrate (in)formal education with self-reflexive and critical thinking embodied in emancipation - positioning intertextually the ‘I’ honestly, responsibly and with a reciprocity towards the non ‘I’. Keeping in mind Freirean re-invention and Rancièrè’s (1991) translation tenet: “thought is not told in truth\ it is expressed in veracity. It is divided, it is told, it

is translated for someone else, who will make of it another tale, another translation” (p. 62). This allows access to an opening for a democratic, unsubordinated and engaged performative existence that incorporates belonging, affect and technology.

CHAPTER 2

THEORETICAL FRAMEWORK AND METHODOLOGY

INTRODUCTION: THEORETICAL FRAMEWORK

This inquiry acknowledged the significant shift in environmental and ecological studies in the field of education towards more inclusive, technologically mediated, and ethically nuanced approaches to understanding H-MTH-N relationships. Environmental and ecological studies challenge Northern/Western ‘traditional’ disciplinary boundaries and methodologies, integrating new avenues for research and practice in communication, ethics, and education. Research demonstrates a growing interest in exploring the intersections of digital technologies, ecological research, and posthuman theory (Adams & Thompson, 2016; Kuby & Rowsell, 2017; Braidotti & Fuller, 2019; Dernikos et al., 2020; Vaujany et al., 2024). This includes novel methodologies for measuring and understanding multispecies relationships, such as using wearable sensors, digital ethnography, and affective computing. Other prominent and recurring themes were the non-verbal and embodied forms of communication and interaction between humans and MTH entities (Calvo et al., 2015; Pink et al., 2016). This included studies on plant communication, animal gestures, and the role of silence in ecological research (Schiller, 2015; Spannring, 2017; Sans Pinillos, 2023; Poddar et al., 2024).

Recent studies highlight an increasing emphasis on collaborative and participatory research approaches that sought to include MTH entities as active:passive participants in the research process (Bastian, 2017; Dashper, 2020; Dernikos et al., 2020). These reflect a broader shift towards recognizing the agency and intelligence of MTH entities in ecological systems. Overall, these new directions in innovative approaches to environmental studies, posthuman theory, and digital ecologies offered a rich array of perspectives and methodologies for exploring the complex relationships between humans, technology, and MTH entities. In addition, research in creative methodologies using postphenomenological autoethnography including non-representational filming, offer innovative approaches to qualitative inquiry aligning with posthumanist and postqualitative paradigms (Green, 2015; Aagaard & Ihde, 2018; Webb & Welsh, 2019; Stolz, 2023).

Postphenomenological autoethnography extends beyond classic phenomenological approaches by decentering the human subject and considering the role of technology and materiality in shaping experiences. In my inquiry, these methodologies acknowledged my embeddedness in socio-material assemblages, moving away from purely subjective accounts towards a more relational understanding of phenomena. Non-representational cellfilming, drawing on NRT, stirred my praxis beyond mere representation to focus on the affective, embodied, and performative aspects of social life (Sheller, 2015; Vannini, 2015; Pavel Prokopic, 2022). For examples, researchers using mobile phones have recently created short videos, capturing fleeting moments and sensory experiences that might be difficult to articulate through traditional methods (Burkholder & Thorpe, 2019b; Hales, 2020; Wassef et al., 2024).

Researchers have also used filming to investigate environmental education and ecopedagogy, examining how digital technologies can foster connections with MTH entities and promote ecological consciousness (Weik von Mossner, 2014; Van Borek & Abrams, 2023; Dirksen et al., 2023). These integrative methods enabled me and the MTH participants to engage creatively with our environment. This produces visual narratives that challenge conventional understandings of H-MTH-N relationships (Spinney, 2015; Stolz, 2023). Postphenomenological autoethnography and non-representational cellfilming offered me ways to engage with the complexities of lived experience in the digital age. This challenged traditional boundaries between myself and participant, human and MTH, and allowed me to navigate between (non)representation and performance (Cluett, 2006; Spinney, 2015; Kullman, 2016; Ash, 2020; Stolz, 2023).

In this chapter I look at the way my research-creation's methods and analysis take into consideration some of the more recent trends in education and communication research methodologies dealing with MTHs. This includes how it is practiced through digital interaction and autoethnography, and how I in turn practiced my research-creation. The sub-question I wished to answer is: *What are the possibilities of looking at the world/Earth differently from a MTH inclusivity perspective while doing the research-creation on kinship and belonging?*^{cxxvi} In other words, I tried to understand how belonging is not just about identity or territory, but about honoring interdependence, relationality and sustaining wellbeing through cultural practices, stories, and everyday acts that recognize the agencies and values of MTHs.

The intersectionality of affect, belonging, kinship, and postdigital discourses regarding H-MTH-N relations have been largely overlooked, so I responded by deconstructing, decolonizing, and reterritorializing both the material and discursive dimensions of belonging and MTH inclusivity. Through this postdigital process, I engaged with my cellphilmaking praxis in order to challenge anthropocentric assumptions and worked to reimagine belonging as a multispecies, affective, and postdigital phenomenon. In addition, such situated and embodied affective practices between people and matter, human and MTH, informed how I created, understood and practiced as an embedded part of Nature.

My research is deeply informed by scholars working to develop a non-representational pedagogy that incorporates bodies, movement, human interaction with the MTH, including play and empathy (Dirksmeier & Helbrecht, 2008; Fuller, 2013; Vannini, 2015; Kernan, 2024). I have foregrounded embodied and relational practices - such as play, empathy, and sensory experience - in my methodology. I was also attentive to several scholars attending to sensory, felt and affective aspects of potential non-representational research (McCormack, 2003; Fuller, 2013; Buser, 2014; Sheller, 2015; Lewkowich, 2020; Douglas, 2020; Pavel Prokopic, 2022). They caution that the researcher's sensory and affective excesses might encumber the ability to apprehend and represent the phenomenon of study. These theoretical perspectives have shaped how I approached my research-creation process and my research into new pedagogic practices.

Through autoethnographic cellphilmaking, I immersed myself in situated, affective encounters with MTH entities, allowing my own body, senses, and emotions to become sites of learning and connection. This practice enabled me to cultivate and document kinship and belonging that extend beyond the human, while remaining reflexive about my own positionality and limitations. Ultimately, these influences guided me to develop a research-creation methodology that values embodied, experiential knowledge and that strives to reorient a learner's ecopedagogy toward more inclusive, decolonial, and posthuman possibilities.

In an ecopedagogic praxis, learners can bring non-representational theory into practice by entering the field not as observers but as co-presences who move, pause, and sense alongside MTHs. Through cellphilmaking, they attend to affective atmospheres - shifting light, textures of wind, the hesitations of an insect approaching the lens - rather than aiming to 'capture' an image. This

embodied attunement invites them to recognize how belonging emerges in fleeting, multisensory exchanges, situating global citizenship as a shared vulnerability with all beings who inhabit fragile ecological worlds.

Most NRT engages with affect's entanglement with agency and desire as proposed by Ngai (2004), Ahmed (2004a),^{cxxvii} and Leys (2017).^{cxxviii} In addition new materialism proposes to re-tune our sensibilities in a way that spans physical, biological, personal, social, ecological, and environmental dimensions. New materialist theories are concerned and oriented toward the relationships between: belonging and identity, agency and representation, affect and emotion, etc. (Thrift, 2008; Barrett & Bolt, 2013; St. Pierre et al., 2016; Braidotti & Fuller, 2019; Bayley, 2020). My framework positioned the learner as a feeling, emotional, and affected body-in-relation - a site where material, biological, and ecological forces intra-act. I located agency as distributed across bodies, technologies, and environments. The cellfilm became a material artifact of these entanglements, capturing not just what is seen or felt, but how desire, affect, and ecological relationality co-constitute belonging. In this way, my work bridged NRT's focus on precognitive experience with new materialism's insistence on the vitality of matter, offering a framework to study learning as a multispecies, affective, and materially situated phenomenon. This led me to the question: *Can the feeling, emotional, affected learner be an object of a materialist inquiry that delves into the relationship between humans and MTHs?*

I responded by merging postphenomenology and NRT in my methodology. Thus, bringing into the fold the 'affective turn'^{cxxix} and the 'performative turn'.^{cxxx} Dirksmeier and Hellbrecht (2008) propose a theoretical framework for research that melds the two turns. They outline:

...the phenomenological non-representational theory as a possible methodology for a qualitative social research that is provoked by 'the performative turn'. Non-representational theory functions as a methodology of practice. The metaphor of performance as a summation of most diverse cultural techniques such as dance, theatre, pantomime and even outdoor training is turned by non-representational theory into a methodological cornerstone for the understanding of social life in the way that it postulates a break with the dictation of the production of representations. Performance then achieves a methodological status in social theory and it turns into a methodical instrument in social research" (p. 12)

This led me to the impossible, a borderless Moebius strip of theoretical contradictions between recent performative, affect and emotion theorists. Non-representational as integrated with postphenomenology has guided my analysis of how these borderlines are not static divisions but dynamic sites of negotiation. By centering affect and performativity, I questioned: is it possible to decenter and then recenter by looking at the tensions of the borderline that define distinctions between human MTH and Nature? The cellfilms, as material-affective artifacts, became records of these performances, capturing moments where human and MTH agencies entangled to produce new sensibilities of kinship. My framework rejected the ‘dictation of representation’ proposed by Dirksmeier & Helbrecht, instead prioritizing how bodies, technologies, and environments intra-act to generate meaning. It positions the learner-researcher as both performer and audience in a multispecies drama, where affective tensions at the borderline are not obstacles but generative sites for reimagining relationality. In this way, my methodology recentered my inquiry on the process of becoming-with MTHs, rather than fixed categories of being.

Finally, another recurring theme needs further attention, namely the relationship between autoethnography, which is rooted in personal, subjective experience, and ecopedagogy, which emphasizes collective, community-centred learning. The tension emerges from my attempt to extend autoethnography beyond the human self - to include MTH entities as co-creators within the research-creation process. Extending autoethnography to MTH entities as co-creators challenges its person-centered roots, creating tension with ecopedagogy's group orientation. This raises questions about methodological coherence under posthuman ontologies that reject human-centric boundaries. This reconfiguration aligns with posthuman and relational ontologies that challenge anthropocentrism by acknowledging the agency and presence of nonhuman beings (see Braidotti, 2013; Haraway, 2016). It raises an important theoretical and methodological dilemma and paradox at the heart of the methodological coherence between a person-centred autoethnography and a community-oriented ecopedagogy.

The paradox centers on claiming MTH entities as full co-creators and participants in autoethnographic research-creation, despite their inability to verbally or equivalently ‘participate’ like humans due to lacking human-like agency, voice, or communication. This creates a methodological tension: posthuman ontologies (e.g., Braidotti, Haraway) demand recognizing MTH agency to challenge anthropocentrism, yet autoethnography's subjective, personal roots and

ecopedagogy's dialogic, community standards rely on mutual, reciprocal involvement - which MTHs cannot provide in human terms. True inclusion risks anthropomorphizing MTHs or ventriloquizing undermining the coherence of both methods. Ecopedagogy pushes for collective learning with MTH presence, but without MTHs' practical parity, it exposes limits in extending human-centered paradigms. I navigate this paradox in my analysis of the cellfilms I created in Chapters Four and Five.

At its core, how does a method grounded in personal reflexivity meaningfully contribute to a pedagogical framework based on shared, ecological co-participation. One way to reconcile this is to understand and practice autoethnography not as individualistic, but as relationally networked - a site where the self is constituted through entanglement with others, human and otherwise. In this view, the autoethnographic "I" operates as a porous self, one open to interspecies exchanges and environmental reciprocity (Ellis et al., 2011; Neimanis, 2017). Such a framework transforms self-reflection into an ecological act, where the personal narrative becomes a medium for collective, MTH storytelling. In other words, autoethnographic self-narration is reconfigured when the 'self' is understood as environmentally constituted and technologically mediated. This can help address the problem that MTH agency may be only representationally rather than materially enacted.

However, my reliance on this theoretical ideal runs into practical difficulty. The representation of MTH agency through human-made media raises questions about how co-creation and collaboration are enacted rather than merely conceptualized. The slippage between human-centered collaboration and MTH co-creation reflects a deeper ontological tension: whether agency can be equally distributed across human and MTH participants without instrumentalizing one or romanticizing the other. I address this ambiguity with explicit articulation of the methodological transitions between human collective learning and MTH collaboration, through a clearer dialogical framework that situates both within shared practices of relational ethics and situated knowing (Barad, 2007).

POST-QUALITATIVE INQUIRY AND POSTPHENOMENOLOGY

Some researchers were defending qualitative methodology and postmodernism against positivist critics, forcing a significant portion of mainstream qualitative research to become more rigid. This turn of the century shift involved emphasizing qualitative methodologies' and modernism's

underlying positivist tendencies, such as focusing on method-driven research and employing concepts like bias and data coding, in an effort to gain legitimacy in the academic community. Postmodernism on the other hand, emphasized pluralistic epistemologies, subjectivity, and the social construction of reality, often rejecting positivist claims of objective knowledge. However, many qualitative researchers integrated positivist-inspired methods to gain credibility in academia while navigating postmodern emphasis on multiple realities and interpretivism. St. Pierre (1997, 2021) recommended that we should be aware of the positivist problematic practices created by our explorations through qualitative analysis. She advocated that the new-empirical, new-material, posthuman, post-qualitative studies that are undertaken should not be forced into conventional humanist qualitative methodologies (St. Pierre, 2018). St. Pierre and Jackson (2014) encourage a critical awareness of how these approaches may inadvertently reinforce positivist assumptions, potentially limiting the depth and nuance of qualitative inquiry (St. Pierre & Jackson, 2014).^{cxxxix} St. Pierre (2016) therefore proposes deep and ‘close’ reading throughout qualitative research practices with theoretical concepts always in mind, as a pre-requisite for a successful Post-Qualitative Inquiry (PQI) (p. 103).^{cxxxix}

Postphenomenology is a philosophical and methodological approach that examines human-technology relations aiming to understand how technologies mediate human experiences and perceptions of the ‘w/World.’ Postphenomenology builds on classical phenomenology but focuses more often on technological mediation (Ihde, 2009). It examines how technologies shape human-World relations and experiences and more recently includes sociotechnical networks in education, and moral dimensions of hybrid beings via Actor-Network Theory (ANT) influences.^{cxxxix} More commonly, a postphenomenological approach involves analyzing specific human-technology relations and the ways technologies transform human experiences and practices (Ihde, 2009, p. 12). Postphenomenology research is legitimized as a qualitative research method through its ability to reveal nuanced and subtle insights about technological mediation that other approaches may miss. It provides a framework for analyzing human-technology relations empirically.^{cxxxix}

In contrast, PQI breaks from such established qualitative methodologies. It rejects conventional research designs and data collection methods, instead favoring open-ended philosophical inquiry and conceptual experimentation. The tension between postphenomenology and PQI is evident in their treatment of subjectivity and technology. Postphenomenology maintains a focus on embodied,

situated subjectivity, albeit technologically mediated, while PQI decenters the human subject entirely, examining impersonal forces and materialities. Postphenomenology also places significant emphasis on studying technological mediation, whereas PQI explores broader socio-cultural-material assemblages without privileging technology. Furthermore, postphenomenology often aims to inform design and policy, while PQI is more concerned with philosophical exploration and disrupting established ways of thinking. These fundamental differences in approach, focus, and goals create ongoing tensions that I have tried to bring together in this research-creation. I align with Aagaard and Rosenberg who state:

Postphenomenology's focus on embodied, posthuman subjectivity and its emphasis on technological mediation and multistability in human-technology-world relations offers a framework that reconciles phenomenological insights with poststructuralist concerns... There is a great potential for ideas from postphenomenology to be integrated into PQI in a way that enables an approach to the details of the embodiment and hermeneutics of human-technology relations that at the same time remains non-essentialist, and that remains open to the multistability of those relationships, the ongoing transformative co-constitution of technological mediation, as well as their situated epistemology. This, in turn, helps ameliorate some of PQI's own shortcomings. (2024, p. 15)

Merging the two research methods as proposed can for example address the way postphenomenology can adapt to research data and its use in research. PQI fundamentally rejects the notion of data as something that can be collected, analyzed, and interpreted in a straightforward manner (St. Pierre et al., 2016). It moves away from treating data as discrete, objective entities that exist independently of the researcher. In PQI, data is not seen as separate from theory or the researcher. Instead, it adopts a 'flat ontology' where data, theory, and researcher are entangled and co-constitutive viewing matter as "ontologically lively" rather than inert (DeLanda, 2013; Jackson, 2013; St. Pierre & Jackson, 2014).

In summary, PQI radically decenters the human subject by dissolving boundaries between humans and MTH entities, emphasizing relational entanglements over individual experiences. Postphenomenology in contrast, decenters the subject through technological mediation, focusing on how tools shape human subjectivity while maintaining a focus on individual experience within their technological contexts. As I proceeded with my research, I was always aware that PQI uses speculative frameworks that could marginalized my personal narrative and data integration,

whereas adhering to postphenomenology, I could combine philosophical and empirical methods to provide a nuanced view of human-MTH-technology relations. I was thus able to contextualize individual experiences within these H-MTH-N interactions focusing on the bidirectional relationship between human, MTH and cellphilm with a digital tool (smartphone). My framework demonstrates that decentering the human does not mean erasing the human but brings in the MTH into equivalence. Postphenomenology's mediation framework lets me critique H-MTH-N power dynamics (e.g., camera work, perspectives, digital manipulation, algorithmic bias in cellphilm apps) while centering H-MTH-N participatory storytelling. This bridges speculative philosophy and applied research. Postphenomenology provided a welcome addition to my cellphilm data analysis and theoretical integration with an applicable holistic approach to data without compromising the entanglement of data theory and research.

AUTOETHNOGRAPHY AND THE PERFORMATIVE

Bochner and Ellis (2016) explain that “by the mid-1980s, the social sciences had entered a period of crisis brimming with self-reflection...They showed that the traditional idea of an objectively accessible reality through which ‘scientific method’ could produce truth turned out to be, in Rorty’s (1982, p. 195) words, ‘neither clear nor useful’” (p. 48). Rorty’s (1982) critique, instilled doubt in the Northern/Western ‘traditional’ empirical methods of doing research.

Thereafter, Ellis and Bochner (2000) described autoethnography as “an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural” (p. 739).^{cxxxv} Reed-Danahay (1997) calls it “a form of self-narrative that places the self within a social context. It is both a method and a text, as in the case of ethnography” (p. 9). She identifies the practice differently:

Autoethnography stands at the intersection of three genres of writing which are becoming increasingly visible: (1) ‘native anthropology,’ in which people who were formerly the subjects of ethnography become the authors of studies of their own group; (2) ‘ethnic autobiography,’ personal narratives written by members of ethnic minority groups; and (3) ‘autobiographical ethnography,’ in which anthropologists interject personal experience into ethnographic writing. Anthropologists are increasingly explicit in their exploration of links between their own autobiographies and their ethnographic practices (Okely and Callaway 1992). This trend is mirrored in other

disciplines, such as literary criticism (Freedman et al. 1993). (Reed-Danahay, 1997, p. 2)

This aligns with several definitions published in the early development of autoethnographic practices.^{cxxxvi} Many researchers have since transformed their approach and attempted putting themselves more prominently into their research work by establishing positionality, ethical responsibility and experimentation away from discursive binaries.^{cxxxvii}

For this inquiry I rely on Witkin's (2022) description:

...autoethnography was oriented toward revealing cultural and societal contexts of meaning and the relational dynamics that construct and regulate our lives. It provided a potentially valuable window into marginalized lives and unnoticed stigma and amplified silenced voices... Autoethnography's emphasis on writing and reflexivity also resonated with my belief that scientific writing was not a transparent medium for representing facts, but a literary genre; a rather restrictive one. (p. 20)

This offered a transformative potential and was a perfect match with social work and educational objectives and aspirations. This also indicated that autoethnography as it evolved began to animate with agency, engaging social justice and the socio-political. As Hale (2014) notes, ending her academic career with an autoethnography places responsibility on the researcher and highlights that ethnography is ultimately shaped by the ethnographer's own perspective. Her view illustrates how personal experience and self-awareness can enrich cultural research while fostering ethical and collaborative connections with participants (p. 154).

Various proposals towards the performative aspect of autoethnography have been promoted and theorized by Alexander (2005), Gergen and Gergen (2011) and Fels (2012). They align with Butler's performative and Barad's posthuman theories and fall in line with post-qualitative tenets. They also are informed by theories of immanence,^{cxxxviii} and NRT proposed by Thrift (2008), Ingold (2015),^{cxxxix} and Vannini (2015).^{cxli} New influences on performative research practices are on the horizon, for example, Kirsop-Taylor et al. (2021) examine the role that discomfort can play in fostering voice and agency: "in a 'pedagogy of discomfort,' (1999) proposed by Boler educators place themselves, alongside their students, outside of their comfort zones in what may be an emotionally challenging process" (p. 3).^{cxli} This aligns with Freire's educational philosophy which

emphasizes that genuine (in)formal education often involves struggle, discomfort, and challenging experiences.^{exlii}

The performative ‘turn’ can lead autoethnographies into a more integrated participatory activity for a pedagogy of environmental and social justice. As Spry (2022) explains:

Performative autoethnography is written to move off the page doing the labor of meaning-making with and in the presence of others, further exhibiting autoethnography as never about the self alone but rather, as ‘a relation of being and knowing’ (Pollock, 1998, pp. 87-88). (p. 175)

From a posthumanist perspective Spry’s (2022) performative autoethnography involves four key components: it articulates an embodied material assemblage, is a performative doing, actuates a textualizing body, and is written for performance (p. 170). Furthermore, a performative autoethnography needs to inspire agency, transformation and be speculative in nature. Research happens in the middle - within a dynamic, relational environment ("milieu") where knowledge emerges through transversal interactions. The researcher is embedded in this milieu, interacting with human and MTH entities, and methods emerge responsively rather than being predefined. Paquin (2024) proposes that ‘speculative’ experimentation involves creative imagination, risk-taking, and engaging with difference beyond known models. It produces “epistemic objects” through embodied practice, recognizing non-human agency and focusing on exploratory, non-predictive experimentation that generates new perspectives rather than fixed knowledge. Paquin adds: “Speculation here consists of exploring the potentialities of the present to produce perturbations, disruptions in a future that would otherwise be a continuation of the present” (p. 24).^{exliii} Paquin proposes that reflexivity and interpretation come after the active “thinking-making-doing” (*penser-faire-agir*) phase (2024, p. 6). This means that the researcher first engages through embodiment and creatively with speculative experimentation, and only afterward reflects interpretatively on what has been experienced and produced. This echoes autoethnographic practice, where personal experience and self-reflection are combined to generate understanding and meaning. This speculative concept informed my research-creation autoethnography with a holistic approach.

I treated the smartphone as a co-agent, documenting how its camera, GPS, automatic focus pulling or filters shaped narratives (e.g., geotagging linking stories to place). For example, filming insects moving with ambient noise captured by the phone's microphone, blending body, device, and environment. Cellphilmaking MTHs became collaborative: MTH participants co-performed scenes (e.g., birds approaching, insects hiding) or let algorithmic biases (e.g., auto framing the eclipse) disrupt narratives. I hosted a workshop where cellphilmaking 'performed' relationships with ecosystems, merging reflection and action.^{cxliiv} My body became a site of inquiry - cellphilmaking trembling hands, documenting deforestation or shaky walks through parks. I analyzed how the phone's physicality (weight, touch) shaped bodily engagement with socio-justice issues.

Researchers can explore complex identities and experiences through a performative lens, blurring boundaries between self, text, and audience. My application of performative autoethnography emphasized action, embodiment, and relationality. It assembled relations for:with MTH entities participating in my creation in the cellphilmaking process which highlighted how connections were actively formed through the cellphilmaking processes of performing, writing, and engaging. I used my body as a site of research and performance, distinguishing performative autoethnography from traditional autoethnography. I presented my embodied experiences as evidence for analysis. This blurred the lines between me as researcher, MTH actants, and performance, creating a shared space for reflection.

Applying new materialism, ecopedagogy learners could treat the smartphone not as a neutral recording tool but as an active mediator of relations. They could thus explore how angles, proximities, and auto-focus algorithms co-shape their encounters with mosses, water, insects or migratory birds. These cellphilmaking experiments allow them to trace distributed agency across bodies and devices, cultivating a relational ethics in which global responsibility is felt through the entangled vitality of matter rather than articulated as abstract principle.

The Body and Technology

Postphenomenology and feminist posthumanism together examined how technologies shape human experiences and perceptions, with a focus on the body-technology-World relationships. These approaches emphasized empirical case studies and analyzed specific human-technology

interactions, focusing on how digital recording devices mediate our experiences. Van Manen (2016) for example asks:

...“What is the phenomenology of touch: of feeling tapped or hit by something or someone?” It is also possible to focus more carefully on the nature of touch and ask, “How is the experience of being touched or struck by an object different from being touched by a person? What is the phenomenology of the human touch? How is being touched by a friend or a lover experienced differently from being touched by the hand of stranger?” The range of phenomenological meanings of our lived experiences is truly inexhaustible. (p. 35)

Postphenomenology allowed me to trace the sensual experience, when feeling and acting in an embodied way, as a point of study to continue building knowledge and determine the nature of the relationships that I developed between:with MTHs and Nature. Vagle (2010), a prominent figure in post-intentional phenomenology, suggests that his approach allows researchers to discuss the situated meanings of intentionality (or lived experience) as separate from the essence of phenomena (p. 398).^{cxlv} Much research in the field looks at how technologies co-shape human perceptions, actions, and ways of being in the World (Aagaard & Ihde, 2018).^{cxlvi} I therefore deliberately pursued the intentionality, agency and vitality of my interactions with MTH entities through my smartphone use.

It is important here to address the perceived failings of postphenomenology research which in practice offers an analysis of individual experiences at the expense of broader social, cultural and political contexts shaping technology use. I tackled this problem by expanding the analytical framework to include societal implications, and reconceptualizing the postphenomenological schema to emphasize the social nature of my human experiences for a more comprehensive understanding of experiences across different contexts.

The integration of PQI, postphenomenological and autoethnographic methods allowed for a more nuanced exploration of digital recording devices and their impact on personal experiences. Recent studies have used digital methods such as self-interviews and self-shot video as data to deconstruct a constructed self (Dunn & Myers, 2020; De Paula, 2021; Apostolidou, 2022; Atherton, 2023).^{cxlvii} By combining the strengths of PQI, postphenomenology, digital technology and autoethnography,

I gained valuable insights into the lived experiences of my technology use while maintaining a critical perspective on the mediating role of the smartphone in shaping human perception and action.

Digital recording devices play a crucial role in my autoethnographic methods. While these tools capture nuanced experiences. I was therefore persistently aware of such interactions that could influence my analysis. Cellphilm through postphenomenological approaches and autoethnographic cellphilm methods offer promising avenues for reimagining environmental education and civic responsibility and presented challenges related to representation, ethics, and technology integration which I will address throughout the next chapters.

In an ecopedagogy, learners can enact a postphenomenological autoethnographic praxis, by walking with their phones held loosely, letting the device lead the learners and drift toward unexpected movements like falling seeds, a rustling underwood, the rhythmic patterns of tidal foam. In reviewing the footage, learners can analyze how technological mediation transforms their perception, revealing how their bodies, the phone, and the environment continually intra-act. This practice fosters a sense of belonging rooted in humility and co-dependence, connecting them to planetary ecologies beyond human-centered frames.

Integrating autoethnography with non-representational theory, learners might cellfilm their own bodily responses - breath slowing under a canopy, skin tensing when stepping onto cold soil - while simultaneously attending to the agencies of rocks, fungi, or sleet. By acknowledging themselves as porous, affective bodies entangled with MTH 'worlds', they expand belonging into a shared story of co-creation. In doing so, they cultivate a planetary consciousness grounded in relational ethics rather than identity categories.

Learners can practice a speculative, performative ecopedagogy by creating short cellfilms that do not attempt to 'illustrate' ecological concepts but instead experiment with movement, sound, and improvisation. For instance, following the wandering path of an ant or letting the camera rest in the crook of a tree trunk invites them to imagine futures shaped through multispecies collaboration. These speculative gestures open space for rethinking global citizenship as a creative, collective, inclusive and MTH project.

Autoethnography: Researcher–Researched Approach

Autoethnography, particularly performative autoethnography, offered a unique approach to my research-creation embracing subjectivity and context as essential elements of knowledge production. Postqualitative autoethnography challenges Northern/Western ‘traditional’ notions of objectivity and reliability in research, by recognizing that all research is inherently subjective and contextual, but rather than viewing this as a limitation, my research-creation embraces it as a source of rich, nuanced data. My autoethnographic method allowed a deep exploration of my sensory experiences and affective responses.

Autoethnography's emphasis on reflexivity and embodied knowledge also aligns with the ecopedagogical goal of fostering connections between humans and MTH entities. These experiences can be framed as inter- intra-corporeal forms of holistic, transdisciplinary, experiential learning (Kolb, 1984; Jeder, 2014; Tudor, 2017). I was able to capture and analyze my embodied experiences in Nature, revealing new insights into H-MTH-N relationships (Kesler, 2015; Turina, 2019; Alicia, 2021; Suess, 2024). While all research may be subjective and contextual to some degree, autoethnography explicitly acknowledges and leverages this subjectivity. This moves closer to Geertz's ‘thick description’ that emphasizes interpretation over mere observation (1973). His proposal centers on deep, layered interpretation of cultural meanings, weaving together observations with participants' subjective contexts, emotions, and significances to distinguish superficial actions from complex ones. In ecopedagogical research, this could involve exploring multiple layers of meaning in participants' cellphilmmed interactions with the MTH ‘worlds’, including sensory experiences, emotional responses, and cultural interpretations that shape these interactions.

Autoethnography also offers a valuable methodological approach for ecopedagogical research that can help bridge epistemological divides between South/North/Indigenous perspectives. Freirean foundations frame oppressions as real-world barriers like poverty or injustice that feel like unbreakable walls holding people back from full freedom. These aren't fixed or natural; they're human-made and changeable through history. This requires a reflective analysis yielding causal insight, dialogic solidarity, and problem-posing education that fosters conscientization against dehumanizing structures. Researchers must thus reject positivist neutrality, embracing reflexivity

to unpack positionality's distortions - racial, cultural, subjective - that risk perpetuating inequities. The praxis demands active ethical engagement, transforming inquiry from detached observation into collaborative critique for 'utopian' change. This has implications on how to bring together in research different knowledge systems without maintaining oppressive and extractive action.

Korsant (2024) warns, researchers must remain critically aware of their own biases and the potential impact of their work on the communities they study (p. 2).^{cxlviii} For instance, recent work has demonstrated how autoethnography can be used to integrate Indigenous pedagogies with Western educational systems, creating a more holistic and inclusive approach to environmental education which aligns with the ecopedagogical emphasis on embodied learning, MTH inclusivity, and connection to place (Sage, 2017; Chawla & Atay, 2018; Burkholder & Thorpe, 2019b; Augustus, 2022; Nisa-Waller & Piercy, 2024). I thus informed my research-creation by redistributing theoretical authority to Indigenous knowledge holders and practices. This decolonial praxis transformed my cellphilmaking into a tool for regenerating ecological futures and advancing justice (Asselin & Basile, 2018; Vásquez-Fernández & Ahenakew pii tai poo taa, 2020).

Several Indigenous approaches emphasize relationality and reciprocity, where knowledge is produced through relationships and benefits are shared. I therefore centered MTH participants as co-researchers honoring Indigenous paradigms that reject anthropocentric hierarchies and instead proposed viewing knowledge as co-created through H-MTH relationships. I tried to be reflexive and transparent about my own position and power, maintaining ongoing ethical dialogue, empathy and (in)direct consent. In my co-research with MTH entities I pursued these directives. I realized MTH participants were difficult to communicate with requiring iterative and adaptive methods that respect their MTH agency.

To overcome this incommunicability and to prevent re-colonizing through cellphilmaking, I decentered human authority by framing MTH entities as co-participants, not subjects, and integrated Indigenous storytelling techniques to prioritize a Land-as-teacher research practice (Wildcat et al., 2014; Lowan-Trudeau, 2015; Blenkinsop & Fettes, 2020). I emphasized interconnectedness and resistance by relying on theoretical work documenting certain Indigenous-led ecological restoration and kinship networks that reject Western fragmentation (Reyes-García et al., 2019; Wickham et al., 2022). I practiced methodological reflexivity through iterative

dialogue. I engaged empathetically seeking intra-active relations with MTH actants in order to understand the shared vitality through conversational methods rooted in Indigenous paradigms, building prior relationships, prompting dialogic cellphilmimg in natural settings, and reflexively co-creating knowledge of shared vitality via active listening, seeing, feeling and thematic reflection (Kahakalau, 2004; Kovach, 2010; Peltier, 2018).

In an ecopedagogy adopting a decolonial lens, learners use cellphilmimg to unsettle the assumption that humans are the central narrators of place. They slow down, defer interpretation, and allow MTH rhythms to structure their process. In the act of holding still so that a wary bird might approach, or placing the phone on the earth to let soil-dwelling creatures determine the frame, learners recognize citizenship as a practice of relational accountability that extends far beyond human communities.

Ethical Considerations

Autoethnography also allows researchers to critically examine their own positionality and experiences, potentially leading to more transparent and ethically conscious research practices. It is important to note that autoethnography is not without ethical challenges (Dauphinee, 2010; Edwards, 2021; Sparkes, 2024). For example, ethical dilemmas arise around representing others in one's narratives without their explicit consent, as illustrated by Ellis's (2007) experience of publishing an autoethnography about her mother without fully informing her, which raised concerns about relational ethics and the right to process consent (Edwards, 2021). Additionally, autoethnographers face the risk of causing harm through deep personal revelations that may affect their own reputations or those of others involved, as well as challenges in balancing authenticity with respect and confidentiality (Dauphinee, 2010; Sparkes, 2024). These ethical complexities require ongoing reflexivity about who the researcher speaks for, whose stories are shared, and the broader implications of such knowledge production. This is even made more complicated when MTH entities are unable to consent. Posthumanist autoethnography relies solely on human language to express ideas, which is *de facto* inherently anthropocentric. Braidotti (2014) proposes that there is a need to expose "the compulsive and rather despotic inclinations of language" (p. 165). Yet completely escaping these linguistic constraints remains difficult when engaging with MTH entities. Misiaszek uses 'ecolinguistics' to analyze how language shapes perceptions of

humans' relationships with Nature, emphasizing that humans are already embedded 'in' Nature rather than separate from it (Misiaszek, 2022; Zhang, 2022). An ecolinguistic lens underscores the ethical imperative to interrogate language's despotic grip, fostering consent-like protocols for MTHs through narrated humility rather than domination. Ultimately, ecolinguistics challenges autoethnography's linguistic anthropocentrism by reframing H-MTH entanglements as embedded co-becomings, dissolving dualistic consent barriers. I integrated ecolinguistics, in my research-creation so that I can mitigate autoethnography's representational harms, crafting hybrid discourses that amplify MTH agency beyond human-centric consent dilemmas.

There is also a risk of unintentional anthropomorphism, projecting human characteristics onto MTH entities. We as researchers tend to attribute to MTH entities properties that are our own, and then, to make this even more problematic, we 'narcissistically' ask them to deliver us with counteractive reflections of ourselves (Haraway, 1991). Do we have the right to consent on their behalf and include MTH entities in the research? This aligns with Freire's concept of political engagement in research, as it encourages researchers to critically reflect on their own role in knowledge production and its broader societal and ethical implications (Freire, 2000).

This research-creation's inherent human perspective makes it challenging to truly capture non-anthropocentric viewpoints. Warfield (2019) adds: "Subjectivity is not a singular bounded, fixed, and static phenomenon, but rather, it is always a threading and knotting of historical and imagined future material-discursive entanglement" (p. 151). Autoethnography can blur the line between personal truth and broader validity, while also raising significant ethical challenges in balancing self-narrative with scholarly responsibility. Autoethnography can overlook the broader ideological assumptions behind the researcher's perspective, potentially reducing research to a subjective truth based solely on personal experience making it difficult to academically publish responsibly (Shim, 2018). In my research-creation, I had to tread carefully these limiting parameters.

In general, in this research-creation I recurrently empathized with more-than-human entities and sometimes attributed to them human-like qualities, I revealed an ethical tension in my perspective. On one hand, my tendency to anthropomorphize suggested a desire to bridge the gap between myself and the MTH World - an urge to extend care and connection beyond human boundaries.

This approach, however, risked imposing my own frameworks onto these ‘others,’ potentially overshadowing their unique agencies.

Reflecting on these experiences, I recognized that the real ethical challenge lay in learning to listen differently - instead of speaking for birds or trees, I needed to attune myself to their presences and signals on their own terms. Through moments of deep listening - hearing icicles melt, trees crackle, or birds in their nest - I became more aware of my habitual reversal of agency in writing and cellphilmaking and how this pointed to my own evolving ethics. Ultimately, by moving past simple anthropomorphism towards a more responsive, attentive practice, I resolved to center my relationship with MTHs on humility and openness, allowing their ways of being to inform my ‘world’ view rather than merely reflect my own.

The Filming Autoethnographer

The advent of digital photography and the smartphone has accelerated the inclusion of mobile assisted digital data in research including in autoethnographic research. PAR and participatory video (PV) became a leading method of collecting data in ethnography early on. Furthermore, PQI discourses related to autoethnography have put forwards ‘new’ perspectives of the digital kind. They have created new postdigital understandings which unravel the inner working of an autoethnography ‘to come’.^{cxlix} Several researchers propose the use of supplementary data including interviews (St. Pierre, 1997; Fels, 2012), digital diaries (Okabe et al., 2005; Jarrahi et al., 2021), and MTH data retrieval (Adams & Thompson, 2016; Cameron, 2021; Lupton & Watson, 2021) to provide much-needed insight into social meaning creation. Early on, DeBerry-Spence et al. (2019) state that digital recording such a digital photovoice,

...has the ability to help balance power between participants and researchers by capturing emic visual data that do not require a highly reflexive participant at the time of data capture. This provides a space for participants to reflect on the data and to offer important findings to community stakeholders and policy makers. (p. 82)

They believe that ‘bottom-up’ photographic methods of research and the embedding of mobile phone consumption practices in everyday life elicit detailed information about research participants (p. 82). This allows data collection from the informant’s perspective, as they occur in real time.

A methodology using smartphones provides several key benefits: Firstly, it facilitates meaningful rapport between researchers and participants. The use of familiar technology creates a (dis)comfortable environment for participants to share their experiences, leading to more authentic and candid responses (Truong et al., 2020). Secondly, the ability to stay connected and document observations in real-time can enhance researcher safety and confidence, particularly in unfamiliar or challenging environments (Burkholder & Thorpe, 2019a). Thirdly, the convenience and ease of use of mobile devices can encourage participants to remain engaged over extended periods, providing valuable long-term data (Alkorta, 2023). Lastly, mobile methods foster sustained contact with participants after researchers leave the field (MacEntee & Mandrona, 2015; Burkholder, 2018). This ongoing connection allows for follow-up questions, clarifications, and the potential for extended research timelines. This new practice in research nevertheless came with its own difficulties and complexities. Russell (1999) states:

Autoethnography in film and video is always mediated by technology, and so unlike its written forms, identity will be an effect not only of history and culture but also of the history and culture of technologies of representation. (p. 281)

Thus, mobile technology use created new ethical concerns and subsequently (auto)ethnographers needed to adjust, as did I.^{cl}

Mobile digital technology offers a powerful tool for education through contextual and interactive learning experiences (MacEntee et al., 2016b). In EoE pedagogy, leveraging smartphones and tablets, helps educators facilitate place-based learning, enabling learners to engage with local ecosystems and environmental challenges in real-time (Rocha Silva et al., 2023). However, it is crucial to note that mobile-assisted data collection should not be used in isolation (Lupton & Watson, 2021). Researchers underscore the need to incorporate supplementary data collection methods, such as written diaries and interviews, to provide a more comprehensive understanding of social meaning creation. This multi-method approach allows for triangulation of data, enhancing the validity and depth of research findings (Lather & St. Pierre, 2013).

I used two smartphones in my research-creation for data collection and analysis, fostering qualitative methods of inquiry and environmental awareness. However, I found it crucial to balance screen time with direct Nature experiences and address the digital divide as I engage with MTH

entities. I questioned my environmental impact of using these digital devices, trying to include the effects of pollution, extraction and responsible technology use including e-waste management as my phone was starting to act up. Nevertheless, mobile technologies helped me create immersive (in)formal education experiences and practices that promote ecological literacy, critical thinking, and collaborative problem-solving in line with ecopedagogic praxis.

Through cellphilmimg, I explored practices of identification, belonging, and citizenship that emerge from collaborative, autoethnographic encounters with MTHs and Nature. I combined dialogic praxis, critical reflection, and experiential learning. My methodology sought to reintegrate the human into the broader ecological web, nurturing planetary consciousness and challenging educational norms that reinforce separation from Nature and objectification of MTHs. This framework positioned cellphilmimg not just as a means of documentation, but as a transformative, performative, and relational practice that foregrounds the agency of all participants - human and MTH alike - in the ongoing process of ecological and social becoming.

THE PRACTICE: HOW I THEORETICALLY PERFORMED CELLPHILMING FOR DATA

In this section I outline how I integrated NRT into my data collection practice. I link my NRT conceptual framework to the creative cellphilmimg practice of an embodied, perceptual engagement with the MTH. I thus relied on non-representational cellphilmimg as the main practice of my research-creation with MTH entities. More specific and detailed data research-creation integration is provided in the next three chapters.

Tănăsescu (2014) argues that, the “standard model of political representation mischaracterises the structure of representation...the relational structure of representation creates interests and preferences, subjects and actors, power dynamics and seemingly immutable identities” (p. 40).^{cli}

He states:

...to represent is to summon a thing into being in virtue of select aspects deemed useful for further relations with similarly summoned beings. This creation always implies a selection of certain aspects, ...Differently stated, representation is not about representing beings (human, more than human), but rather about representing relations. (p. 46)

This relational structure highlights representation as an ongoing negotiation shaping who ‘we’ are politically, rather than a straightforward reflection of pre-existing interests or identities. Therefore, representation involves asserting and creating political subjects as multiplicities rather than fixed units. My work pursues this argument on the process of relations rather than representation - the focus is on how relations actively produce and negotiate political identities and power, rather than on representing already given, established entities. This interrelatedness allowed me to examine epistemologically process rather than fixed representation. In my cellfilming practice, this meant I was not simply documenting MTH entities, but engaging in a process where new assemblages and subjectivities emerge through our interactions.

In *The end of the cognitive empire*, de Sousa Santos argues that: “...social scientific knowledge invented much of what is described as existing; such an invention became part of social reality as it got embedded in the ways people behave and perceive social life” (Santos, 2018, p. 27). He outlines how the phenomena of epistemology and ontology are constitutive of each other. This argument is expanded upon in *On decoloniality*, where Walter D. Mignolo and Catherine E. Walsh observe that “ontology is made of epistemology” in that ontology is an epistemological construct shaped by colonial knowledge systems (Mignolo & Walsh, 2018, p. 135).

In addition, ethico-onto-epistemology highlights the interrelatedness of “ethics, knowing, and being” across unstable and indeterminate assemblages constituted by a variety of forms of life and non-life (Barad, 2007, p. 185).^{clii} Barad (2007) states that upon reflection, “we can understand diffraction patterns - as patterns of difference that make a difference - to be the fundamental constituents that make up the world” (p. 72).^{cliii} These diffractions may diverge from the anthropocentric narratives that promoted linear positivistic, solution seeking, scientifically based, neo-liberal and capitalist progress.^{cliv} They also allow us to consider changes in understanding our relationship with Nature as a new human/MTH symbiosis, and subsequently further ‘responsible’ ethico-onto-epistemological practices (p. 381).

In addition, representation is fundamentally about how a group relates to itself through claims of power and identity; those who speak on behalf of the group use language to shape a shared moral and political identity, positioning themselves as enlightened and distinct from those who do not share their views, thus reinforcing their authority and status. Tănăsescu's reimagines political

representation beyond human interests, embracing MTHs through ontological multiplicity. Drawing from Badiou, Saward, and Merleau-Ponty, he posits representation as relational claim-making that forges political subjects via negotiation and visibility, sidestepping voiceless consent dilemmas. He states:

So when I suggest that representation is primarily about relations, it is these structural meanings I have in mind, which are all connected to the logic of claim-making and rely on the power of linguistic proclamation. This scheme does not exhaust the ways in which representation is about relations...Rather, the scheme offers the coordinates within which other political (or cultural, social, aesthetic) meanings of the term can exist. Substituting the primacy of the One for irreducible multiplicity allows us to describe elements of the structure of representation that make sense of both its human and non-human forms. (Tănăsescu, 2014, p. 48)

Drawing on Tănăsescu's (2014) 'relational ontology' and Barad's (2007) 'agential realism,' I conceived representation as a process of iterative intra-action - a performative practice that simultaneously summoned and disrupted fixed subjectivities. I engaged my non-representational cellphilm as a necessary yet provisional act of 'worlding'. When Tănăsescu asserted that representation 'summoned a thing into being through select aspects,' I recognized its creative force - a partial, strategic entanglement with power. By aligning this with Barad's diffractive methodology - which treated knowledge as emergent through 'patterns of difference' - my non-representational approach foregrounded the selectivity inherent in all representational acts. I shifted focus from representation (mirroring pre-existing realities) to intra-active emergence (how realities materialize through entangled relations) (Barad, 2007). The camera's gaze became not a neutral recorder but an agential participant that intra-actively co-constituted MTH-human relation.

The reconciliation emerged in understanding non-representation not as representation's absence but its critical reorientation. Each cellphilm functioned as a diffractive apparatus: it materialized specific relational configurations while obscuring others, never representing pre-existing entities. This aligned with Barad's ethico-onto-epistemology, where ethics arose in tensions between the visible (represented) and the excluded (non-represented). By documenting how my cellphilm choices-angles, edits, participant interactions-actively 'summoned' political subjectivities, I exposed representation's constitutive limitations, transforming contradiction into ethical accountability. This produced realities rather than neutrally capturing them, exposing how power

flows through technological and embodied acts of framing. For example, a close-up of a burnt olive tree or a cutaway to a flowering plant growing out of the ashes materialized specific ethical stakes while silencing others. This acknowledgment transformed methodological contradictions - such as claiming objectivity while selectively editing - into sites of ethical accountability. I positioned myself not as a neutral observer but as a responsible co-author, answerable for how the camera's agential cuts enacted 'worlds' rather than merely reflecting them.

Ultimately, I navigated this tension by situating representation as a moment within process, not an endpoint. The cellphilms served as temporal traces of ongoing MTH-human intra-actions, shifting focus from what was represented to how relationality was performed. This allowed me to inhabit the paradox: representing precisely to reveal representation's instability, using the camera's selective gaze to illuminate the multiplicity it could not contain. The contradiction became my methodology's theoretical motor - a dynamic through which new political possibilities of belonging were both provisionally articulated and perpetually renegotiated.

It is with these tensions and proposals in mind that I have chosen to foreground a non-representational process and approach for the conceptual and theoretical framework of my inquiries cellphilming praxis. My cellphilms are thus not neutral records; they are performative acts that participate in the ongoing negotiation of human/MTH relationships. I foreground the relational and processual nature of knowledge production, by using techniques such as embodied cellphilming and iterative (non)editing, allowing for diffractive patterns that challenge linear, anthropocentric narratives. My non-representational approach positions cellphilming as a method of enacting and exploring new relational possibilities, rather than simply representing established entities. This methodology allowed me to focus on how relations and power are negotiated in real time, making the research process itself a site of creative and ethical co-becoming.

Non-Representational Cellphilming

The emergence of cellphilming as filmmaking practice informed by NRT explores the sensory, affective, and experiential dimensions, in favor of more abstract, embodied, and immediate forms of audio-visual expression. NRT-informed cellphilming uses storytelling that breaks away from Northern/Western 'traditional' ways of showing reality. Instead of just representing facts, it

captures fleeting feelings, moods, and the sensory experience of living. These kinds of stories help shape how we understand the environment and Nature through emotions and senses, not just facts. This idea matches Hasanoglu's (2016) view that seeing isn't about making a perfect mental picture of the 'world' inside our heads. Rather, visual experience works by interacting with what we already believe and know, helping us form reasonable beliefs about what's around us. Hasanoglu (2016) explains that how things look to us influences what we believe because our visual experiences have a certain way of presenting things (p. 270). He furthers that a non-representational visual experience "serves as a causally effective process where our conceptual framework and background beliefs engage with sensory input to generate justified beliefs about the external environment" - this means "visual mental states constrain beliefs because of their presentational phenomenology" (p. 271). In other words, our thoughts and beliefs can actually shape how we see things, changing what we notice or understand. When we perceive objects, Nature, or MTH entities, our senses play an active role in how we experience and understand them. This is where NRT-informed cellphilms come in. They help create a rich, connected relationship between how humans understand the World and MTH entities that are involved. They focus on these ongoing sensory and emotional connections rather than fixed representations.

Cellphilming, by virtue of its inherent mobility, accessibility, and intimacy, provides a unique platform for realizing these NRT ideals (Mitchell & de Lange, 2011). Cellphones allow for a level of spontaneity and immediacy that aligns closely with NRT's focus on the present moment and embodied experience by easily capturing fleeting moments, unexpected encounters, and sensory impressions with a nimbleness that traditional film equipment often precludes (Schleser, 2013).

This ability to respond swiftly to one's environment fosters a more intuitive and visceral approach to filmmaking, one that prioritizes the immediate sensory engagement of the filmmakers with their surroundings. NRT's allows for diverse, everyday experiences, democratization, and the multiplicity of ways in which reality can be perceived and expressed (Drucker, 2018; Głowczyński, 2023; Vannini, 2015). Cellphilming thus becomes a means of exploring the nuanced, subjective experiences of individuals in their daily lives, capturing the textures, rhythms, and atmospheres that often elude more conventional filmmaking approaches. Moreover, the ubiquity and portability of smartphones enable a democratization of the filmmaking process, allowing for a wider range of perspectives and experiences to be captured and shared (Boler, 2008; Vickers, 2013).

The technical limitations of smartphone cameras, rather than being a hindrance, actually enhanced the non-representational qualities of cellphilms shot in this research. The sometimes grainy or distorted images, lens flares, unconventional framing, camera jiggles, and imperfect sound quality can contribute to a rawer, technologically mediated aesthetic that emphasizes the materiality and immediacy of the filming process. These imperfections can serve to disrupt the illusion of plain representation, drawing attention to the act of cellfilming itself and the embodied presence of both the filmmaker and the participant MTH entities. Cellfilming, with its intimate connection between the filmmaker and the device, allows for a more direct translation of emotional states into visual form (Lloro-Bidart, 2017; Whitehouse, 2018). The tactile relationship between the filmmaker's body and the cellphone can result in a more visceral, embodied form of cellphilms that communicates both stories and affect (emotions) through movement, rhythm, and texture rather than through narrative or symbolic representation.

Furthermore, the ease with which cellphilms can be recorded, edited, manipulated, and shared is supported by non-representational theory's interest in the performative and processual nature of reality (MacEntee & Mandrona, 2015; Mitchell et al., 2018; Schleser, 2021). Cellfilming allows for a more uncomplicated, iterative approach to filmmaking, where the boundaries between production, post-production, and distribution become blurred. Cellphilms are part of a larger, dynamic ecosystem of images and impressions, constantly being recontextualized and reinterpreted as they circulate through digital networks. Cellfilming can thus be seen as a form of 'thinking through practice', where the act of filming becomes a way of engaging with and understanding the World (Buser, 2014; Vannini, 2015). The filmmaker can prioritize direct engagement with their environment rather than preconceived notions or planned narratives (Mitchell et al., 2016). However, capturing subtle MTH interactions or vital materialities, hinder authentic representation of MTH liveliness.

I framed my methodology using cellphilms as a way of thinking through practice, where cellfilming became an active process of engaging with and understanding the World. Rather than following preconceived narratives, I allowed my direct interactions with the environment to shape the unfolding of each cellfilm. The multisensory features of my smartphone enabled me to explore and blur boundaries between different senses, making my research a dynamic, embodied, and creative encounter with the World around me. McCormack (2008) states:

This is a vision of worlds in composition through a multiplicity of processually resonant space-times. [. . .] Rather than space as a passive background for the dynamism of time, space-time becomes an ongoing process of heterogeneous, generative creativity without a transcendent creator. And in this vision, the world participates creatively in the folds of which thinking-space consists before individual agency or intentionality gets to work. (p. 3)

The multisensory capabilities of modern smartphones allow filmmakers to explore synesthetic approaches to cellphilms, blurring the boundaries between different sensory modalities.

Affective Cellphilming

Thrift (2004) understands affect as an intertextual power dynamic that generates emotions driving the manner space and time are thought out and onto-epistemologically processed into feelings.^{clv} Thrift's main argument is that we need to re-visit how affect is political in that it trains the body and mind into 'good judgement' (p. 70). As Zembylas (2018) explains:

...all emotions are somehow politically relevant (Clarke, Hoggett, & Thompson, 2006; Demertzis, 2013). ...This also means that beyond the deliberative or agonistic ideals in the classroom, political emotions are present in the classroom and thus have to be engaged pedagogically. (p. 3)

Emotions are thus a key part of learning about political identity and belonging, and they shape how learners think about and participate in political matters. It's not just about memorizing information or debating ideas - feelings are an integral part of the learning process.

I framed my methodology by centering emotions as embodied political practice rather than abstract reflection. Cellphilming became a way to think-feel through identity and belonging, where the camera intra-actively mediated how my body sensed, reacted to, and negotiated power structures. For example, filming moments of frustration at a Spanish bull run wasn't just about documenting anger - it revealed how my grip tightened on the phone, how shaky frames materialized helplessness, and how editing rhythms mirrored the dissonance of political disillusionment.

Affect engages cellphilming by foregrounding the material, sensory, and emotional connections between humans and MTH entities, capturing the dynamic interplay of bodily sensations, emotions, and cognitive processes. This suggests that in cellphilming, the emotional and sensory experiences

of both human and MTH participants are captured as dynamic interactions rather than just symbolic representations.

Jane Bennett's concept of *vital materiality* offers a posthumanist approach where material entities transmit their vital affects directly to human nervous systems, bypassing language or representation (Bennett, 2010). In contrast, Leys (2017) critiques this non-intentionalist affect theory, arguing that Bennett's framework assumes things communicate their agency materially without needing to "speak or represent themselves" (p. 349).

Leys (2017) states that the motivation overrides the phenomenological rational and adds, "there is nothing about the cognitivist or intentionalist position that limits intentionality and cognition to human animals. Nor is there any intrinsic link between defending the idea of intentionality and believing it is acceptable to treat nonhuman animals badly" (p. 347). Animals for instance are sentient beings that are, however, treated as property and abused for personal consumption and exploitation. In short, while Bennett focuses on the direct, non-verbal transmission of affect from things to humans, critics like Leys argue that understanding emotions and intentions requires recognizing more complex cognitive and motivational processes that go beyond just material affect. Can these arguments be re-assembled to better understand the process?

Bennett's vital materiality (direct affect from MTH entities) and Leys' cognitive intentionality (emotions as appraisals) converge when viewed through NRT/ANT's relational assemblages. My cellphilm tried to embody a non-representational and performative theory that is not limited to reality as it actually exists, but rather contributes to overflowing reality from the margins. I did this to better understand the link between vital intentionality that is without the intermediation of language, signification or representation and the proposed complex cognitive and motivational processes of emotion.^{clvi} Agency and emotion emerge from dynamic human-MTH interactions. For example: A rotting tree's biochemical decay and cultural symbolism co-shape its impact. A protester's anger arises from adrenaline and material logistics (barricades, crowd density). The Iberian Peninsula's electric failure in 2025 shows that the grid's material infrastructure (transformers, wires) interacted with regulatory policies, weather conditions, and operator decisions, creating a relational agency that bypassed individual intentionality. The blackout that disrupted daily life, is perceived to have altered moods (e.g., frustration, solidarity), and spurred

policy reforms-demonstrating how vital materiality (grid components) and cognitive appraisal (human responses) can co-constitute outcomes (Sánchez, 2025).

Affect flows through material-semiotic networks, blending bodily responses, ideologies, and infrastructures. Neither pure material transmission nor isolated cognition suffices - emotions are emergent in assemblages. I thus preferred to dissolve the Bennett/Leys binary in my cellphilming praxis. I propose that my practice be called a form of ‘affective cellphilming’ which incorporated the transmission/cognition, intentional/non-intentional dynamics. Affective cellphilming is a method of using mobile recording devices (i.e. Smartphones) to capture how emotions, bodies, and material environments interact dynamically in political and sensory experiences. It emphasizes the ongoing, performative process where feelings emerge through the relationship between humans, technology, MTHS and Nature - blending direct material affects with cognitive appraisals to reveal how emotions and agency co-create reality. It is safe to assume that when I state cellphilming in this research-creation I mean affective cellphilming throughout when describing my praxis.

My affective cellphilming approach rejects static representation, instead privileging the performative becoming of reality as I interact with cameras, environments, and bodies. When filming a bull run in Spain, for instance, I sought to document how adrenaline-fueled anger (Leys’ intentional appraisal) intra-acted with barricades, hashtags, and smartphone screens (Bennett’s vibrant matter). These elements weren’t separate-emotions and arose through the assemblage itself, not from isolated actors.

Affective cellphilming prioritises the becoming of an event or narrative/production plan and uses experimental production strategies to maximise the potential of spontaneous directorial (learner) decisions. This relies on and produces the unpredictable flow of reality for generating alternative narrative/dramatic cellphilm structures. In my affective cellphilming, I treated the camera as both tool and actant - a participant in the relational flow. A glitch distorting footage or sunlight flaring the lens became moments where the camera’s vitality disrupted my intentional framing, revealing how MTH forces shape narrative. In other words, NRT is concerned with conceptualizing representations as presentations, that is, as Anderson et Harrison (2010) state, “as things and events that enact worlds, rather than being simple go-betweens tasked with re-presenting some pre-existing order or force” (p. 14).

Affective cellfilming in this research-creation informed by NRT helped minimize the representational fixative aspect of the performance. It influenced the outcome of my research-creation involving MTH entities, drawing on the integration of affective cellfilming into autoethnographic ecopedagogy. This offered unique insights into H-MTH-Nature dynamics within (un)sustainability, eco-justice paradigms. Cellfilming also offered innovative ways to experience ecoliteracies that rely heavily on emotion and affect induced belongings (see Chapter Five).

Applied in ecopedagogy, affective engagement guided by NRT can be cultivated when learners cellfilm not the organism itself but the traces and atmospheres it generates - shadows, ripples, scents carried on wind. Such cellfilms foreground relational becoming, revealing belonging as something sensed before it is known. Through this practice, learners come to understand global citizenship as a commitment to attuning themselves to the subtle agencies that compose shared environments.

Reflexive NRT Data Collection

Analysis in this cellfilming methodology involved examining the visual, auditory, and affective content of the research-creation's cellfilms. This analysis considered not only the content but also the process of creation and the embodied experiences while cellfilming including during the writing of the diary. I recognized my analysis as a form of investigation that blurs data creation and interpretation.^{clvii} Simmons and Daley (2013) further argue, "in order for something to be visual data, we must be able to record and analyze and manipulate the information and derive some reasonable meaning from it" (p. 3). This process involved reflexive engagement with the visual content, noting in the diary, and the writing of this inquiry, acknowledging the researcher's role in co-constructing meaning.

NRT approaches focus on the affective and embodied aspects of experience in visual texts. These are seen as dynamic and evolving rather than fixed representations. Thrift 's (2008) argues to re-tune our sensibilities in a way that spans physical, biological, personal, social, ecological, and environmental dimensions. He proposes that we contemplate the dynamics of susceptibility and how we are being made susceptible in new ways (p. vii). NRT informed cellfilming data analysis aligns with the a different kind of examination of findings within a PQI framework that moves

away from traditional coding and categorization towards more fluid and creative forms of interpretation (Fels, 2012; Lupton & Watson, 2021). In the case of this research-creation, experimental writing in my diary, visual essays, and/or (non)performative presentations with the cellphilms that I produced were integral to my analysis. For this research I shot approx. 200, short cellphilms and chose 50 for deeper analysis. Details of the process of selection and methods of analysis are outlined in Chapter Four.

Sergi and Halin (2011) explain the parameters that I set for my research-creation data analysis and subsequent note taking:

...the text as an object mediating the experiences of the researcher, who finds himself constantly oscillating between theory, ideas and observations and data collected during fieldwork. From the viewpoint of the researcher as writer, the problem is that whereas fieldwork is a largely subjective, sensuous process, the expectations for the written text is that it is supposed to be professional, conforming to the norms of scientific discourse. (p. 201)

Indeed, the praxis of cellphilming and its analysis involved mediating a data-collection process and a reflexive engagement with the visual content, acknowledging the researcher's role in co-constructing meaning. Burkholder and Thorpe (2015) suggest: "We take the notion of cellphilming as a posthuman research-creation method—centering the affordances of the digital and the ways that spaces, landscapes and the potential for nonhuman actors to be foregrounded within the cellphilms themselves" (p. 733). They recognized cellphilming as a form of inquiry blurring data collection and analysis. Furthermore, in postphenomenological autoethnography, diary entries are treated as performative texts that co-constitute reality rather than just data sources.

Alexander (2005) argues, "performance ethnography is literally the staged re-enactment of ethnographically derived notes. This approach to studying and staging culture works toward lessening the gap between a perceived and actualized sense of self and the other" (Alexander, 2005, p. 411). Building on these insights into cellphilming's posthuman potential and performance ethnography's bridging of self and other, diary entries emerged as dynamic enactments that intertwined technology, embodiment, and environment. In addition, these diary entries as staged re-enactments of the cellphilming experience must consider the practice of cellphilming itself from a postphenomenological perspective. As Ash and Simpson (2019) note:

A postphenomenological writing style is about creating languages and vocabularies that establish connections between previously unconnected things and, through this connecting, generates new ways of thinking, seeing, and feeling such things. It is a postphenomenology because it does not follow the method of phenomenological reduction, which works to name given things. (p. 7)

It is important to note that the data is only as good as the cellphilmaking praxis. It however includes the reflexivities and analysis of the diary and the feedback which requires additional data generating practices. The later inevitably intervenes with the embodied, affective and creative interaction between the cellphilmaker and the MTH participants. However, one can indicate that the cellphilmaking data was particular to the learner who is cellphilmaking, the MTH actants, Nature, and the smartphone. This allowed the research-creation data co-analysis to explore beyond traditional phenomenological descriptions and included the role of technology and materiality in shaping H-MTH-N interactions.

My smartphone's affordances, my bodily constraints, and environmental contingencies (e.g., weather, lighting) co-shaped what could be cellphilmaked. To address this, I layered diary reflections and reviewing feedback as critical diffractive supplements not secondary sources. I also engaged sensorially and affectively, when reviewing the cellphilmakes, to experience the political through emotions and atmosphere. These practices exposed how my post-filming reflexivities (e.g., journaling about frustration with autofocus glitches) intervened in, and reconfigured the initial affective-creative exchanges with MTH actants.

I framed my methodology by treating cellphilmaking praxis itself as the primary data, rooted in the entangled interactions between myself, the smartphone, and MTH actants. While diaries and feedback enriched reflexivity, I acknowledged their inevitable intervention in the raw affective exchange of cellphilmaking. The co-analysis transcended traditional phenomenology by centering the cellphilmake's situatedness. This revealed how technology and materiality (e.g., autofocus directing attention, weather disrupting shots) actively shaped H-MTH-N relations, positioning the smartphone as both mediator and co-author of knowledge.

The Diary and its Inclusion

I wrote daily into a digital diary starting with the first days of my PhD classes in September 2023, until December 2024. This included the research-creation cellphilmaking undertaken in the thirty or so weeks of summer 2024. I took cellphone notes for the diary immediately after shooting as many times as possible. I was inspired by previous methodologies that use diaries in their research (Hyers, 2018; Ito & Reid, 2020; Malinowski, 2004; Spry, 2022). My diary helped me be in touch with myself in the digital age of laptops - as it evolved from the fixed to time driven reflections on self-experience (Meyer, 2019). I wrote in a digital diary whenever I could, mostly on a daily basis, after every shoot, the next day or the next week after each shoot, and furthermore upon reflection for ultimate selection (See the diary's table of contents Appendix 3, and a sample of the notes taken Appendix 4).

Writing my diary became central to my analysis as it allowed me to capture immediate, personal reactions to both the technical and emotional aspects of making cellphilms. As I reflected on my creative process in diary entries, I began to notice patterns and tensions - such as feelings of vulnerability or shifts in self-representation - that later shaped my dissertation. I wrote with a posthuman perspective related to performative autoethnography which asks that we see human and the MTH, including discourses, thought, theorizing, and affect as possessing agency as a part of a performative embodied assemblage. I do this “to call into question the nature of agency and its presumed localization within individuals (whether human or more-than-human)”(Barad, 2007, p. 15).

Spry (2022) explains that data which includes what the body understands and how and why it affectively flows constitutes the composition of performative autoethnography. This originates from the will to embody and pronounce and includes “states of vitality, immersion, isolation, exhaustion, and renewal” (p. 170). I relied on the directives to research while ‘thinking with theory’, as proposed by Jackson and Mazzei (2012), not as a guiding script but as a non-representational, systematic, interpretive, post-qualitative analysis. Jackson and Mazzei (2013) advocate:

We read the same data across multiple theorists by plugging the theory and the data into one another. The result of “thinking with theory” across the data illustrates how

knowledge is opened up and proliferated rather than foreclosed and simplified.
(Jackson & Mazzei, 2013, p. 261)

As I wrote in the diary I consulted relevant research, peer reviewed analysis, and online information associated to the particular cellphilming research in progress. This included browsing for information in bird, plant and insect related apps to understand, contextualize and fill in the gaps.

Cellphilming prioritizes non-representational, performative ‘act-in-the-making’ (inspired by Thrift's affective geographies, and Vannini’s methodologies), where sensory-affective journaling captures emergent kinships. Supplementary data (e.g., app information on birds, plants, insects) functions not as factual representation but as ‘prosthetic knowing’ - relational extensions that enrich intra-species encounters without reducing MTHs to data points (I am drawing on *agential realism* (Barad, 2007) and *multispecies ethnography* (Tsing, 2011)). This hybrid approach acknowledges human epistemological limits while fostering reciprocal contextualization, transforming potential slippage between human and MTHs into tools for methodological refinement.

Hypothetically, if MTHs ‘kept diaries,’ they might narrate human interactions as disruptive entanglements - e.g., a tree registering vibrational intrusions from footsteps/cameras, or swallows logging aerial disruptions amid filming (see *semiotic materials* (Kohn, 2013) or *nonhuman grief narratives* (Van Dooren & Chrulew, 2022)). Unlike many MTHs, humans lack certain sensory capacities - such as the ability to perceive ultraviolet light, magnetic fields, or gravitational variations - limiting our perceptual attunement to the environmental signals that shape MTH experience. This speculative exercise underscores co-constituted agency, inviting cellfilms to be read as polyphonic dialogues where human records gesture toward silenced MTH voices, thus deepening ecopedagogical reflections on asymmetrical kinship. These examples position the journaling in my diary as theoretically complex, resolving representational tensions by foregrounding relational ontology and inviting further transversal dialogue on MTH perspectives.

Each diary entry included: detailed description of the cellphilming process, the emotional state of the experience, the affective sensation driving the conceptualization and performance of the cellphilming, the interaction of affect and the embodiment with the MTH. I also wrote about

feelings of kinship and belonging as I experienced them with MTH entities – present or absent. I also delineated all the methods of analysis of the cellphilmaking process, the selection of the final cellfilms analyzed and noted the manner that I proceeded in the analysis of my collected physical and emotional data.

In addition, to respect a postphenomenological approach to the examination of the diary, I included a post-cellphilmaking reflexive embodied analysis after each experience of cellphilmaking. These involved reimagining and thinking through the emotional and affective sensorial experience initially recorded. This ‘re-reading the diary’ step included, re-viewing the cellfilms for selection, describing and examining the cellphilmaking practice after the *in situ* praxis, and writing further notes and analysis based on the theories that inform this research-creation. This means critically questioning and complicating the usual ways autoethnography might present personal experience, and to open up new ways of understanding that go beyond the individual self. This was necessary to disrupt, deform, and distort autoethnographic tendencies to avoid a straightforward or self-centered representation of the subject. It aimed to create a richer, more complex understanding of the subject that goes beyond the usual focus on the individual ‘self’ in autoethnography.

Re-reading diaries has been shown to be effective in helping understand and disentangle the cognitive and emotional challenges of research (Ellis & Bochner, 2000; Vinjamuri et al., 2017) as well as understanding the essence of self (Richardson, 2000). Revision, rewriting and new insight in performative diary writing allows for a transitional cultural practice in constant flux (Lahire, 2009; Rondeau, 2011; Spry, 2022). Every morning, I would re-read the previous days diary entry, expand on the previous day’s cellphilmaking practice. I repeated this again a couple of weeks later and several times at the end of the praxis in the fall of 2024 and winter of 2024-2025.

When I wrote my diary about MTH encounters, I was always aware of my body’s presence in the process. Whether I was lying under the olive tree, feeling the warmth of my laptop and the texture of the earth, or typing in bed with the glow of the screen against the night, the physical sensations and my environment became part of my reflection. Writing in the field, the wind, sunlight, and even the discomfort of my posture shaped my thoughts. These embodied, sensorial moments were inseparable from the meaning I made, reminding me that knowledge was always co-created with my surroundings. I placed myself within each situation, letting my body become part of the

encounter rather than an observer of it. This embodied presence shaped the methodologies by grounding them in lived, sensory experience - where reflection, emotion, and environment intertwined. As a result, the research became relational and affective, blurring boundaries between researcher, method, and MTH ‘worlds.’

The agency emerges through the MTH’s direct influence on my sensory and cognitive processes, acting as active participants rather than passive backdrops. The olive tree, earth texture, wind, sunlight, and smartphone warmth shape thoughts and reflections by providing embodied, sensorial inputs that mediate meaning-making. This distributed agency positions surroundings as co-creators, where environmental forces exert causal power on human cognition without MTH verbal intent.

In summary, my analysis required distancing, (re)analysis and (re)writing as well as embodiment in order to discern affectively driven belonging in the ‘weave’ of the back and forth with the MTH ‘matter’ at hand. I investigated how the mediation of H-MTH-N and Earth through the making of the cellphilm affected and transformed my ways of being-in-with-the-Earth. The diary writing allowed me to further understand what I identify with, how I (re)assess my identity and how I subsequently (re)defined my belonging with MTH entities.

Sharing and Viewer Response On-line

The internet constitutes an expanding forum for performative writing. Various platforms offer text, sound, images including data sharing, videoblogs, discussion groups, blog diaries, and live performance. The Internet is also providing diverse sources of information about the MTH, ecopedagogies, performative research, and autoethnographic praxis.^{clviii} This includes cellphilms and “research-creation as/on/by performance on the Web - relevant for performative social science research” (Roberts, 2009, p. 331).

It is important to understand that this research-creation is about understanding and inducing a sense of belonging with the MTH for the learner who is cellphilm in an ecopedagogic praxis. Therefore, the post-praxis showing of the cellphilm to learners (an audience) is not the priority for this research-creation. However, I took into consideration peer researchers advising a sharing of cellphilms to promote the understanding of social and ecological issues and encourage collaborative solutions (Flicker et al., 2020; Schleser, 2022). I also wondered if and how learners’

interactions with the cellphilms as a representational medium could generate MTH belonging. This will be addressed in future research.

Fifty cellphilms created in this research-creation were shared with the general public on a website created for the project – www.ecopedagogy.ca. They will remain available for viewing for five years after publication of this dissertation.

Upon completion, my final research-creation dissertation will be put online for the public. The website is interactive and allows viewer participants to address, criticize and add to the ecopedagogic theory and praxis explored by my inquiry. I will also allow the general public to peruse and comment on the selected 50 cellphilms and any others that will be added in the future. Viewer comments will be automatically shared with the public and I will add more links to other similar projects and research-creations. This widens the perspective from an ‘auto’ ethnography to an ongoing participative ethnography.

This research-creation endeavoured to maintain an ecopedagogic process. I have put the cellphilms and an interactive online platform to foster a collaborative, justice-focused learning environment. This approach will allow participants and viewers to reflect on, critique, and contribute to ecopedagogic theory and practice, while also building digital literacy and connecting local experiences to global environmental issues. In cellphilming inclusive PAR research, Burkholder (2018) clarifies that her online sharing proposition,

...contributes to the idea of reflexive revisiting through the opportunities provided in working with the same participants over time, and through the development of the participatory digital archive, which can also be revisited. Reflexive revisiting in what Schratz and Walker (1995) refer to as a research for social change framework, might allow for the opportunity to see social change in the lives of the participants and in their communities over time. (p. 287)

In sharing my research-creation cellphilms, I provide for future research praxis a rich, multimodal (in)formal education experience, facilitating meaningful rapport with participants and insight into social meaning creation. The interactive online format will combine digital literacy with environmental education, preparing participants to engage with complex ecological challenges in the digital age. In the future expanded version of the research-creation website, hyperlinks to

similar projects and research will encourage a global perspective on environmental issues, a key aspect of my ecopedagogic praxis to come.

Addressing equitable access, commentary moderation, and maintaining a safe space will help me build a dynamic, participatory platform for ecopedagogical exploration and environmental education. Additionally, archiving the cellfilms on YouTube (or other digital media support networks) allows future participants to share their work for an extended period. This off course could change as ethical and financial considerations of the video platform landscape are constantly in flux (and often precarious).

ETHICAL CONSIDERATIONS AND METHODOLOGICAL LIMITATIONS

Ethical Considerations

Ethical considerations in my research-creation necessitated a re-evaluation of Northern/Western ‘traditional’ ethical frameworks and methodological approaches. I followed Sparkes’ (2024) directives and recommendations proposed by Tullis (2022) for making an autoethnography: Do no harm to self and others; consult your institutional review board for ethical requirements; get informed consent; practice process consent and explore the ethics of consequence; do a member check; carefully consider representations of others and self; do not underestimate the afterlife of a published narrative (Sparkes, 2024, p. 112). These recommendations became the guiding flagpoles for this research-creation. MTH living entities were treated with respect and due-diligence, and as far as I know were not harmed by this research.

In this research-creation respecting MTH autonomy and well-being was paramount. I had to consider how my presence and actions might impact plants, animals, and ecosystems, ensuring that my activities did not cause undue stress or harm. Developing new protocols for obtaining ‘consent’ or assent from MTH participants presented a unique challenge, given the limitations in interspecies and MTH communication.

My introduction of digital technologies into natural environments raised concerns about potential unintended consequences such as smartphone pollution and inefficient energy use. For example, using my smartphones required rare earth materials for the steel, micro-capacitors, speaker

magnets and conductor parts of the smartphone itself. This required an understanding of the technology-critical elements and their direct effects on Nature and sustainability.^{clix} Cobelo-Garcia et al. (2015) state: “the increasing use of technology-critical elements (TCEs) and associated environmental impacts (from mining to end-of-life waste products) is not restricted to a national level but covers most likely a global scale” (p. 15189). Charpentier Poncelet et al. (2022) add:

Losses to waste management and recycling are the largest for 43 metals, suggesting the need to improve design for better sorting and recycling and to ensure longer - lasting products, in combination with improving waste - management practices. ...[what] all of the 61 metals studied have in common is that the quantities lost to the economic cycle over time must be constantly compensated for by new mining. The greater the losses, the more resources are irretrievably lost, and the more damaging the consequences are for the climate and the environment. (pp. 717–719)

This correlates with the constant battles over mining rights near Goma in the DRC, Afghanistan, Tchad, Niger, South Sudan and many more vulnerable countries between US, EU, UK, Canadian, Russian, Israeli, and Chinese mining companies, and interests. This also corresponds with the battle over who controls Bolivia’s, Niger’s, Ukraine’s and Greenland’s mining of rare earth metals needed for pipeline construction, fuel cells, semi-conductors, and a variety of other high tech uses.

In general, researchers must balance the benefits of data collection with the risks to ecological integrity, habitat disturbance, as wearable sensors, smartphones, or other devices could disrupt natural behaviours or ecosystems in unforeseen ways (Beavington, 2016; Eriksen & Kay, 2022; Rock & Degeling, 2015; Torrance, 2011; Yamada, 2022). For example, this research-creation required hours of energy use for internet connectivity, online posting and archiving of videos, and hours of laptop use. The laptop itself has its own polluting footprints and so do my transatlantic trips to Spain and cross-country travel to Oregon.

In my research-creation, I recognized that I sometimes described trees and birds (MTHs in general) as if they possessed human-like qualities, which risked anthropomorphizing MTHs rather than attending to the distinct ways I perceived and related to MTH entities. As I researched and cellphilmmed, I realized that, visually, aurally, and emotionally I attuned myself to these entities in new ways. Yet, my tendency to reverse agency in my writing revealed my ethical stance - one rooted in relationality and a desire to honor the presence of the MTH challenged by years of

misguided education and cultural practices. This reflexive insight exposed a tension in my work: while I aimed to foster ethical attention and kinship, I sometimes blurred boundaries, attributing empathy and agency in ways that reflected my own orientations rather than the realities of Nature itself.

For this research-creation I remained as physically distant as possible from the sentient, living MTH participants in order to respect their existence. This depended on the MTH – for example my neighbour's dog, a cellphilm participant named Hooper wanted to be touched. Two notable exceptions stuck out in my cellphilm praxis: the Spanish bull run that I cellphilmmed was exploitative even though I was trying to criticize the practice; and I used a harmful insecticide in my courtyard only to show a point through narrative humour. This may have had a detrimental effect on some living species that were inadvertently caught in my performative act. I also used varnish on the patio floor that threatened the livelihood of local geckos.

In general, when cellphilm with MTHs vulnerability escalates without participants' withdrawal rights as humans would have. Also irreversible digital dissemination of MTH footage (e.g., animals or waterways) invites misuse or ecological misrepresentation. Balancing equal criticality requires addressing co-optation, where MTH cellphilm mask institutional harms while amplifying human voices over MTH ones.

Methodological Limitations

My cellphilm approach laid the groundwork for a nuanced, embodied relationships between humans and their environments. It also raised important ethical and epistemological questions. One primary concern was the potential for the deeply personal nature of autoethnographic accounts to overshadow broader ecopedagogic insights. This limitation highlighted the delicate balance I had to strike between personal reflection and PQI rigor. Additionally, there was the ethical considerations and the respectful representation of MTH entities and the risk of reinforcing anthropocentric perspectives through the very act of documentation. The method's reliance on digital technologies introduced additional biases, as not all MTH experiences were equally representable through digital means. The weather, heat, humidity, emotions, minute reactions, vitality, intensities, affect, off spectrum sounds, infrared waves, etc. were not all captured by the

smartphone sensor technologies. Filming choices such as framing, camera movement, light exposure etc. also were variables that influenced my data gathering and perceptions. These technological limitations may have skewed my research-creation findings toward aspects of personal experience that are more easily recorded or transmitted digitally, potentially overlooking crucial elements of the H-MTH-N relationship.

Contextual and Cultural Considerations

The use of cellphilmaking introduced innovative approaches but also raised questions about data integrity and interpretation. The subjective nature of these methods led to interpretations that are difficult to validate or replicate, necessitating the development of robust frameworks for analyzing and contextualizing non-representational data forms. I had to grapple with the paradox of objectivity/subjectivity inherent in posthuman autoethnography and the politics of reflexivities. This approach required a critical examination of my biases and assumptions about the ‘natural world’. I had to problematize my local/global perspective on community and belonging by interrogating how my positionality - shaped by cultural, racial, and geographic contexts - influenced the stories I prioritized or erased. The ‘natural world’s’ perceived neutrality often masks colonial logics embedded in ‘local/global’ binaries. While filming ecological spaces, I confronted how my lens might reproduce anthropocentric or extractivist gazes. Cellphilmaking’s participatory nature with MTHs demanded a destabilization of hierarchical knowledge systems, but its reliance on subjective narration risked reinforcing existing power dynamics when unexamined properly.

The research-creation project also addresses its Eurocentric approach and the potential disconnect between Northern research-creation paradigms and some Indigenous and/or Southern epistemologies that I engage with. This limitation necessitated a careful contextualization with grounded ecopedagogic theory and an acknowledgment of the epistemological tensions that arises from my position as a Northern researcher engaging with diverse ecological contexts. I tried to navigate these complex methodological, ethical, and epistemological challenges of this research-creation with thoroughness, this includes the self-awareness, critique and engagement of others - human and MTH in the process itself. I provided theoretical and practical parameters that show the limitations, implications, and possible future uses of this praxis. By acknowledging these limitations and implications, I was able to work towards more nuanced, reflexive, and ecologically

sensitive approaches to environmental education research. In the context of the Anthropocene, while the research-creation aims to explore and potentially improve H-MTH-N relationships, it had to grapple with the ethical implications of continued human intervention in natural systems, even if my intervention was intended to be more inclusive and ethically nuanced. My cellfilming the bull run is an example of the difficulties I faced in critically intervening in Spanish cultural practices harmful to MTH entities.

CONCLUSION

I outlined in this section the theories and methods that were pivotal for my research-creation methodology. I explained how I integrated cellfilming into autoethnographic ecopedagogy to document previously unnoticed H-MTH-N interactions. This helped me in forming a praxis of embodied experiences and affective encounters. This inquiry into the academic foundations informing my research-creation included an examination and integration of ecopedagogy, postphenomenology, NRT, cellfilm practices and theory and affect theory in general.

Autoethnography and first-person accounts offer valuable contributions to curricula by providing rich, contextualized insights into lived experiences. However, I had to navigate the tensions between personal narrative and broader cultural analysis, ensuring that my work transcended mere self-reflection to engage with wider sociocultural issues when engaging with ecopedagogical practices.

In addition, my cellfilming methodology explored alternative visual techniques to challenge conventional identity representations. I found that turning the camera on with only I and MTH entities present disrupted traditional research-creation power dynamics, aligning with the transformative potential of critical media literacy (Cherry, 2016; Cabbage, 2022; Kellner et al., 2019). The technology did not just capture; it actively shaped my sense of self and my relationship to my research. These insights deeply informed my research-creation approach through NRT cellfilming. I therefore explicitly addressed how filming technology impacted my subjects' behaviour and my own self-presentation in the context of belonging to Earth.

As an autoethnographer of sorts albeit amateur, I've come to understand identity in this inquiry as 'an effect' of my writing and affective cellfilming processes. When I write, my identity emerges

through the narrative, shaped by my cultural background and historical position. But when I turned to film and video, I found the camera itself became another layer influencing how I constructed and presented my identity. The act of my affective cellfilming with MTH kin created a reflexive loop where I was both observer and observed, altering my behaviour and self-presentation. I was acutely made aware of the performativity involved, as I navigated being both creator and co-subject participant.

CHAPTER 3

CELLPHILM CREATION WITH MORE-THAN-HUMANS

INTRODUCTION

This chapter examines my research-creation cellphilming as it is related to young learner EoE, digital technology, ecopedagogies, and more specifically outdoor ecopedagogies. I also propose practical ideas, pedagogies, teaching approaches and directives to teach young learners in Outdoor Environmental Education (OEE) informed by ecopedagogy tenets. Therefore, I may accordingly shift perspectives at times. I then outline the decision-making process for the ecopedagogic cellphilming praxis as part of the creative aspect of this inquiry. I furthermore clarify how I made the creative decisions, execution and selection of the 200 cellphilms informed by three theoretical fields relevant to this research-creation:

- mobile device uses in early education
- ecopedagogy
- non-representational cellphilming

In the selection process, the final fifty cellphilms were chosen for their ability to capture moments of sensation, agency, and disclosure. The selected cellphilms emphasize the importance of cellphilming the local, banal, mundane, and personal.

I follow through with an analysis of the affective cellphilms as a practice. I engage with the data for synthesis of my ecopedagogic praxis. Expanding on the inquiry's question: *How does autoethnographic filming using mobile cellphilming technology engaged with the participant's senses and affects contribute to ecopedagogies that connect humans to MTH entities?* I argue non-representational cellphilming simplifies the task to reduce the engaged distance between MTH actants as an integral structural element upon which the engaged narrative revolves. One important sub-question I addressed in this chapter is: *How did my non-representational cellphilming praxis enhance this human MTH interaction and what are the parameters for this intra- inter-action?*

One significant intention of this cellphilmaking praxis was always *a priori* to promote and sustain activism by prompting future climate justice action. Ecopedagogic praxis can provide an important learning space for young participants needing to learn about climate justice and (un)sustainability. Therefore, throughout the cellphilmaking and analysis stages that follow, I try to practice, reflect and understand my affective cellphilmaking praxis from a teacher's perspective to better approach this pedagogy with young learners in mind. Throughout these next three chapters, I sporadically include my reflections on how this praxis can be applied in OEE and ecopedagogies, at times making suggestions on how I would teach cellphilmaking in an ecopedagogy for:with young learners.

Cellphilmaking and Teaching Applications

How would I teach cellphilmaking in an ecopedagogy? Several studies have shown that integrating technology with outdoor educational experiences helps young learners develop their Human-More-Than-Human-Nature (H-MTH-N) connections (Berg et al., 2021; Reed, 2022; Lynch & Thomas, 2024). Technology can complement ecopedagogy by facilitating place-based learning and fostering connections between learners and their environments. For instance, digital mapping tools can highlight the ecological history of a region while Augmented Reality (AR) apps illustrate dynamic environmental processes (Uzunboylu et al., 2009; Fawns, 2019; Krawczak, 2023; Anunti et al., 2023). These tools bridge the gap between EoE's abstract concepts and tangible experiences. Recording and reviewing field experiences can also reinforce ecological concepts and inspire creative expression in young learners. Digital recording devices enable real-time collaboration and information sharing.

Recent advances in Apps enhance our understanding and learning about MTH entities, bridging the gap between human perception and the broader MTH inclusive Nature. *Alexa*, Amazon's AI virtual assistant, can provide real-time information on pollution, wildlife, and environmental conditions, offering insights into MTH entities around us. *Google Assistant* AI Apps similarly offer access to a vast knowledge base about flora, fauna, and ecosystems, enabling users to quickly learn about various species and their habitats.^{clx} Specialized apps focused on Nature and wildlife identification, such as *PlantNet*, *Shroomify*, *iNaturalist* or *Seek*, use AI to help users identify plants, animals, and fungi in their surroundings. AI applications enhance our understanding and learning about MTH entities, bridging the gap between human perception and the broader 'natural world'.

These apps contribute to citizen science efforts and promote a deeper connection with MTH entities in their environment (Dunkley, 2023; Hognogi et al., 2023; Nokelainen et al., 2024; Smith et al., 2024).

This integration of representational information gathering and non-representational cellfilming may seem contradictory. This does not undermine the performative act but augments it as a form of ‘*prosthetic relationality*,’ where digital tools extend human sensory capacities to foster deeper, reciprocal encounters with MTH entities, akin to Anna Tsing's *multispecies ethnography* or Donna Haraway's *situated knowledges* that blend partial perspectives without claiming totality. Rather than skewing toward rational verification, these apps serve as provisional scaffolds - contextualizing species habitats and environmental conditions to amplify experiential kinship, ensuring that learners move beyond mere identification toward ethical entanglement and sensory immersion.

The risk of overriding being at one with MTHs during cellfilming praxis is mitigated by framing app use as temporally and spatially bounded: preliminary or supplementary to my core cellfilm process, which prioritizes affective, in-the-moment co-creation over exhaustive representation. This hybrid methodology aligns with posthuman pedagogies that embrace technological mediation as an inevitable layer of ecological intra-action (Barad, 2007), transforming potential skew into methodological pluralism that enriches young learners' ecopedagogical journeys without diluting their embodied objectives. By explicitly articulating apps as *relational prosthetics* rather than authoritative truths, I was able to resolve this tension, positioning cellfilming as a dynamic weave of sensation, speculation, and situated facticity.

Furthermore, in an ecopedagogy using cellfilms the non-representational approach can liberate young learners from the pressure of creating ‘correct’ or aesthetically pleasing representations of Nature. Instead, it validates their unique perceptions and experiences, empowering them to express their personal relationships with the environment. This can be particularly powerful for young learners who may struggle with traditional forms of expression or representation (Nguyen et al., 2021; Schleser & Xu, 2021; Burkholder, Aladejebi, & Josh Schwab-Cartas, 2022). New generations of learners can nurture their new urban centered environments by feeling intimately connected to and part of it. Consequently, this can shape their relationship with Nature and MTH

entities for years to come. The integration of technology into ecopedagogical practices must be deliberate to ensure that it supports rather than detracts from the holistic goals of ecoliteracy and environmental stewardship.

The following weaves my step-by-step cellfilming praxis with possible application in both indoor and outdoor ecopedagogies although my pedagogic recommendations concentrate on OEE ecopedagogies. My pedagogic intention is to harness the transformative potential of technology to deepen young learners' connections with MTHs and Nature. By thoughtfully integrating digital tools such as cellphones and AI-powered apps into outdoor and place-based learning experiences, we can cultivate ecoliteracy, environmental stewardship, and creative self-expression in ways that honour each learner's unique perspective. It can empower learners to explore and articulate their relationships with Nature without the constraints of traditional representational norms. Ultimately, this praxis aims to nurture a generation of learners who feel intimately connected to their environments - urban, transformed, or 'wild' - and who carry forward a lifelong commitment to understanding and caring for the intricate web of life that surrounds them.

Preparing a Diary

I recorded in a diary on my laptop essential information about each cellfilm by documenting locations and the recording dates as well as the process notes and personal reflections. I re-viewed several times each cellfilm by watching them within twenty-four hours after production, a week later and several times a couple of months later to achieve spatial separation and reflexivity needed for evaluative perspectives. As I researched before and after the cellfilming practice, I made substantive diary notes from related readings as preparation before shooting, and reflection after re-viewing. The notes collected from the screenings assisted in the cellfilm selection criteria - which for example led to the deletion or modification of cellfilms extending beyond six minutes.

Outdoor Field Scouting

The creation of cellfilms based on ecopedagogical theory merged digital storytelling capabilities with environmental consciousness through brief digital film productions. Some of my cellfilming occurred inside (see Appendix 1) but my praxis for this research-creation emphasized how I would implement outdoor experiential education teaching with a cellfilming practice for young learners

- aiming at inducing belonging through non-representational cellphilmimg. In foregrounding the generative, experimental nature of cellphilmimg, my methodology becomes more than a means of data collection; it becomes the site where theory is enacted, tested, and transformed. Explicitly linking the creative process to conceptual innovation helps demonstrate how research-creation functions as both method and analytic lens.

Selecting biodiverse outdoor locations formed an essential step in the preparation phase because these locations allowed for significant encounters with MTH entities. I considered various knowledge systems to guide my research with an emphasis on certain Indigenous perspectives to support learners in re-evaluating mainstream accounts and developing a decolonized understanding of Nature as it relates to human activity. As Deschamps et al. (2022) suggest, it is crucial to challenge the settler colonialist perspective that has driven (in)formal education for decades and to subsequently decolonize our practices.

As I investigated how this would be done in an ecopedagogy setting with learners doing garden, park and forest walks, field scouting activities would need to be factored in for safety and accessibility. I would emphasize incorporating themes such as environmental justice, exploitation, pollution, and MTH inclusivity while investigating MTH entities to be cellphilmmed. In a teaching context, I would also help young learners lead silent walks - encouraging focused listening to affix them to the environment.

Storyboarding

Although I decided not to storyboard in the praxis for this inquiry, I consider storyboarding to be essential and invaluable to young learners. Learners can visit the site which they digitally document and prepare their practice by creating a detailed description (and drawings, photos if needed) of their proposed shots. The process of storyboarding a shot by shot breakdown would help to streamline effectively the digital storytelling and thus provide a clear guide for ecological advocacy (Corwin, 2016; Addone et al., 2021; Cisneros et al., 2023). Guidelines for minimizing environmental impact and thinking about the perspective of MTH subjects would be some of the topics covered in discussions with learners.

In my research creation praxis, I needed to engage with MTH participants with limited pre-organization (i.e. storyboarding) in order to minimize narrative and representational influence on an embodied and immediate encounter. I needed to be discreet and limit interference before the encounter with MTHs to preserve the authenticity and immediacy of the experience, reduce ecological impact, and avoid imposing narratives that could distort the embodied reality of the encounter. I needed to be sensitive to affects that created a sense of belonging while I cellphilmmed with MTHs. This non-storyboarded cellphilm practice would need to be taught to learners by qualified teachers as distinct from traditional cellphilm use in PAR.

A distinction needs to be made between the two methods: Representational ecopedagogy cellphilm unfolds through deliberate pre-organization, where storyboarding becomes a critical pedagogical tool. Learners plan each scene with attention to ecological themes and the perspectives of more-than-human (MTH) subjects. Through drawings, written descriptions, and photos, the storyboard fosters intentionality: it anticipates meaning, structures narrative flow, and positions the filmmaker as an advocate articulating a vision of environmental care. The storyboard - by mapping shots and sequences - translates ecological understanding into representational practice, guiding learners to craft coherent stories that visualize advocacy. On the other hand, non-representational, affective cellphilm, by contrast, resists this pre-structured orientation. Instead of scripting or anticipating, the cellphilm learner enters encounters with MTHs in openness and immediacy. Without storyboards, the process privileges embodied response, sensory attention, and relational affect over narrative control. Here, cellphilm becomes a form of attunement rather than depiction - a way of feeling-with the environment rather than framing it. The absence of storyboarding reduces human interference and narrative imposition, creating space for spontaneous co-presence and for affect to guide ecological understanding beyond representation.

Storyboarding and then later editing in cellphilm ecopedagogy do not distance young learners from non-representational affective and sensory immersion but instead enact it through iterative, material-discursive processes that fold reflection back into embodied encounter, much like Barad's (2007) intra-actions where planning and revision co-constitute emergent phenomena rather than precede them. These practices serve as affective technologies - scaffolding sensory memories into polyvocal storylines that amplify kinship with MTH entities, transforming initial raw performativity into layered, shareable ecopedagogical artifacts without severing ties to the

originally felt intensities. Far from contradicting emphasis on non-representationalism, they extend it into a rhythmic dialectic of sensation and articulation, where young learners revisit and remix their entanglements, fostering deeper communal resonance.

In addition, to further ecopedagogy, I would nevertheless encourage learners to flesh out simple multi-shot, representational narratives centered on elements of interconnectedness, eco-justice and sustainability before heading out into the field and perform a non-representational cellphilming praxis. These would require storyboards. Even though I recognize non-representational cellphilming to be more effective to induce a sense of belonging - documenting, re-viewing and sharing representational cellphilms can also help teach MTH inclusivity as proposed in Chapter Six.

Shooting by Incorporating the Technology Respectfully

I selected MTH participants carefully for my approximately 200 cellphilms, keeping a respectful distance, and taking into consideration the emotional and sensory dynamics of the encounter. For instance, when I came upon the grasshoppers mating, I slowed down, instinctively keeping my presence peripheral. This allowed me to explore my relationship with MTH actants through intuition, respect and sensory engagement. It was a reflexive process, empowering empathy which would resonate with my connectedness to Nature. My exploration and storytelling was informed by Indigenous practices that are inclusive of MTH entities and insist on the agential involvement of MTH actors in a holistic ecological narrative (Bartlett et al., 2012; North & Ratima, 2024; Stein et al., 2024).

I focused on a single central idea or message to create a concise and impactful cellphilms. In a few cellphilms I planned a limited number of scenes, each contributing directly to the main point addressed. I considered filming many cellphilms with several takes but in the end decided on one continuous take for brevity and focus. I did include in my selection a handful of cellphilms that had 4-6 edits in them. I decided to keep those as examples of alternative possibilities to compare practices. In the few cellphilms that required editing I remained critical about what content remains.

Technical aspects such as poor audio quality, lighting, and framing significantly affected the final product. Proper equipment testing and attention to these details greatly enhanced the cellphilming

and viewing experience which included trying different smartphones for reliability and efficiency. I mostly cellphilmmed with a mid-range smartphone - Galaxy S9 android version and an Azus A009. In this research-creation, I limited the work to MTH entities by excluding human participants other than myself and my father. My dying father's participation (his hand) could not be made anonymous, but consent was given. I treated all living entities with respect always keeping human background participants and interlocutors at bay. Some humans appear blurred and unidentifiable in the background of some cellphilms.

Editing one take shots with clarity helped communicate the message effectively within the two- to three-minute time constraint that I had allotted. I kept visuals simple and relevant, avoiding overly complex scenes that might distract from the sought after MTH interaction. By adhering to these strategies, I was able to produce cellphilms that effectively interacted with MTH entities. The key was to balance brevity with impact, ensuring that every element of the cellfilming process serves its purpose in conveying the central affective intent.

I mostly cellphilmmed quietly, listening, and feeling the space, interacting with MTH entities participating and trying to understand the emotions that were being affected and affecting me. I stopped cellphilmmed in most cases when I no longer felt any significant affective and emotional changes in my interactions. Usually, two to four minutes in length. Although some lasted five minutes or more.

The choice of 'non-representational' camera work derived from the theoretical framework outlined in Chapter Two disrupted binary thinking. I explored different durations, angles, framings and movements while recognizing (non)living MTH entities allowing for emotional and ethical considerations. I sought to document the affective qualities which emerge from H-MTH-N encounters instead of attempting accurate representation.

In the context of teaching or facilitating a cellfilming expedition, teachers and learners need to be mindful of the challenges that arise when introducing technology into their outdoor (in)formal education. Through an ecopedagogical approach informed by Indigenous relationality, learners can use cellphilmmed as a way of listening rather than speaking. Instead of narrating or explaining the scenes, they let the presence of MTHs shape the unfolding of the film - waiting for a cedar's sway

to dictate pacing or allowing a frog's call to define rhythm. This reorientation positions learners within networks of reciprocity, nurturing global citizenship as a responsibility to nourish and protect the relations that sustain life

Young learners may not have patience to take the time for MTH immersive cellphilmimg or could easily be distracted when holding a smartphone. The easy access to games, social media, and other digital diversions can prevent young learners from fully experiencing their surroundings (Stymne, 2020; Hills et al., 2024). To address this, I would establish clear guidelines for device use, emphasizing that phones or tablets should only be used for cellphilmimg and related activities during our outdoor sessions. Airplane mode could be a solution. Or recent apps that control young learners' access to social media can be proposed for generating limits.

Another challenge is the risk of over-reliance on technology. The perceived ability to access emergency resources through smartphones can lead to a false sense of security and potentially careless behaviour (Arpaci et al., 2015; Buck et al., 2017; Lipani, 2021). To mitigate this, I would ensure that proper safety measures are in place and that young learners understand the limitations of their technology and connectivity in outdoor settings. Despite these behavioural and fieldtrip challenges, I anticipate numerous benefits from this kind of cellphilmimg informed by ecopedagogy because digital recording devices offer unique opportunities for reflexive learning, allowing young learners to capture their observations in their production and screenings and thus foster deeper connections with their environment (Dunkley, 2018; Payne, 2018; Rodrigues, 2018; Chbib, 2023).

Choosing Editing or not

I edited a number of cellphilms as I prepared for the research-creation before the 2024 scheduled cellphilmimg praxis. In comparing single shot to edited multiple shot cellphilms, I judged single shot takes to be better at fostering direct, embodied engagement with MTH entities. Visual, auditory, tactile sensory immersion and feelings of belonging were encouraged by single shots. Affect, emotion, vitality and agential interactions lay bare as the back-and-forth gaze with MTH entities develops through the smartphone intermediate. Allowing for a non-representational approach in a cellphilmimg praxis brings out the relationship with the MTH participants. Contrary to cellphilmimg directives in much of the PAR related research, I did not use music, titles or voice-

over in my cellphilm praxis. I only put in an opening and closing title to identify the cellphilm posted online.

Sharing with Others

In my own creative process for this inquiry, and unrelated to this research-creation, I decided to put fifty selected cellphilms online accessible through a dedicated website www.ecopedagogy.ca for a five year period to garner commentary from friends, colleagues, and family including the general public.

A community screening of young practitioners' cellphilms could be incorporated into an ecopedagogy learning process. I would encourage sharing their work to further their environmental engagement through community participation and discussion. Controlled access to online versions would be carefully controlled and monitored in order to protect participants and co-actants. The process of creating and sharing these cellphilms can also enhance media literacy and promote environmental awareness through narrative (re)construction (Brereton, 2018; Lal, 2021; Southworth et al., 2023; Amaliati et al., 2024). Consequently, young learners can develop a sense of agency and community around ecological issues by creating and sharing their own environmental narratives (Mitchell et al., 2016; Schwab-Cartas, 2018; Cheung, 2019).

I would stress throughout how technology is a MTH collaborator and not a substitute for Nature; how smartphone use itself is a vehicle for young people's ecological awareness and creativity. As Payne (2018) suggests, we must critically evaluate the pedagogical value of technological tools to ensure they align with ecopedagogical principles of community, compassion, and interconnectivity.

Teacher Training

It is evident that integrating cellphilm creation into ecopedagogy presents challenges for teachers and facilitators, it also offers a powerful means of engaging young learners with their environment in a way that is both familiar and transformative. Teachers and facilitators will need to train so that they and their learners use the practice properly and maximize its pedagogic potential. By carefully balancing ecopedagogy, and technology use with direct Nature experiences, we can foster a generation of environmentally conscious digital storytellers, equipped to advocate for and connect

with the MTH and Earth in meaningful, transformative ways to achieve an (in)formal OEE that seeks ecojustice and sustainability.

NON-REPRESENTATIONAL CELLPHILMING: THE LOCAL, BANAL, MUNDANE, AND PERSONAL

Non-representational affective cellphilming is an extension of the sensory experiences in Nature. Rather than focusing on creating polished, narrative-driven cellphilms about the environment, I explored and expressed my immediate, visceral responses to Nature in my immediate vicinity - inclusive of all MTH entities. This approach recognizes that a relationship with Nature is not purely intellectual or sensorial, but deeply affective, embodied and emotional.

The resulting cellphilms featured abstract close-ups of plants, the play of light on water, and the rustling of leaves in the wind - fragments that evoke felt qualities of being in Nature rather than attempting to represent it objectively. This multisensory approach evoked powerful emotional responses, from wonder and curiosity to a sense of peace and excitement. The infusing affects impressed upon me as I walked through natural spaces engaged with MTH entities and my smartphone (also MTH). I was (un)consciously invited by MTH entities to attend to the subtle textures, sounds, movements, and atmospheres that often go unnoticed in my everyday life. These affective experiences were crucial in fostering a deep sense of connection and belonging to:with Nature.

My autoethnographic cellphilming explicitly embraced the local, personal, and mundane aspects of my daily life to explore connections with the MTH in my environment. This decision corresponded with my intention to eventually be able to apply this research to teaching much younger learners who are beginning their cellphilming adventures in an EoE inspired by the multitude of ecopedagogic principles. Holmes and Hall (2020) clarify my grounding:

...scholarly interest in everyday life has grown considerably since 2010, with the ordinary and mundane now at the fore of social science research. Where previously interested in the spectacular and the extraordinary, social science has turned away from a focus on grand structures and functions to pay attention to the grounded, the experiential and the 'blindingly obvious' (Woodward and Miller, 2007: 335). In trying to make sense of the everyday, it is common for authors (and we are no exception!) to pepper their work with synonyms like 'mundane, familiar and unremarkable' (Scott,

2009: 2), and to draw attention to the habitual, rhythmic and banal; ‘the things that people do on a day-to-day basis’ (Holloway and Hubbard, 2001: 1). (pp. 1–2)

This approach seemed natural and comfortable for me as it required a full embodiment in my banal everyday adventures.

Throughout the four seasons of the year, I produced cellphilms that focused on seemingly ordinary moments that revealed deeper insights into my relationship with Nature and MTH entities. This approach was inspired by the concept of ‘situated knowledges’ as described by Haraway. Haraway (1988) contends that what we call "objectivity" is more accurately described as a feminist version of objectivity - one that is situated, partial, and deeply entangled with power relations. She argues that only from such a partial perspective can we approach an objective vision, which in turn shapes and guides our research. Here ‘objective vision’ does not mean a view from nowhere, but a carefully examined and partially shared perspective that remains aware of its own limits and conditions of possibility. Therefore, it is actually a negotiated overlap of many situated perspectives, not a single all-encompassing standpoint. She adds: “We seek those ruled by partial sight and limited voice - not partiality for its own sake but, rather, for the sake of the connections and unexpected openings situated knowledges make possible. Situated knowledges are about communities, not about isolated individuals” (p. 590). By focusing on my immediate surroundings and personal experiences, I aimed to produce knowledge that was deeply rooted in a specific context, yet potentially illuminating broader themes of H-MTH-N relationships, kinship, and community. However, I faced challenges in selecting which mundane moments to capture, as the sheer volume of potential subjects was overwhelming.

I often found myself hesitating to film, worried that I might miss a more significant moment. To overcome this, I adopted a practice of cellphilming multiple short clips throughout the day, allowing me to capture a range of experiences and later selecting the most compelling. My approach was deeply reflexive and personal. Most notable my cellphilming was constantly informed by my theoretical research in relation to data creation while cellphilming. I was drawn to, motivated and moved by the readings proposed by PQI methods and suggestions (Jackson & Mazzei, 2018). I nevertheless noted the criticism of qualitative research into the day-to-day, mundane and banal (Kleine et al., 1993; Ebrey, 2016; Chatti et al., 2017; Holmes & Hall, 2020;

Schmidt, 2024). Several of these academics emphasize that much of this field of research may be coloured by the inherent and unavoidable parochialism of such an inquiry.

In early spring of 2024, I began cellphilmimg, during a cross-continental drive from Stanstead, Quebec to the Holistic Conference in Oregon. This was a test run - a pre-research-creation cellphilmimg praxis preceding the June sixth's start of the 'ordained' research-creation. The cellphilmimg covered the spring season's turning, melting, thawing and regeneration. This included maple taps in the northeast, winter wheat fields in the Midwest to dogwood blossoms in Oregon. My first cellphilmms contained a sound of water trickling from melting icicles, in response to Schafer's (1993) idea of the 'soundscape' as both musical and environmental experiences (p. 7). The sound of icicles melting, trees crackling, or birds nesting defined the outreach and intersection of sounds from a situated MTH perspective. I became more aware of bird, tree, and seasonal sounds that spoke to me by aurally attuning me to MTH soundscapes. Schafer states:

The definition of space by acoustic means is much more ancient than the establishment of property lines and fences; and as private property becomes increasingly threatened in the modern world, it may be that principles regulating the complex network of overlapping and interpenetrating acoustic spaces as observed by birds and animals will again have greater significance for the human community also. (p. 33)

With my smartphone, I managed to capture these subtle sounds, making me ponder if I should purchase an external more sensitive microphone. Although it would enhance my practice, I leaned towards affordability and ethical concerns. Many young learners cannot afford such a purchase.

Unfettered by time, I cellphilmmed close ups of spring flowers emerging from the ground in accord with the 'arts of noticing' and paying attention to the smallest details of human and MTH environmental assemblages as outlined by Tsing (2015, pp. 23–25). Her approach highlights these assemblages as an understanding of ways of being - as 'emergent effects of encounter':

Patterns of unintentional coordination develop in assemblages. To notice such patterns means watching the interplay of temporal rhythms and scales in the divergent lifeways that gather. Surprisingly, this turns out to be a method that might revitalize political economy as well as environmental studies. (p. 23)

This led me to better understand the economic forces that emerge from, and disrupt, the divergent temporalities and agency of both humans and MTH entities. It reframed political economy as a contested process of negotiation - not control - where MTH relations (symbiosis, extraction) expose capitalism's reliance on heterogeneous, often exploitable lifeways. Through this approach, I found myself developing a sense of kinship with these plants, a political partnering contextualizing our co-habitation. I furthered to understand their life cycles with daily visits to celebrate each new set of emerging flowers. This experience resonated with Kimmerer's (2013) notion of plants as "our oldest teachers", reminding us of our long lasting kinship with all of life (pps. 239, 259).

However, I struggled with the technical challenges of plant growth through macro photography - using a smartphone, often resulted in blurry or poorly lit images. I overcame this by researching and practicing various smartphone macro techniques, including using water droplets or bottles as makeshift lenses.^{clxi} Smartphone filming allows the mundane not merely to be captured but transformed, revealing unnoticed dimensions of MTH entities. This was significant because I had to consider the tool, its affordances, and so on in order to record, characterize, and give value to my sensory experience. The smartphone, as both a recording and relational tool, thus became a medium that reconfigures human-MTH relationships.

In early summer, I experimented with different perspectives, inspired by Haraway's concept of 'becoming with.' Haraway (2008) argues that "to be one is always *to become with* many", encouraging us to consider our entanglements and our knotted figures with other entities (p. 4). For example, one cellfilm focused on a patch of clover in my lawn, filmed from the ground level. As I lay on the grass, I noticed the intricate ecosystem within this small space - with ants navigating between the stems, a spider constructing a web, bees visiting the tiny flowers. I resisted to anthropomorphize Nature (an impossible task) and fell back on dominant narratives that marginalize the agency of MTH entities. This shift in perspective helped me see the complexity of their lives in even the most mundane spaces, embodying what Bennett (2010) calls 'vibrant matter,' the idea that all matter is alive and has agency.

The summer cellfilms propelled the inquiry to reach beyond the mundane into the intra-active and the affective feelings of day-to-day co-existence. Daily cellfilming in the spring exhausted my mundane observations, beseeching me to look closer at my daily interactions with MTH entities.

Technically, the challenge here was maintaining focus on such small subjects while filming a meandering water flow, wind in a branch or tracking a caterpillar at ground level. I experimented with different stabilization techniques and eventually thought of creating a simple rig, a dolly of sorts to hold my phone steady at ground level - again this was too much for young learners. I opted to stay handheld and use a brick to stabilize the camera. Here a transformation started in my practice beyond technological exceptionalism. I decided to start feeling, being in tune with, and interacting entity to entity. I started to become attuned to the affects engaging me with the MTHs. The smartphone became not a tool but an interlocutor - a participating MTH.

Midsummer brought opportunities to explore water ecosystems. I cellphilmmed at a local estuary, capturing the interplay of light on the water's surface and the movement of aquatic plants beneath in the riverbed. This exploration was influenced by Neimanis' concept of 'hydrofeminism,' which posits that "we are all bodies of water" (2017, p. 66), interconnected through global water cycles. The cellphilm's audio picked up the chorus of frogs and the buzzing of dragonflies, creating an immersive sensory experience. The smell of wild mint was in the air, and small trout were scuttering about the rocks. While I was cellphilmmed, I reflected on the interconnectedness of aquatic and terrestrial life, and how human activities impact these delicate balances. What I had not paid much attention to prior to this inquiry is how the rocks, the air, the insects, the smells, and the feeling of the humid air on my skin was integrated. My anthropocentric view only conceived animals, plants, and humans as objectified 'others'. A multitude of MTH entities were just overlooked and forgotten as discounted backgrounds. Now they were all there titillating my senses.

Here, I thought of how young learners would need to be informed of the dangers of approaching too closely. Filming near water presented its own set of challenges, including the risk of damaging my phone and the difficulty of capturing clear underwater footage. Should I acquire a waterproof case for my phone and practice techniques for filming at the water's surface – the idea was quickly dismissed – plenty of Nature documentaries use those techniques on television. Ultimately, I wanted to rely on the human eye and other senses as it engages through the smartphone. I chose to approach Nature differently relinquishing technical gimmickry.

I spent the spring watching German, Austrian, Chinese and Swiss Nature shows with my bed-ridden father in Spain. The common thread in the narrative practice of the shows was

anthropocentrism and anthropomorphism. This programming intends to keep the audience watching for fear that they could otherwise not relate to a MTH centered narrative (if that is even possible). The framing of the mundane often privileges human perspectives, potentially marginalizing the agency of MTH participants. This limitation underscores the need for intentional strategies to center MTH ‘voices’ within the narrative framework. This may be achieved through reciprocity, reflexive action, and empathy (see Chapters Five and Six).

As autumn approached, I focused on the changing colors of leaves. I began to cellphilm in my neighbourhood practices that incorporated MTH entities: granite extraction, riverbank construction, organic farm harvest and a park walk. Leaves were turning, rocks were carved out and flora was damaged. The challenge here was capturing the subtle changes in Earth, the landscape, soundscapes, and odours in the air. A walk through the park accentuated the mundane of a daily walk routine. The mundane repetitive performances allowed for deeper reflections which helped me challenge anthropocentric assumptions, revealing mediated experiences, and emphasizing embodied connections to MTH entities (Haraway, 1988; Ingold, 2000; Walker et al., 2023). It demanded reflexive critical consideration, particularly concerning the risk of oversimplification, anthropocentrism, and cultural misalignment. Questions were constantly at play about my positionality. This included entangled thoughts and feelings about the Western canons driving my process and the hubris of thinking alone without enactment from/with my (not so) silent kin. All these in-betweens, margins and banalities were overwhelming. Barad's concept of ‘intra-action,’ which suggests that entities do not pre-exist their relations but rather emerge through their mutual entanglements (Barad, 2003, 2007, 2014) saved me from postdigital Luddism.

An early cold winter brought new challenges and opportunities. The main problems during early winter weather cellfilming was both my phone's battery life and my ability to cellphilm for extended periods outdoors. I overcame this by using hand warmers to keep my smartphone operational and by taking frequent breaks to warm up. I cellphilmmed the intricate patterns of frost on my windows, marveling at the artistry of ice crystals. I compared it to the ice forming on the airplane wing during the airport de-icing practice on my last trip to Spain. This led me to research the science behind frost formation, and then ice formation on airplanes, deepening my understanding of the physical processes at work (Ferro et al., 2023). The simple act of cellfilming ice formation from frost on my bedroom window opened a flurry of investigations into MTH

practices. The lens framed fleeting patterns, turning idle gaze into method: why this angle, this instant? Ordinary ice demanded theory on data's birth, vision's limits, and the observer's quiet hand in knowledge's making

Throughout this process, I maintained a focus on the local and personal. The days were shorter the weather was causing deeper freezes. I watched as Nature fell to sleep - or was it just feigning under that cold-trickster. I even filmed the spider that took up residence in the outside corner of my cousin's eleventh floor high-rise window - observing its web-building process in the freezing cold. These mundane subjects became portals for deeper reflections on my place with the MTH, on the circularity of events, on embodying my movements with MTH entities, what Manning (2012) (through Bergson) hints as *relationalscapes* which place the emphasis on the immanence of movement – the 'preacceleration' (p. 6). Manning (2009) describes the cycle of reactivation of movement:

As events become and perish, they create openings for new events. Every opening in relational movement marks the potential for an infinity of approaches. 'When they perish, occasions pass from the immediacy of being into the non-being of immediacy' (Whitehead 1933, 237). Events do not perish into nothingness. Like memories, they can be reactivated. To reactivate an event is not to recreate the same movement again but to invent a new movement that calls forth a certain array of recognizable elastic points. This new movement will be virtually populated with the pastness that constitutes the experience of moving in that way. (p. 39)

The personal MTH-Nature interactions, noticeable as the cold Earth went fallow allowed me to explore my own emotional responses to these mundane yet embodied encounters with Nature. I found myself feeling joy at the prospect of the sight of the first spring flowers, followed by an anxiety caused by an advancing severe snowstorm, and simultaneously a feeling of peace while cellphilmimg snow fall silently in the night through the streetlights. These emotional experiences became an integral part of my autoethnographic exploration, highlighting the affective dimensions of 'our' relationships with the MTH, Nature and Earth. This aligns with what Kathleen Stewart (2007) calls 'ordinary affects,' which is defined as:

...the varied surging capacities to affect and to be affected that give everyday life the quality of a continual motion of relations, scenes, contingencies, and emergences. They're things that happen. They happen in impulses, sensations, expectations,

daydreams, encounters, and habits of relating, in strategies and their failures, in forms of persuasion, contagion, and compulsion, in modes of attention, attachment, and agency, and in publics and social worlds of all kinds that catch people up in something that feels like something. (pp. 1–2)

I struggled with how to convey these emotional experiences through cellphilms without resorting to clichéd or overly sentimental representations. I addressed this by focusing on simple, subtle visual and auditory cues that evoked the emotions that I was experiencing, rather than trying to explicitly represent them.

Through this year-long practice, I came to understand autoethnography as a powerful tool for ecopedagogy. A cellphilming praxis needs to be part of a continuous long-term pedagogy allowing a repetition of reflexive practices. Zocher and Hougham (2020) found that: “The act of cellphilming encourages researchers to engage more intimately with their surroundings, leading to richer autoethnographic accounts” (p. 238). By turning the lens on my own daily experiences and reflections, I was able to uncover the profound connections between human and MTH interactions that often go unnoticed. This practice not only deepened my own understanding and appreciation of Nature but also provided a model for how others might engage in similar explorations, fostering a sense of kinship and responsibility towards our MTH cohabitants sharing this Earth.

To maintain analytical clarity in a long term ecopedagogy, it is useful to distinguish moments of personal reflection from philosophical interpretation and pedagogical application. Personal reflections describe the subjective qualities of the experience, such as sensations, emotions, or intuitions arising during cellphilming. Philosophical analysis, by contrast, interrogates these moments to reveal how they exemplify theoretical claims about embodiment, belonging or mediation. Pedagogical application then considers how such theoretically informed insights can be operationalized within educational contexts. Explicitly signalling these shifts can help learners follow the movement from lived experience to conceptual arguments, and furthermore for educators to teaching practice.

The challenge here was in balancing the personal Nature of the inquiry with its potential broader implications. I addressed this by contextualizing my personal experiences within wider ecological and philosophical frameworks, drawing connections between my observations and larger

environmental issues. My cellphilming practice became a way of slowing down reasoning to affectively engage with my embodied emotions. I focused on the local, personal, banal, and mundane, to absorb a slowed down, deep, reflexive exploration of my relationship with the MTH in the collective we call Earth, contributing to a broader understanding of our place within complex ecological systems.

Cellphilming Selection Parameters

The process of selecting which cellphilms to highlight for a more thorough analysis and for future sharing online was challenging, as each seemed to offer unique insights. Ultimately, I chose to focus on fifty cellphilms that best represented the day-to-day rhythms of my interactions with MTHs and Nature, prioritizing cellphilms that captured moments of surprise, stimulated affect, or challenged my identity within the context of ordinary life (see Appendix “1” for list of cellphilms chosen, links are in Appendix 2).

These selections, I believe, best embodied the spirit of the project: finding the extraordinary within the mundane, and recognizing our deep, ongoing entanglements with MTHs; eliciting an emotional and sensory response; and generating a rapprochement with Nature and all the participating MTH entities. This selection process was informed by ecopedagogy and its underlying tenets. These tenets include the interconnected challenges of ecopedagogic ecoliteracy, (un)sustainability, eco-justice, global:local power dynamics, ecocide, global citizenship, ongoing epistemicide, and climate change which inform ecopedagogies within the umbrella of (in)formal EoE. These tenets and principles have become increasingly prominent in ecopedagogies as a critical, reflexive, and transformative praxis. These tenets were also addressed in my creative aspect and integrated with the cellphilming of the mundane, banal, local, and inclusive cellphilms. The creative here is wholly integrated into the research and is entangled as the inquiry demanded.

In selecting the fifty cellphilms after having completed the shooting phase in the early winter of 2024, I looked at the multiplicity of entities I engaged with through all 200 or so videos. This ensured a diverse selection of MTH entities (animals, plants, insects, inanimate entities). I started with a broad base that represented the richness of MTH relationships. I identified and logged key interactions in the presence of MTH entities seeking agency, reaction, and inactivity. I sought

videos where MTH entities were active participants, displaying behaviours or responses that show agency. I then looked for the opposite, where entities were passive and showed no interaction or response. This ensured the selected videos reflected ecopedagogy's emphasis on the autonomy, agency and variety of participant MTH entities.

I then searched for emotional resonance looking for evidence of generated affect and connection. I referred to my diary, the cellfilms and the theory to help in understanding and deciding which cellfilms had affected me. This narrowed down videos favouring those where there is clear emotional or sensory reverberation between me and the entities. I then actively sought cellfilms where there was no such propensity. This decision also highlighted the process of selecting meaningful relational moments between me and MTH entities that could affectively resonate more easily with possibly future learners. The process was problematic as affect is reflexive and personal in this process and does not provide evidence of human and MTH agency. The selection became anthropocentric and personal to a larger degree than most other selection decisions - of course all these processes are anthropocentric to varying degrees - a limitation to be discussed in the concluding chapter.

This selection process also required that I assess varying degrees of communication - non-verbal or silent. I identified videos where non-verbal cues, gestures, or movements were central to my interaction with the entities. Movementscapes, soundscapes and relational interactions were considered. It was necessary to emphasize the power of non-verbal relationships to comply with principles of equal and shared communication in ecopedagogy.

I proceeded to highlight the contextual depth with ecopedagogic principles to prioritize videos that provide rich ecological, cultural, or temporal context for the interaction. This was necessary to distinguish ecopedagogic cellfilming practices from other EoE cellfilming practices. Context helps learners understand the broader significance of these relationships with regards to sustainability, eco-justice, and global belonging.

I then oriented my post-filming reflexive process to ecopedagogic tenets to ensure that the selected videos embody principles like care, mutual respect, justice and sustainability. This approach reinforces the core themes, behaviours, and ethical dispositions for my ecopedagogy practice.

Ecopedagogy learners will need to understand these inter-related local:global actions and events as they play out in conflicts, mineral extraction, ecocide, global warming and (un)sustainability.

Furthermore, in applying the ecopedagogic parameters to the selection of the cellphilms, I also tried to disentangle the postphenomenological autoethnographic aspect of my cellphilming to reflect on self-awareness to understand the complicated positionality, emotions, agency, identity sharing evident throughout these steps. This allowed me to see and understand my role and perspective in the interactions. While postphenomenology foregrounds the mediating role of technologies in shaping perception and embodied experience, ecopedagogy situates those mediated encounters within an ethical and political project of environmental responsibility. When brought into dialogue during my selection process, these frameworks illuminated not only how learners sense and interpret their 'world' through technological mediation, but also why such mediated encounters matter for cultivating eco-social awareness.

At this stage, I viewed the cellphilms thoughtful of my ethical engagements that limited the research. Human entities that appeared in the cellphilms had to be removed from the selection if they were identifiable. I asked my father if he minded that our holding hands could appear in the research. He laughingly agreed and smirked – *as if I needed to ask*. I explained the reason for my question was to confirm that the interactions respect the dignity and autonomy of the participants. This was more difficult with MTH entities. I therefore relied on principles of respect and avoiding harm or exploitation. There was an exception when I sprayed insecticides in the outside deck to get a humorous point across. In retrospect it was not that funny. This incident prompted deeper reflexivity on my positionality as researcher and filmmaker, revealing how my anthropocentric humor risked reinforcing exploitative dynamics with MTH entities, contrary to cellfilm ethics emphasizing minimal harm and respect for all beings involved. In addition, my selection process was influenced by my political and cultural biases, identities and emotional and psychological state.

My practice was informed by PAR practices of ethical research in social, health and education settings that use cellphilms (Milne et al., 2012; Mandrona, 2016). I incorporated ethical practices from PAR methodologies when selecting MTH subjects for my cellphilms. Recognizing the need to ensure that all entities - human and MTH - were engaged respectfully, I drew upon the principles outlined in PAR literature, such as prioritizing dignity, autonomy, and the avoidance of harm or

exploitation. Cellphilmaking involves making choices about representation and consent, even for MTH participants. This approach aligns with Flicker and MacEntee, Burkholder, et al., and Schwab-Cartas's assertion that cellphilm research should shift away from a rescuing mindset toward learning through creative production - and that includes actively considering which beings are represented and how (Schwab-Cartas, 2018; Burkholder, Aladejebi, & Josh Schwab-Cartas, 2022; Flicker & MacEntee, 2023). For MTH subjects, I was guided by the commitment to do the 'most good' and the 'least harm', striving to avoid practices that would exploit or endanger these entities.

I sought to apply respect and care throughout my selection process, aiming to treat every subject not simply as material, but as participant in their own right. This addresses possible ethical engagement for learners in the future and applies to decisions that are made regarding what/how participants are involved when cellphilmaking in public spaces. Sadati and Mitchell (2022) add:

Clearly the creative and intentional use of your cellphone or other device to create poetic pieces, documentary and other visual accounts offers rich possibilities for reflexive engagement. Building on your own classroom practices there are also many ways in which you can draw on student responses to a classroom assignment (including ones that build on their cellphone practices) in a reflexive way that does not have to violate ethical protocols. (p. 71)

For young learners this would be an exercise not only to engage them as ethical cellphilmakers but also enhance their digital and media literacy learning experiences.

As I re-screened the cellphilm right after shooting, then one week later, and thereafter when making selections, I examined the cellphilm for aesthetic and narrative impact by choosing videos with compelling visuals and emotional resonance that effectively communicate my intended relational practice. Framing postphenomenology and autoethnography as interdependent rather than merely adjacent allowed the reflective analysis to move from descriptive accounts of experience to a more integrated understanding of technology as a pedagogical and ethical actor.

I addressed the length of the cellphilm as I reviewed them. I based much of my selection decision on my notes after shooting. Short cellphilm generated more emotions, sensory affect and feelings of intimacy. I nevertheless also selected longer videos for editing not only to differentiate the

inability to directly connect with MTH participants with longer formats but also to later create edits that were more representational. This was done to highlight how representational storytelling through editing differs from the practice of non-representational cellphilm.

The final step, capturing belonging as an intimate feeling of co-existing and kinship with Nature and MTH entities was the most challenging (see Chapter Six). I looked for videos where I felt immersed in and part of the ‘natural’ environment, rather than separate from it. This was encouraged by reflecting on my own relationships with Nature and my reciprocal behaviours with MTH entities.

The process of selecting the final fifty cellphilms was both challenging and deeply reflexive. Each cellphilm offered unique insights, but I prioritized those that captured moments of surprise, resonance, wonder, and revelation within the ordinary rhythms of a mundane day-to-day life. These selections embodied the inquiry’s aim to highlight our deep entanglements with the MTH and Earth, emphasizing relational moments that resonate emotionally and sensorially. Guided by ecopedagogical principles, I sought affective cellphilms that reflected agency, non-verbal communication, and the contextual depth necessary to foster ecological awareness.

Cellphilm Shooting and Editing Practices

The cellphilms in my research creation were mostly single shots or five or six shots edited together to imitate possible use in future ecopedagogic elementary school cellphilm. An opening pan or closing jiggle may be removed in an editing phase, but the integrity of the shot is not hampered. Editing shots together would add more layers to the representation of an idea drifting away from a non-representational practice. Some PAR researchers allow for in-camera collage of shots while shooting the cellphilm - where the shots are continuously added as you stop and start the recording.

No-Editing-Required (N-E-R) can also be method of shooting a simple single uninterrupted shot. Starr and Mitchell (2021) describe the process of the N-E-R in the following manner:

The participants, in groups, set off to shoot/film their story, keeping in mind that they will not be able to edit their films, and therefore have to contemplate each shot, practice it, then film it and stop the recording, and then move on to the next shot, film it and

stop the recording, until they have completed their shoot. If they make a mistake they must start from the beginning of the storyboard. (p. 21)

This meant that the shot was not significantly edited for screening yet remained representational as it provided a distinct planned narrative.

The other way to circumvent the editing process is to keep the film as concise as possible using only one shot that includes a full story. This requires preparation such as detailed planning, storyboarding and setups bringing again into play a representational narrative. As stated elsewhere by Sadati (2018), experienced practitioners Mitchell, De Lange and Moletsane (2016) propose a step-by-step:

Filming a One-Shot-Shoot (OSS) 1. The one-shot-shoot cellphilm must be carefully planned out. The Title and the Credits must be prepared before the shooting begins. Participants may need support to complete these components. 2. It is important to rehearse before the filming begins as the film is shot in one take. 3. Once the filming begins, there is no stopping. If there is an error or a blooper, these videos are short and may be filmed again. (p. 437)

I believe that these proposed PAR methods of shooting OSS and N-E-R cellphilms take away from the improvisational moment and immediacy of the affective interaction with the MTH participants. They focus on narrative instead of imbued affect.

Nonetheless, cellphilming using planned and scripted single shot, N-E-R, or OSS allow learners to experience a technical process that serves a definitive documenting of the environment, and as an evocative starting point for reflection and discussion. Roberts et al. (2018) highlights the strength of the process, which “has particular affordances of ‘reflexivity’ due to the technologies’ functionalities of rewind, replay, and projection on-screen. This provides participants with new action possibilities for reflecting on their ability to act in the world/Earth and to revise and rehearse their performance in a ‘safe space’” (p. 9). Perry et al. (2015) explain how digital media provide participants with the opportunity to “reflect in a presentational form and, in this, more efficiently address changes in self, perception and/or attitude that may be attributable to their experiences” (p. 327). They add that “digital media can provide the forum for a learner’s voice to be found and heard. This reflective process’s aesthetic medium can provide the forum for a learner’s voice to be presented and an emotional connection with self and the learning experience to be articulated” (p.

327). The experimental challenge for my research was to reflexively engage with MTHs through cellphilm to feel and understand the kinship tensions of my personal identification and embodiment. This required a more non-representational process avoiding pre-planning, scripting and directorial intervention.

I therefore mostly shot single shots with no editing. I did, however, shoot some cellphilm with more patient, deliberate positioning, and angles to see if I could get a 'real' situated feel of the affect generated. In my early cellphilm practices I discarded the idea of rehearsals as they would impinge on the immediacy of the engagements that I wanted to create with MTH entities. Some of my cellphilm were single takes but required trimming at each end for narrative, unwanted smartphone manipulation noise, or aesthetic purposes. The new technologies allowed for many such necessary editing practices allowing for simple and directed viewing experiences specifically when later shared with the public. A handful of my cellphilm assembled several shots. These allowed me to compare the effect of edited (representational) and single shot (non-representational) cellphilm.

Cellphilm as Engagement With/In Nature(s)

Cellphilm can document the affective dimensions of H-MTH-N interactions, fostering emotional connections that are crucial for effective ecopedagogies through praxis. In the following sections I look at some of the cellphilm and thereafter detail and describe and analyze some of these interactions generated by my cellphilm. Each of the 50 chosen cellphilm I engage with will be capitalized to identify them and distinguish them from the full set of cellphilm.

Seeking aesthetic and research practices beyond representation is always very difficult to achieve because filming is always culturally engrained as a representational medium spewing a constant effluent of narrative rehash often maintaining structures of power, ideologies, and injustices. The challenge was to look at the peripheral and/or the margins of representation, away from narrative predispositions of filming and consequently cellphilm. Certain parameters became the guiding lights: disruption of traditional binaries, exploration of alternative temporalities, consideration of emotional responses, collaborative agency of the actants, movement and emergence, sensing affective vibrant matter, alternative narrative structures, and ethical and aesthetic dispositions.

My cellfilms often captured affective encounters that go beyond mere visual representation, aligning with non-representational theory's focus on the emotional and atmospheric aspects of experience. "NIGHT VISIT TO THE QUEEN OF THE NIGHT" is an encounter with a nocturnal flower, conveying a sense of wonder and the ephemeral nature of the bloom. I referred to my diary notes which anthropomorphized my relationship with the plant to imagine a relationship of empathy and inclusivity. This adopted plant, *Epiphyllum oxypetalum* became a member of my family and loved by all. Her parents were abandoned by a flower shop near the train tracks in Little Burgundy, Montreal in 1982. Years later I took cuttings for our family home in Spain. Some cuttings from the mother plant were also spread out in Montreal. The three cuttings in the cellfilm are the only remaining kin living with our family. They survived because the weather is more conducive in Spain. This is a tropical plant and requires bats and large moths to pollinate. None of those specific pollinators exist in Montreal or Spain. Therefore, the *Reina de la Noche* plants as they are commonly known have not produced offspring. Yet they open their flowers once a year for one or two nights from sunset to sunrise. The smell is mesmerizing. This visit revealed a night of seventeen blossoms on two plants each flower the size of a large grapefruit. Knowing that their efforts would not attract pollinators gives these three plants' reterritorialized existence a sense of despair and forlonging - like Sisyphus compelled to repeating their tasks year after year. Are they conscious of the absurdity of their limited life repeating yearly fruitless endeavours? Is that question heteronormative anthropomorphism?

Maybe they do not think or feel their inability to procreate and are on an automatic biological clock that repeats itself if conditions are ripe; or maybe it is wishful thinking that one day a pollinator will appear in the middle of the night – the absurdity remains. Yet the Queens have a grip on me through their pheromones and scent. Thrift (2008) argues that plants and animals use their pheromones to induce affects, to communicate with us and each other. He adds that pheromones are a type of semiochemicals - small molecules released by an animal via its skin, special glands, or secretory organs - that influence the behavior or development of other individuals, either of the same species or different ones. He adds:

They are normally detected by smell (Thrift 2003a), although they can also be detected through touch (Wyatt 2003)... it is now recognized that different cultures have different olfactory palettes...chemical cues function as mood changers, affective switches that can tone and tune situations. Animals provide one more piece of relevant

information about affect. That is that it is crucial to time and decision-making (Grandin and Johnson 2005). Like people, animals use affects to predict the future and make decisions about what to do next; affects provide information about the future and what to do about it. (p. 228)

The Queens' pheromones reveal over forty years of nostalgia, appreciation and of care and kinship. Their annual gift bedevils me into watering them and keeping them inside all winter saving them from a frigid death. I felt empathy and despair that night in Spain - along with the guilt of maintaining their life for my mere visual and olfactory pleasures.

A longer cellphilm "SOUND FROM PLAYING CRYSTAL BOWLS" focused on the auditory experience, demonstrating how cellphilm can capture non-visual sensory encounters that evoke emotional responses. The cellphilm of the varied pitched sounds of crystal bowls played at a local holistic center's sound bath, exemplified how I engaged with MTH entities in ways that transcend Northern/Western 'traditional' representational approaches. Some of the multisensory capabilities of modern smartphones in exploring synesthetic approaches were evident. They blurred boundaries between different sensory modalities. This cellphilm embodied a non-representational or performative realism that overflows reality from the margins. The crystal bowls, as non-living objects, became active participants in creating an affective and inclusive atmosphere. The vibrations and overlapping sounds produced by the bowls created a multisensory experience underlining the immediacy of lived experience. The cellphilm's emphasis on sound rather than visual representation supported NRT's aim to move beyond conventional storytelling structures. By capturing the auditory qualities of the crystal bowls, the cellphilm praxis engaged with what Anderson and Ash (2015) describe as affective atmospheres where each entity's ability to affect other entities belong to a collectively lived and shaped condition:

In other words, bodies or objects have a mass, which shapes their capacity to affect, but do not necessarily weigh upon one another. For example, a sound wave may not affect a concrete block and so may be unable to contribute or shape the atmosphere associated with the concrete block, even if the sound wave physically touches the block. At the same time, when aspects of objects do contact and affect one another this can create a mutual weighing, in which affective communication takes place and thus an atmosphere is formed. (p. 41)

The resulting audio-visual expression allowed for a more immediate and visceral engagement with the affective qualities of the sound bath experience as an atmospheric environment. Thus, I could explore the complex, multifaceted relationships between bodies (both human and MTH) and the spaces they inhabit or move through. It offered a more nuanced understanding of how my surroundings influence me and how I, in turn, affected my environments, often in ways that escape immediate notice or conscious reflection. The overlapping vibrations of the crystal bowls created an immersive soundscape that transcended visual representation and evoked emotions and physical sensations that included relaxation, wonder and reflection. However, it is important to note that not all cellphilms in the dataset demonstrated this level of non-representational engagement with MTH entities.

The intimate, embodied experience of cellphilming my newfound friend, the garden caterpillar, in “TRACKING A CATERPILLAR WALK” fostered a deep connection with the MTH subject. This was an abundant year for them. The garden was crawling in September, making me wonder if it will hibernate or was it too late to come out as a moth and reproduce. Did climate change have an effect, or was this a regular insect population cycle?

The cellphilim “TRACKING A CATERPILLAR WALK” exemplified McCormack's (2013) concept of environments and ecologies in composition through a multiplicity of “processual resonant space-times”. This aligned closely with my practice of autoethnographic cellphilming.^{clxii} He states:

The key thing is that site is sensed as a nexus of ongoing relations rather than something concrete existing in advance of these relations. This helps us avoid falling back upon a sense of site as a container within which bodies move; rather, relation-specific spacetimes for moving bodies consist of bodies and their surrounds emerging through the processual event of movement. (p. 35)

Cellphilming involved a meshing of the real and the imaginary in a process of creative ecologies that opened the field of vision beyond prescriptive cinematic boundaries. Germein et al. (2025) propose a capacious methodologies research approach to creative ecologies that views space-time as an ongoing process of heterogeneous, generative creativity rather than a passive background. They state:

Within a relational framing, ecologies are by their nature creative: autopoietic, sympoetic, and fluid. They re-create and re-invent themselves with their own intra-active becoming: different, similar, never quite the same. Ecologies are performative and always open to re-workings, being but fleeting instantiations of the intra-active becoming of the world (Barad, 2007, p. 234, 2010, p. 248, 260). Nothing stays the same. (p. 156)

This translates to capturing the dynamic, ever-changing Nature of environments - emphasizing the process of cellphilmaking over the final product. I was able to explore how the act of cellphilmaking itself participated in the creation of space-time. By following the caterpillar's journey through the garden, I created a dynamic, ground-level perspective that captured the ongoing process of space-time as a heterogeneous, generative form of creativity. I created a reality of co-emerged elements, human-MTH interaction, to sense and indeed feel with the caterpillar the difference between us and the novelty of the interaction. This can be replicated for young learners by following a snowflake or a dandelion seed in a stream, recording the gradual opening of a flower, hatching of an egg, growth of a bean germinating over time, or tracking the movement of stars, birds, or clouds across the sky.

The integration of non-representational theory into my cellphilm methodology enriched the understanding of how mobile filmmaking can capture the complexities H-MTH-N relationships. By focusing on practices, movement, and affect, I created cellphilm that resonated with the vibrancy of their subjects rather than simply representing them. This methodological synergy encouraged a more nuanced exploration of human experience in its many forms.

Reflexive Practice and Vital Materiality

Bennett's concept of 'vital materiality' proposes that material entities directly transmit affect to human nervous systems, bypassing language or representation (2010). My cellphilm practice embodies this non-representational, performative approach, aiming to reveal realities beyond conventional representation. This method explores the connection between vital intentionality - affect without mediation through language or signs - and more complex emotional and cognitive processes, emphasizing relational assemblages from new materialism/ANT perspectives. Cellphilmaking allowed me to explore my changing perspective on local wildlife over time and space. This allowed me to examine the harsh divisions between reality, representation and subjectivity

that delineate the manner I understand temporality and space. Space, for Massey, is not a fixed container but a dynamic sphere of interactions, always unfinished and shaped through relations that include temporality as well as spatiality. Massey (2005) suggests that:

Space too is a product of interrelations. Space does not exist prior to identities/entities and their relations. More generally I would argue that identities/entities, the relations 'between' them, and the spatiality which is part of them, are all co-constitutive. (p. 10)

To honor my perspective of space emerging in interrelation with MTH entities required an intellectual, emotional, and affective effort of inclusion, reciprocity, and honest engagement with the MTH. In addition, this also required that I understand that all (non)living MTH entities have atomic vitality and are constituted with a lively and energetic play of forces that constantly affect and interact with other human and MTH entities (Bennett, 2010). Cellphilming fostered critical examination of my place (malleable space) within ecological systems by, for example documenting personal reflections on daily water usage, or recording the process of composting and its impact on garden growth, or the sharing of space with MTH entities in a garden.

Autoethnographic cellphilming encouraged a reflexive practice on the manner that I engaged with space and the vitality of MTHs sharing the space. I was able to critically examine my relationships with MTH entities by focusing on our common space: In “MATING EGYPTIAN GRASSHOPPERS ON FRANGIPANI”, I noticed the dynamic between us as I brought the camera closer to them. A slight smartphone reframing, and they moved - easing their way behind the plant’s stem. This allowed them a sense of security by hiding from the approaching smartphone. They did not seem frightened. This most probably was caused by their mating entanglement which was entrancing them to avoid disruption by an annoying, approaching giant eye. I reflected on issues of anthropocentric voyeurism and ethical considerations when documenting this mating ritual. It raised questions about the potential intrusiveness of human observation and the need for ethical guidelines when studying MTH entities.

This kind of visual experience, while potentially uncomfortable for some, can open conversations about life cycles, ecocide, disruptive human intervention, and the interconnectedness of all (non)living things. This reflexive aspect of cellphilming can encourage learning participants to critically examine their place (space) within ecological systems. Young learners can observe and

record the intimate moments of insect life in a biology class for example. It can help young learners understand their own place within Nature's complex relationships. Here, cellphilm can also help to overcome entomophobia (fear of insects) by presenting insects in an intimate, non-threatening context - for there is a sense of security and empowerment behind the shield of the camera. This may be a false sense of security, but the smartphone is nevertheless an (un)willing participant in the performative learning interaction with MTHs.

“PERFORMING EXTREME MOSQUITO SPRAYING” prompted me to reconsider my actions and the environmental impact of pest control methods. It represented an embodied experience of mosquito control. This cellphilm illustrated how autoethnographic cellphilm can foster critical examination of my place within ecological systems by capturing my evolving thoughts on pest control. It showcased the transmission of vital affects from MTH entities to human behaviour by challenging traditional representations of human-Nature interactions. In addition, reflection on years of insecticide use to limit mosquito growth is reminiscent of the effect this has had on bird populations - especially swallows. In the Eastern Townships of Quebec, the populations of swallows had nearly been decimated until certain insecticides were banned in the United States where the swallows winter. Now they are slowly returning to their barns and riverbanks and increasing in their populations.

Multisensory Engagement and Non-Representational Realism

Cellphilm could extend beyond visual elements by recording the textures of tree barks through touch and close-up visuals or capturing the sensation of wind through movement and sound. Exploring the interplay of light and shadow in a forest canopy also highlighted the relationship between light, space, and time. The following cellphilms challenged the performative realism of the interaction between the human and MTHs by attracting and then disorienting. Cellphilm subverted existing space and time making the landscape appear at times as alien. It then reconfigured the perspective and disentangled the gaze, requiring a renegotiated interaction with MTH entities at play.

My cellphilm engaged multiple senses. For example, “RARE SUMMER RAIN ON DISTORTED WINDOW” captured both the visual and auditory aspects of a rain event, creating a

more immersive sensory experience. The non-narrative visual and auditory experience of water droplets and flow on glass evoked a strong affective response. The distorted view through the rain-covered window created a sense of being enveloped in the ‘natural’ phenomenon, fostering a feeling of connection to the broader ecosystem. It also disrupted and distracted from my daily work on the computer. This experience aligned with NRT's interest in the unplanned and emergent aspects of research, where disruptions can lead to new insights. This cellphilm exemplified how NRT can be applied to capture the affective qualities of everyday weather phenomena, transforming a mundane occurrence into a moment of sensory richness. These kinds of unusual weather patterns can be contextualized within broader climate discussions, helping learners process eco-anxiety.

In “BIRD CALLS OUT THROUGH BEDROOM WINDOW” I filmed my auditory experience of a Eurasian blackbird's morning calls, evoking emotions associated with waking up to Nature's sounds. My gaze into the garden was confused, while I tried to position the bird in the greenery. Cellphilm encouraged me to visually track the source of the bird's sounds. The bird's call evoked various emotions, from peace as I relish in a connection with the surrounding Nature, to irritation at being woken up early. The cellphilm explored the bird's belonging in the urban environment and its role in creating a sense of place. I immediately searched through a bird app the name of the bird and noted it in my diary - *Turdus merula*. My subsequent reflection on scientific taxonomy and bird classification sparked self-criticism of human control of MTH entities. We name birds to define, to understand and ultimately to control them. This revolves around exposing the ontological violence embedded in taxonomic systems while destabilizing the anthropocentric frameworks that sustain them. For Derrida, the act of classification is inseparable from a logocentric imperialism that reduces animal multiplicity to a homogenized ‘Animal’ category (Still, 2015). Here language erases singularities under a universalizing label (Derrida & Mallet, 2008).^{clxiii} The act of naming thus becomes a performative assertion of human sovereignty, masking the constitutive instability of the categories themselves.

“WALK THROUGH OUR GARDEN IN JAVEA/XABIA” provided a multisensory tour of a garden, engaging sight, sound, and even olfactory memories. This cellphilm captured the immediate, sensory experience of walking through a garden, focusing on textures, sounds, and movements rather than a narrative representation. My experience was in a constant time warp

causing déjà-vus and recollections. Memories were abundant of my childhood in Syria, Lebanon and Saudi Arabia including the smell of banana leaves, all while I cellphilmmed in Spain. I walked through the plants, the wafting lemon blossom and jasmin smells, and the taste of loquats and figs as if time had not moved on. The changing seasons and variety of plants evoked a range of emotions, from joy at new growth to gloom at signs of drought or decay. This cellphilm explored the gardener's sense of belonging within the cultivated space, as well as the plants' belonging in their arranged environment. The familiarity of the garden might make it difficult to capture and experience non-representational affects without falling into habitual ways of 'object' seeing.

For young learners this exercise in a local garden can encourage them to listen closely to the garden's soundscape - buzzing insects, rustling leaves, perhaps a trickling water or cooing doves. This cellphilm practice's immersive aural experience can help learners feel at home in Nature and activate imagination.

The multisensory approach of these cellphilms helped me create a more comprehensive and engaging ecopedagogical experience. NRT-informed cellphilmmed extends beyond visual elements to include sound, movement, smell and touch. Cellphilmmed engaged my multiple senses by incorporating ambient sounds to create immersive experiences and by using movement and gesture to convey tactile sensations. Thus, I was able to explore synesthetic approaches that blur boundaries between the sensory modalities experienced and the margins of experience.

In "YEARS OF TOSCA STONE EXTRACTION AND OVERHEATED SEAGULLS" I tried to convey the oppressive heat and environmental impact of human activity on wildlife. This one-shot, 2-minute-and-2-second cellphilm showed seagulls struggling in the heat on a beach that was previously mined for tosca stone. Mining tosca is now banned in Javea, Alicante. It highlights how human actions can have long-lasting impacts on ecosystems and how climate change affects wildlife, emphasizing our global responsibility to consider the environmental consequences of our activities.

This cellphilm captured the space-time relations of geological and biological processes. It can lead in an ecopedagogy to discussions about resource use, the impact of quarrying on landscapes, and the historical and cultural significance of building materials. This cellphilm also illustrated the

adjustment of MTH entities to human-altered environments which further complicates our understanding of Global and Planetary citizenship by showcasing the local impacts of global tourism and climate change. I observed ‘overheated’ seagulls struggling away from crowded beaches onto hot tosca stone quarries. Unable to feel safe near humans the seagulls gathered on rough tosca mined terrain away from human access. Overcrowded beaches negatively affect seagull populations (Rao & Babu, 2021). This illustrated how global phenomena like mass tourism and rising temperatures affect local ecosystems and wildlife.

Addressing global warming, “FOURTH FIRE THIS YEAR IN NEARBY MONGO PARK” captured the tension and urgency surrounding recurring wildfires, highlighting the emotional impact of climate change. It reflected on the increasing frequency of wildfires due to climate change in Spain - connecting local experiences to broader environmental challenges. Another related cellphilm “REGROWTH AFTER LAST YEAR'S FIRE IN PEGO HILLS” combined film and photography to capture the aesthetic qualities of Nature's regeneration after a forest fire. Exceptionally, this cellphilm relied on digital photos and a cellphilm panorama shot combined to evoke the flora regeneration after a massive forest fire near Pego that previous year. My slow pan across the mountain top landscape inspired awe at the desolation, vastness of the sky, and the intense, sharp, entangled rock formations that made walking very difficult. A fieldtrip to film new growth following a forest fire, might encourage new learners to reflect on how it feels to see Nature recover from destruction, fostering a sense of optimism and connection to the cycles of forest life.

These examples of cellphilms offer an opportunity for young learners to intuitively engage through cellphilming practices with concepts of resilience and renewal in Nature. Through these multisensory cellphilming experiences, learners can develop a deep, embodied sense of belonging to Nature and their MTH communities. Learners can engage all their senses and their intuition. They can move beyond mere representation to develop genuine, affective connections to MTH entities around them. These cellphilms can also benefit viewers to understand how global issues manifest in their own communities and can showcase Nature's ability to recover and thrive despite adversity, offering lessons in perseverance and the cyclical nature of ecosystems.

CONCLUSION

The cellphilms in this chapter show how cellphilming can document the less tangible, atmospheric aspects of ecological issues, promoting a more nuanced understanding of environmental challenges. Non-representational cellphilming engages participants' senses and affects in immediate, reflexive, and multisensory ways. Cellphilming can foster deeper connections between humans and MTH entities by capturing embodied experiences, affective encounters, and ephemeral moments.

In this chapter, I have shown that cellphilming has flexibility and educational value in ecopedagogy. I clarified how these perspectives informed my decision-making process while filming the more-or-less 200 cellphilms. I also outlined how such practices can be applied by teachers and facilitators in an ecopedagogical outing. I then described the intricate process of selecting the final 50 cellphilms, chosen for their ability to capture moments of sensation, agency, and disclosure.

I proceeded to analyze some of the fifty selected cellphilms to put into evidence some of the common threads that connect them - in practice and in the sensual production of affect, feelings, and emotion. Backgrounds, affects, events, relations, practices, and performances interconnect in each of my cellphilms. This allowed reflection on an embodied experience of sharing a form of vitality with MTH entities. Vannini (2015) states that non-representational research concentrates on events and privileges in the study of relations, by focusing on doings, practices, and performances (pp. 7-8). For him, NRT-informed research analyzes affective resonances as a transpersonal affective space marked by emergent doings of various kinds (p. 8). Non-representational researchers need to take the time to examine backgrounds, affects and atmospheres: “Backgrounds are the sites that fall outside of common awareness, the atmospheres we take for granted, the places in which habitual dispositions regularly unfold” (Vannini, 2015, p. 9). I embraced the immediacy and accessibility of cellphilms, to capture the fleeting, atmospheric, and embodied aspects of lived experience, particularly in relation to MTH entities. Cellphilming methodology has revealed significant potential for expanding our understanding of H-MTH-N dynamics within (un)sustainability and eco-justice paradigms, offering innovative ways to experience ecoliteracy and explore MTH relationships in our shared environment.

In the more common use of cellphilms in recent PAR, the style of cellphilms tended to be reflexive and immersive, but often employed techniques from narrative theory (Chbib, 2023). This storytelling approach allows researchers to present their experiences in a compelling manner that resonates with viewers. The use of various narrative forms (such as confessional tales or impressionist narratives) enables a deeper connection to the subject matter and enhances the overall impact of the work. In this research-creation, I opted for a non-representational cellphilming practice - leaving many narrative techniques behind. I sought a non-representational relationship through the smartphone lens with MTH actants participating in my research-creation. I sought feelings of belonging through affect and the senses.

Throughout, the chapter, I also emphasized the integration of ecopedagogic practices suitable for teaching young learners as they engaged in cellphilming. This approach was particularly relevant in the context of the global community's urgent need to address environmental issues. I argued that ecopedagogic praxis could play a crucial role in fostering sustainability and mitigating climate change, leveraging sensuous and emotional educational practices to promote environmental awareness and action. Throughout the cellphilming process and analysis of the practice, I maintained a focus on promoting and sustaining activism while in the process of creation. I consistently reflected on the events from a teacher's perspective, considering how to best approach these topics with young learners in future work. I implied that cellphilming in OEE, EoE and ecopedagogy is a vital learning space for young participants.

While cellphilming offers exciting possibilities for NRT-informed cellphilming, it also faces challenges. The potential dilution of impact due to the ubiquity of smartphone imagery and the one-sided nature of human-MTH interactions in cellphilming can be problematic and hard to grasp. Technological constraints and biases imposed by smartphone infrastructure can ethically hamper the validity in an eco-just ecopedagogy. The technique of NRT informed cellphilming alone is not sufficient to understand the embodied effect of MTH-human interactions that can generate kinship. There is a need to delve deeper into the relationships between the smartphone, MTH entities and the filmmaker during the actual *in situ* act of cellphilming.

A question that emerged from this chapter was the (im)possibility and/or (in)ability for another researcher to reproduce a sense of belonging with MTHs. Teachers/learners failing to feel

reciprocal kinship during their own cellfilming experience with MTHs reveals not a flaw in my dissertation but a profound epistemological humility that ecopedagogy itself invites: the recognition that relational belonging emerges asymmetrically, conditioned by one's onto-epistemological horizons rather than universal affective transport. Even I as a pragmatist non-believer, wary of romanticism and anthropomorphic projection, remained 'locked' in a modernist subjectivity attuned to observable causality over distributed agency, where MTHs register as inert backgrounds to human memory. It took me several days of praxis to embrace agential co-participation in intra-actions and multispecies entanglements. My inability to 'feel' co-creation stems from this very attunement: a habitual foregrounding of rational verification and personal intentionality that occludes the subtle, non-anthropocentric multi-sensory registers - vibrational resonances, temporal desynchrony, affective contagion. It was my experience that forest walks for example might otherwise disclose reciprocal presence allowing for an openness to the vitalities of MTH entities.

CHAPTER 4

POSTPHENOMENOLOGICAL IMPRESSIONS OF EMBODIMENT

INTRODUCTION

In this chapter I explore how cellphilm served as a technological mediator, shaping my perceptions and experiences of my environment through embodiment. This chapter is part and parcel with the Chapter Six which delves more specifically into the varieties of belonging and kinship created by the cellphilm's mediation between filmmaker and MTHs.

My methodology combined the postphenomenological focus on human-technology relations with ecopedagogical principles of environmental education. In this research-creation context, the smartphones served as the central mediating technology, functioning both as the tool for storytelling and as the medium for generating and sharing media content. Smartphones facilitated a sense of connection to others and to the environment through the lenses of embodied cognition, media arts, and ecological psychology. They also bridged the gap between data collection and creative expression, integrating technology, storytelling, and social sharing into a unified process. At times, the smartphone appears as a convenient tool for documentation, yet the theoretical framing suggests it plays a constitutive role in shaping the experience itself. Clarifying this distinction - technology as mediator rather than accessory - would enhance conceptual precision. This shift positions the smartphone as actively participating in the configuration of human-MTH relations, thereby reinforcing the postphenomenological claim that technologies transform, rather than merely record, embodied experience

Lindgren and Price (2018) argue that technology plays a special role in facilitating embodied interactions and creating multimodal learning environments. They emphasize that current digital technologies, such as mobile devices, tangible computing, and ubiquitous sensors, create opportunities for taking on new perspectives and reflecting on real-time experiences. This allows for the embodiment of constructs, whole-body interaction for collaboration and understanding abstract concepts, by serving as an intermediary between learners' interactions with their environment and the instructional content. Payne (1997) describes embodiment research as: "How the 'body' in action and interaction can be used as a qualitative site of and for inquiry" (p. 140). By

actively engaging with our senses, documenting our experiences, and sharing them with others, we can cultivate a stronger sense of connection to both people and places. He proposes a ‘critical ecological ontology’ that places the understanding and explanation of environmental issues “in here, with me and you” rather than “out there” (p. 132) He notes that in the postmodern ‘World’, learners are ‘contingent beings’ who are less fixed by tradition and more influenced by technological and economic development.

The act of filming with a smartphone is an embodied practice that engages our senses and shapes our understanding of Earth and our MTH kin. The changes in H-MTH-N relations and the implications of technology can be more appropriately observed and understood while cellphilmimg through a postphenomenological understanding of embodiment. Postphenomenological impressions of embodiment and kinship using cellphlms in an ecopedagogy class would involve exploring the lived bodily and sensorial experiences of learners through the lens of technology-mediated interactions with Nature. This approach aligns with the postphenomenological emphasis on empirical analysis of actual technologies and their impact on human-Nature relations (Ihde, 1990; O’Neal Irwin & Ihde, 2016).

The use of cellphlms allows for a unique embodied relation, where the device becomes an extension of the user's sensory apparatus, influencing how they perceive and interact with Nature and MTH entities. Through the process of creating cellphlms, researchers and learners might develop a deeper sense of relatedness to their environment, recognizing their place within the broader ecosystem. From a postphenomenological perspective, the smartphone camera is not seen as a neutral tool, but as an active mediator that shapes the learners' experiences and understanding of Nature. This mediation could reveal aspects of the environment that might otherwise go unnoticed, or conceal others, thus influencing the learners' perception of their kinship with Nature. Ecopedagogy encourages critical reflection in these technology-mediated experiences.

In this chapter, I continue to be informed by the proposals of ‘thinking with theory’ when looking at the data generated from this research-creation’s cellphilmimg praxis.^{clxiv} Integrating and ‘plugging’ into the theory behind the autoethnographic cellphilmimg allows for an exploration of the embodiment that is experienced while filming MTH entities and Nature.

Cellphilms are often created in response to a specific question, prompt, or community issue, in this case the prompts are ecopedagogic tenets. Some of my cellphilms may use a ‘no face’ approach, focusing on objects, Nature, or body parts for creative expression and increased anonymity. Little preparation was done so that I could keep the cellfilming experience as spontaneous and unrehearsed as possible. There are three notable exceptions that had ‘brainstorming’ preparation which will additionally be discussed in this chapter.

This chapter ventures into an analysis of some of the affective cellfilming practices in this research-creation through embodied cognition theory. Therefore, I investigate how my thinking arises through my bodily actions, sensations, and interactions with the World. In other words, when I perceive, remember, or decide, I always do so as a moving, sensing body in a specific environment, not as a detached, purely mental observer. My perception, motor capacities, posture, and physical context actively shape how I understand situations and form concepts. I furthermore investigate how my embodied research-creation experience informs possibilities of kinship and belonging through cellfilming with MTH entities. I explore several cellphilms to bring out the emotional, and sensual process informed by affect, interactive vibrant matter, and enacted agencies between the participants.

POSTPHENOMENOLOGY AND CELLPHILMING

Phenomenology endeavours to understand human, Nature and Earth phenomena as they appear, exploring everyday reality through the lens of relationships, sensory experiences, and intentionality. Phenomenology distinguishes human, Nature, and Earth phenomena by experiential modes: human through conscious intentionality; Nature via sensory embodiment and relational bonding; Earth as the encompassing lifeworld. These separations arise from intentionality (human-directed meaning), embodiment (bodily ties to Nature), and lifeworld framing (ecological totality). They interconnect in lived experience, not rigid divides.

This philosophical approach focuses on examining the direct, lived experiences of individuals and MTH entities, and their (un)conscious perceptions of the ‘world’ around them, emphasizing the importance of subjective interpretation in shaping our understanding of reality. Postphenomenology as theorized by Ihde (1979) embodies our inner subjective experiences and

external objective facts together as one, thus dismissing the cartesian dualistic binary. Postphenomenology therefore does not objectify technology - and tells us that technology is not alienating but shapes new embodied relations. Postphenomenology allows us to ask how technology changes us.^{clxv} Embodied cognition emphasizes the brain-body-environment coupling that enables perception, whereas postphenomenology focuses on how technologies reshape the very structure of such couplings. When read together, the smartphone becomes not simply an additional tool in the perceptual system but a specific mediator that alters the affordances available to learners. This layered reading helps establish why certain embodied insights emerge through cellphilm rather than through unmediated observation. This distinguishes a smartphone mediated walk in the woods from a similar technology free outdoor educational practice.

Postphenomenology of the human embodied experience can be easily applied to an autoethnography that uses a digital recording device. For example, the “OLDEST MILLENNIAL OLIVE TREE IN TOWN” is a cellphilm that captures the filmmakers embodied relationship with a millennial MTH - an olive tree alive for over ten centuries. The tree was most probably planted by the Moorish settlers who farmed the entire region. The texture of the ancient bark, the play of light through gnarled branches, and the sense of time embodied in the tree itself go beyond simple visual representation. The cellphilm evokes a sense of awe, respect, and connection to history and the passing of time. This cellphilm exposed the longevity of natural systems and our social role as temporary caretakers. The local farmer that owns the land has put a crutch on a weak branch and his family has been taking care of the tree for many generations. The cellphilm prompts consideration of our responsibility to preserve and protect long-lived plants. The act of documenting and caring for the tree also demonstrates human engagement with plant longevity.

My tactile connection (tree hugging) to a living MTH entity, so old, evoked a sense of wonderment and belonging to a long natural history. I also incorporated the sense of taste by chewing on an olive leaf that had fallen from the tree to taste the oils and aromas - an attempt at trying to enhance the sense of engagement and sensual connection. Le Bihan (2013) argues that integrating touch into interfaces would allow for a remote communication richer on an emotional level. While current smartphones primarily rely on auditory and visual communication, the act of cellphilm evoked a sense of presence and connection, allowing me to feel closer despite physical distance. Farman (2012, 2014) notes that in the age of mobile phones, we attempt to dislocate bodies from particular

spaces and spaces from particular bodies, yet we achieve a significant level of emplacement or positioning when we talk to one another on cell phones and share images.

The “OLDEST MILLENIAL OLIVE TREE IN TOWN” also captured the tree's presence as an active participant in the landscape, embodying centuries of history. The tree overlooks a valley that has produced for centuries, almonds, grapes, carob, olives, herbs and citrus fruit. This challenged me to reconsider my relationships with the transformed landscape, fostering a more nuanced and ethically attuned approach to environmental and technological interactions. Many stories of olive trees uprooted for colonizing purposes came to mind, this tree survived drought, pestilence, scavenging, chemical treatments, agricultural modernization, and urbanization. This example effectively mobilizes postphenomenology to illuminate cellphilm as technological mediators that amplify human embodied encounters with MTH entities. However, this human-centered lens, while resonant, invites scrutiny regarding the tree's agential role in co-creating the cellphilm itself, beyond its general landscape presence.

The tree's agency manifests not through anthropomorphic ventriloquism but via Barad's (2007) intra-actions, where its material affordances - rough bark soliciting touch, sinuous growth directing gaze, fallen leaf inviting taste - co-constitute the filming moment, constraining and enabling human movement just as the camera hermeneutically responds to arboreal scale and durational rhythms. This ‘relational prosthesis’ enacts Haraway's (2016) *sympoiesis*, or making-with, acknowledging human inference's partiality while honoring the olive tree's non-verbal semiosis through vibrational, chemical, and temporal registers that exceed anthropocentric legibility. Unlike 19th-century ethnography's unidirectional colonial projection - wherein ‘natives’ served as passive objects of Western racial theory - the cellphilm methodology embraces response-ability, positioning MTHs as non-innocent protagonists whose inscrutable copresence disrupts human mastery and invites ethical asymmetry.

Postphenomenological multistability further fortifies this framework, theorizing the human-tree-technology triad as dynamically entangled without anthropocentric closure, where the device mediates mutual entanglement rather than imposing a sovereign gaze. For my research, this exposes the limits of reciprocity while underscoring cellphilm's ecopedagogical power to train asymmetrical kinship beyond idealistic projection.

The relationship between the smartphone and the participants as a mediator engaged between the autoethnographer and the MTH revealed the need to understand how each is influenced by the technology. Here, the cellphilms moved beyond simple documentation to become sites of ethical reflection, affective engagement, and exploration of the complex entanglements between humans and MTH entities. I analysed and experienced the human/Earth through the mediation of technology and how it affects me. The smartphone is not only the tool to be considered as an extension of the human body, but also an extension of the human-MTH experience. For this to be done correctly, time and place needed to be considered and delineated in the research-creation. The analysis of the praxis and the subsequent reviewing of the finished cellfilm became an asynchronous praxis of conceptual memory.

Embodied Cognition in Cellfilming

Smartphones, as mobile technologies, serve as extensions of human cognition by connecting learners to a networked ecosystem while they engage with their physical environment. In outdoor education, this dual presence - both physical and virtual - can enhance learning by integrating sensory and motor experiences with digital resources. For instance, learners can use smartphones to access real-time data about their surroundings, document observations, or engage in interactive learning activities such as geomapping that blend the natural environment with digital tools. Such practices align with the idea that cognition is an emergent property of the brain-body-environment system, as smartphones facilitate continuous interaction between these components.

Building on Gibson's (1966) ideas, proponents of embodied cognition highlight the continuous interaction between an organism and its environment (Shapiro & Stolz, 2019; Macrine & Fugate, 2022). Embodied cognition represents a significant shift in understanding cognitive processes by emphasizing the integral roles of the body and environment. This perspective, influenced by Gibson's ecological psychology, challenges Northern/Western 'traditional' cognitive science's reliance on computational models. Gibson argued that the environment provides sufficient information for perception without requiring computational transformations. This was evident as I cellfilmed between the chasms of the old olive tree trunks and branches, the depth perception arises directly from environmental cues like texture gradients and motion patterns - rather than retinal disparity algorithms (Shapiro, 2022). These embodied connections diminished the appeal

of viewing perception as dependent on abstract sensory representations, instead framing cognitive abilities as emerging from dynamic, real-time organism-environment interactions (Shapiro, 2014; Shapiro & Stolz, 2019; Fugate et al., 2019).

Embodied cognition researchers have begun to view the cognitive processes that occur in the brain as only one element in a larger system, the totality of which, includes aspects of Earth, Nature and bodies that are shaped in the cognitive processes. This perspective suggests that cognition emerges from the interaction between the brain, body, and environment, rather than being solely confined to neural process. As I touched the bark of the tree and searched through the sinuous history of its growth and aging process, I felt the MTH touch back, leading me through the caress. The old olive tree was telling me its lived story, its experiences and revealed its strengths and fragility. These haptic findings suggest that incorporating physical interactions and environmental factors into educational strategies can lead to more effective learning outcomes (Guertin, 2019; Shapiro, 2022; D' Adamo & Lozada, 2024).^{clxvi} Moreover, the embodied nature of cognition suggests that sensory and motor experiences are integral to learning processes. Smartphones can support this by enabling activities that require physical engagement with the environment, such as mapping trails or identifying plant species through AR apps (Jones, 2020; Wang, 2026). These tasks not only involve bodily movement but also foster deeper cognitive engagement by linking abstract concepts to tangible experiences.^{clxvii}

Enhancing interactions that are both physical and digital, smartphones enable learners to engage with their surroundings that enhance understanding and retention while engaging with their body.^{clxviii} The difficulty has been to properly describe the findings in much of the recent research. As Flood et al., 2022 explain:

The embodied insights that arise from interacting with embodied learning technologies, however, can be difficult to formulate into words and are frequently expressed multimodally using rich configurations of demonstrative action with the interface, gesture, bodily performances, talk, and other semiotic resources... (p. 180)

The pedagogical argument becomes clearer when ecopedagogical goals are explicitly connected to the affordances of the smartphone. If ecopedagogy seeks to cultivate critical, relational, and ethical understandings of environmental entanglements, then cellphilmimg can be positioned as a practice

that materializes these aims. The smartphone's capacity to document, share, re-view, and re-sense the environment supports a cyclical learning process in which perception, reflection, and ethical positioning continuously shape one another. Making this iterative process explicit strengthens the educational claims of my inquiry.

At the same time, a multimodal approach is necessary to understand how the cellphilm created in this research-creation context generate an embodied sense of belonging as the technology interacts with MTH actants. My approach - by attending to the interplay of visual, auditory, spatial, and affective modes - reveals how the smartphone becomes a mediating force that not only records environmental relations but also participates in producing them.

Embodied Representational Cellphilm

On one occasion I decided to cellfilm birds that were eating the sunflower seeds from a potted plant in the garden. When I approached with the smartphone, the birds would fly off. When I headed back into the house they came back. I decided to leave the smartphone camera on and set the smartphone at the bottom of the plant looking up to capture their feeding process. I tried this on three different days, and they refused to come back near the plant because, I presume they noticed the camera (or its lens) at the bottom of the plant. Maybe the camera was generating a sound that they heard, or maybe the optical lens made them think a predator was awaiting their arrival. On the last try, I disregarded consent and covered the smartphone with dry leaves. The birds came and fed on the seeds. This is an example of a pre-meditated and 'brainstormed' cellfilm. My interaction with MTHs was not through the embodiment generated by the intermediary of the smartphone but from a distance as a detached manipulative observer that tricked the birds to be filmed.

The ensuing cellfilm "BIRDS FEEDING ON SUNFLOWER" focused on the birds feeding on sunflowers. This cellfilming experience also highlighted plant-animal interactions and the fears MTH entities have of human intervention in their daily routines. It is true that the sunflower provides food for the birds, while the birds potentially aid in seed dispersal, demonstrating a reciprocal relationship. The sunflower's growth and seed production showcased plant agency in attracting pollinators and seed dispersers. This cellfilm captured the immediate, embodied

experience of birds feeding, focusing on movement and interaction but highlighting representation. Observing the birds after the filming evoked feelings of joy, connection with Nature, and concern about environmental changes affecting bird populations. The cellphilm also explored the birds' belonging within the garden ecosystem and their relationship with cultivated plants.

However, my temptation to focus on capturing perfect bird feeding shots detracted from non-representational aspects of the experience. This cellphilm was a representational documentation of an event - bird feeding. As Weber (2020) explains:

...representations become even more important because they mediate transitions between physical and digital realities. The representations provide information about another system. The usefulness of the representations depends on the quality of the information they provide about the other system. (p. 3)

Representational cellphilm was insufficient as a means to engage in an embodied and emotional manner. I understood that my cellphilm experience needed embodiment and engagement with the MTH. It required a non-representational interaction, in the posthumanist sense of agential realism (Barad, 2007). Thus, as Weber (2020) states, what has to be included is an ontology (what exists in the world), an epistemology (how knowledge arises and manifests in the world), and an axiology (ethical issues that the World entails) in order to properly understand the phenomena (p. 3). This ethico-onto-epistemological approach considers MTH ethics beyond anthropocentric notions of free will and deliberate choice. Thus, this bird feeding cellphilm captures the immediate, experience of birds feeding, through a connection with Nature, potentially provoking an ecopedagogic concern about environmental changes affecting bird populations, bird extinction and ecocide in general.

Again, just like with the olive tree cellphilm analysis, the MTHs agency of the birds is deemed anthropomorphised upon first reading. However, referencing Tsing's *multispecies ethnography*, opportunistic entanglements - birds drawn to seeds, fleetingly deterred by human approach, then lured by camouflaged deception - reveal kinship as precarious, non-reciprocal survival collaborations amid habitat precarity, rather than harmonious mutuality. The birds' co-constructed agency in the cellphilm moment manifests in their wary returns and abrupt departures, directing the scene's rhythm through avian risk-assessment and seed-prioritization, which I accommodate

rather than dominate; this asymmetrical choreography produces the cellphilm as a record of interrupted foraging, not imposed narrative. Post-cellphilm joy and environmental concern register as human affective aftershocks from this encounter. They are ethically distinct from any bird "sensibilities" - which might encompass territorial vigilance, efferent sounds, or caloric calculus - thus avoiding anthropomorphic projection. This honors MTH perspectives as inscrutably pragmatic, folded into the artifact's polyphonic tensions without presuming shared emotion. This angle underscores cellphilm's power to document kinship's lumpy, lopsided textures, training ecopedagogical viewers in the art of partial companionship over romantic convergence.

The previous examples of cellphilm engaged with MTH entities through representational and non-representational cellphilm show that the use of smartphones in outdoor education can challenge ecopedagogy. For example, the concept of 'absent presence' highlights how constant connectivity can split attention between the immediate physical environment and virtual interactions (Coppola et al., 2021; Hills & Thomas, 2020). An individual, while physically present in a given environment, is mentally or attentively engaged elsewhere, often due to digital connectivity. This can impact social interactions, relationships, and even the quality of consciousness experienced in the present moment.

While cellphilm can create opportunities for enriched learning experiences, it may also reduce sensory perception of Nature and attentiveness to peers, potentially undermining the embodied aspects of cognition. Ecopedagogy praxis requires a careful approach to understanding the process of cellphilm as it pertains to embodied relationships with MTH entities. In the long run teaching learners must carefully take into consideration designed activities that balance the benefits of cellphilm integration with the need for immersive engagement in Nature for the purposes of a successful ecopedagogy.

EMBODIED ENVIRONMENTAL AWARENESS

Olsen (2024) explains that media arts, including video, shape our sensory perception and societal consciousness of Earth and that through them, we aesthetically empathize with abstract information. As such, the act of filming involves embodied empathy, translating our experiences into a format that can be shared and understood by others.

I cellphilm the painting of a patio floor with toxic varnish. I later noticed a Gecko escaping the area which I promptly also cellphilm. The “GECKO ESCAPING FLOOR VARNISHING” a two shot cellphilm prompts reflection on the unintended consequences of human activities (varnishing a patio floor) on wildlife (gecko and insects) as related to my interaction and actions. The gecko's escape behaviour demonstrates problem-solving skills and adaptability as the vapours consume the patio area. The gecko's action to avoid the varnish fumes, shows its capacity for self-preservation and decision-making. This cellphilm captured the immediate, embodied experience of the gecko's movement and reaction to environmental changes. The gecko's escape evokes a mix of concern for its well-being and fascination with its adaptive behaviour. The cellphilm reveals the gecko's integrated belonging within human-altered environments and its ability to navigate changes as the patio is painted once a year to keep humidity out. The focus on the specific event of escaping the fumes overshadowed more subtle, ongoing aspects of the gecko's existence in the space and heightened awareness of the gecko's environment and the need for insects to feed on. The varnishing killed off most of the insects living in the patio. Upon cellphilm reflection, I now understand the challenges the gecko faces in its search for food, fostering empathy and a sense of shared space. For young learners observing the gecko's (or any reptile's) movements can also help alleviate herpetophobia (fear of reptiles) by showcasing the MTH's vulnerability, lifecycle, and livelihood. Thus, learners can use smartphones to bridge distances, share perspectives, and build meaningful relationships in an increasingly interconnected H-MTH-N World.

In “WATER FROM RAIN CISTERN FEEDS CITRUS TREES” the cellphilm exemplifies NRT's focus on embodied knowledge and immediate sensory engagement. The act of watering citrus trees with collected rainwater captures a moment of human-Nature interaction that goes beyond mere representation. My father, an architect having grown up in Palestine, understood the problems with a dry climate and unpredictable rain. When he built the family house, he constructed a cistern under the outer deck that holds much of the rainwater that falls on the roofs, thus storing it for garden use in the dry season. This allowed him to have the lushest garden in the neighbourhood without dishing out funds for the expensive recycled water that the town provides. The cellphilm process showcases the sound and sight of water flowing, the texture of the grove's soil, and the scented citrus trees creating a multi-sensory experience. The cellphilm evoked a sense of care for the environment and a connection to Nature and MTH (non)life cycles. Ecopedagogical tenets

enhanced my understanding of water conservation and sustainable irrigation practices that are demonstrated through action rather than explanation.

Miller (2024) emphasizes the importance of bodily attunement to place and space in cultivating 'belongingness'. Miller advocates for the integration of ecological knowledge and somatic practices into community planning and development, to create environments that nurture mental health and a sense of belonging. She proposes that anxiety and isolation, can be alleviated through intentional, multisensory engagements with our environments. We can experience healing and a deeper connection to our communities by aligning our bodies with the rhythms and textures of the natural and built surroundings (Miller, 2024). The ecopedagogical principle highlighting my family's sustainable water use practices allowed for an embodied interconnectedness of human-MTH actions, of being in a common place, a land-based connectivity, by sharing a space within a multifaceted Nature-human-MTH ecosystem.

AUTOETHNOGRAPHIC EXPLORATIONS OF EMBODIED CELLPHILMING

Jandrić and Ford (2022) propose that postdigital theory examines how digital technologies are embedded in everyday life and no longer perceived as novel but as integral to human experience. They reject binaries like digital/analog or human/machine, instead focusing on the interplay between digital tools and embodied practices. Cellphilming can exemplify this by integrating smartphone's digital tools into some creative processes that are deeply human such as storytelling, performance, memory making, and cultural expression.

Reed (2022) highlights the importance of this perspective, stating that, "The role of postdigital assemblages in OEE offers a platform from where the complex relationships between young people, networked spaces and architectures and direct educational engagement with nature may be addressed" (p. 422). Educators can thus foster critical engagement with interconnected issues such as: The non-chronological present and its environmental challenges; The complex relationships between young people, networked spaces, and direct educational engagement with nature; The impacts of bio-informational forces on education and society (Jandrić & Ford, 2022a). This framework encourages experimentation and reimagining of education in the context of postdigital and bio-informational forces. It presents living, breathing, expanding, narrowing, fluid, and spatial

conditions and questions pushing the boundaries of Northern/Western ‘traditional’ educational models.

Cellphilm becomes a place of digital knowledge transfer, allowing for the reflexive exploration of learning experiences by both researchers and participants. This immediacy can lead to more authentic representations of human-Nature relationships as a performative act (Dirksmeier & Helbrecht, 2008; Fels, 2012; Spry, 2022). I was able to uncover through the performative act of cellphilm the nuanced aspects of my interactions with MTH entities that might otherwise have gone unnoticed. However, as I was cellphilm in a post-fire forest setting, I recorded interactions such as wind moving through trees and root systems extending into soil, attempting to document MTH elements. The camera frame limited capture by excluding broader ecological dynamics and nonhuman agencies, resulting in mediated representations that reduced their complexity. This process enabled partial recognition of MTH vitality through immediate performative recording, but technological and creative constraints restricted fuller self-reflexivity in exploring human-MTH-Nature relations. In addition, the use of recent advanced smartphones restricts the capture of complex ecological interactions, as the camera frame and device capabilities filter and simplify the phenomena recorded.

Nevertheless, the heightened engagement resulted in more nuanced understandings of ecological relationships. For example, cellphilm as a performative act revealed unconscious biases and assumptions about Nature and my relationship with MTH entities, prompting critical self-reflection. The cellphilm “BACK YARD GARDEN AUTUMN VISIT” showcased various plants in autumn in my hometown of Stanstead, Quebec. This cellphilm captured the embodied experience of walking through a garden. It stages the fall season in a private garden, transforming a routine activity into an exploration of my human-MTH-plant relationships. Cellphilm plant growth and invasive species demonstrated a reflexive practice, critically examining human impacts on local ecosystems. Seasonal changes in plants can evoke in the human complex emotions related to cycles of life and change, yet who is to say what and how the seasons affect the plants - Do they fear death, cold, pain, getting old, dehydrated or weak? These anthropomorphic projections may not be effective in creating a sense of belonging but helped me understand the possibility of MTH perspectives.

Cellphilmaking becomes a site where cognition and affect intertwine in recognizing the MTH. Cognition arises through reflexive awareness during filming and re-watching, as the apparatus itself - the smartphone, framing, and movement - shapes how ecological vitality is perceived and understood. Affect unfolds in the immediacy of embodied experience: the wind, light, and textures that prompt a felt attunement to MTH agencies. Together, these modes of knowing reveal how recognition occurs through both interpretation and resonance. The camera does not merely record but participates in co-creating the encounter, rendering the human and MTH as co-performers. Although the frame restricts perception and simplifies ecological complexity, this partiality exposes the limits of human-centered knowledge and invites more ethical and humble relations with the MTH worlds.

Above, I have described how recent scholarship has emphasized the importance of considering MTH entities' positionalities in research. Barad's (2003) new materialist approach interprets all matter as relational and having the capacity to affect. This provides a different approach to performativity which Barad calls an 'agential realist ontology' (p. 811). This interpretation extends beyond the formation of subjects to encompass the production of bodily matter itself. Barad (2003) stresses the necessity of grasping this production process, stating:

If performativity is linked not only to the formation of the subject but also to the production of the matter of bodies, as Butler's account of "materialization" and Haraway's notion of "materialized refiguration" suggest, then it is all the more important that we understand the nature of this production. (Barad, 2003, p. 808)

Barad's framework posits that matter is not passive or inert, but rather an active participant in the ongoing reconfiguration of the 'world'.

I enjoyed the scent of autumn asters, the sight of red falling leaves and some late-blooming anemones, or the taste of ripening fruit such as Lobo apples and Concorde grapes. These smells captured while cellphilmaking created a strong sensory memory and connection to the changing seasons. The fall was omnipresent in all my senses. The integration of positionality in autoethnographic research-creation allows for a more nuanced understanding of the research context and the researcher's role within it. Kimathi (2023) proposes a hybrid positioning that includes the insider (human) and outsider (MTH) position:

Previous literature on positionality has largely focused on the dichotomy of insider/outsider perspectives (Merriam et al., 2001; Ochieng, 2010; Carling et al., 2014; Zhao, 2016; Tewolde, 2021; Adeagbo, 2021). This lens to understanding positionality has been criticised for being methodologically simplistic and philosophically essentialist, as well as carrying the risk of othering, as researchers tend to objectify the researched groups (Carling et al., 2014; Ryan, 2015; Nowicka & Ryan, 2015). (p. 254)

Kimathi (2023) argues that she had to reflect on her own experiences “rather than seeking to fit myself into the insider-outsider dichotomy” (p. 255). While cellphilm, as the vivid sensory impressions of autumn deepened my connection to the changing environment, I embraced a hybrid positionality in autoethnographic research - one that moves beyond simplistic insider/outsider binaries – which enabled me to develop a richer, more embodied and reflexive understanding of my interactions with MTH entities.

The “PREPARING FOR SAGO PALM SEED PLANTING” cellphilm depicted a reflexive and embodied exploration of the planting process that challenged conventional notions of representation and agency and thus delved into the complex interplay between researcher, subject, and environment.^{clxix} The cellphilm focused on the tactile experience of manipulating soil and seeds. The cellphilm captured the embodied nature of the planting process, highlighting the intra-actions between human and MTH entities. Flipping the camera to record an upside-down image challenged conventional modes of representation. This upside-down perspective invited viewers to reconsider their relationship to the grounded ‘Earth’ and the act of planting, potentially evoking a sense of disorientation of sky and Earth perspectives. The tactile experience of working with soil evoked feelings of nurturing and belonging. The cellphilm explored the lifecycle of plants and raised questions about human intervention in plant reproduction and distribution. This cellphilm not only challenged traditional representations of agency and environment but also exemplified the postdigital entanglement of human and technological assemblages. This reflexive approach highlighted how digital tools like cellphilm can deepen our understanding of intra-actions between humans and MTH entities, fostering new educational possibilities that embrace fluid, non-binary relationships between Nature, technology, and learning.

The cellphilm “HOOPER, THE DOG FETCHES BALL UPON REQUEST” raises questions about the nature of human-companion animal relationships, empathy and the ethics of training. The dog's ability to understand and respond to commands demonstrates cognitive capabilities and emotional

bonding with humans. This aligns with Haraway's idea of companion species that shows how people and animals, like dogs, grow and change together through close, caring relationships (2003). These connections mix the lines between humans and animals, focusing on how they affect each other, share their stories, and take care of each other as they live and change side by side. Hooper could even understand the ball throwing trajectory that I proposed as I teased him. Simonen (2023) describes the event from a pragmatic perspective:

The dog owner waited for her dog to move to a suitable place before throwing the ball. During that time, she delivered three utterances to the dogs. The utterances were considered a summons to the recipient dog. The embodied response by the dogs was understood as actions that receive their meaning from multimodal contextual configurations where the embedded object (i.e., the ball) relates to their preparation work. (p. 81)

The game of fetch illustrates a form of mutual engagement and communication between human and dog. I was noticing that the manner that I communicated with Hooper was through ordering him to fetch and retrieve. But it is Hooper who brought the ball to me to throw it back out. He senses me arriving when I visit my neighbours - his caretakers – and immediately fetches the ball to play with me when I walk into the yard. I purposefully insisted on giving orders to Hooper in this cellphilm to show how humans often have objectifying relationships with pets. Cellphilm one's pet can thus demonstrate this relationship and revealed the owner:pet power dynamics. Living with pets in this urbanized 'World' reveals emotional attachment, power dynamics, MTH affection, anxiety and loneliness for both parties involved (Kretzler et al., 2022; Lass-Hennemann et al., 2022).

In addition, the ball that is thrown about in our playing together is itself a MTH mediator and actant for our human-MTH relationship. The ball is the object that connects us together. As Serres (1995) puts it:

The only assignable difference between animal societies and our own resides...in the emergence of objects. Our relationships, social bonds, would be as airy as clouds were there only contracts between subjects. In fact, the object, specific to the Hominidae, stabilizes our relationships. (p. 87)

The MTH ball, as an (in)active participating mediator in the pet-owner relationship, exemplifies Serres' emphasis on objects as stabilizers of social bonds. It becomes a fundamental mediator, embodying his idea that objects create and maintain the structure of our relationships. *Biogea*, a concept of interconnectedness of all life forms offered by Serres and Burks (2015), further explains the emotional bonds formed between species. They propose the notion of mutual parasitism which underlies the complex power dynamics at play, allowing for a deeper understanding of interspecies affection. In the urban context, both humans and pets which Serres might view as “soft pollution”, seek companionship to combat loneliness (Serres & Feenberg-Dibon, 2011).^{clxx} Serres' philosophy provides a framework for understanding the multifaceted nature of human-pet interactions in urban environments, highlighting the importance of objects, interconnectedness, and the blurring of boundaries between species. This cellphilm reflects on the relationship between the cellphilm maker, the ball, the pet, and the smartphone as integrated entities. This is also one of the rare cellphilm in my research-creation with my voice being heard.

I came back to Quebec from Spain in early fall 2024 and noticed caterpillars had eaten all the leaves on my wild plum tree. I was preparing this tree for pruning the next spring. The ensuing ‘sequel’ cellphilm “CATERPILLAR DAMAGED PLUM TREE” prompts consideration of the balance between pest control and ecological preservation. When I viewed the cellphilm in my after-shoot screening I realised my emotional disappointment with the caterpillars consuming all the leaves of a wild plum tree which I have been grooming over the last 4 years. This evoked conflicting emotions about natural processes and human intervention. The caterpillars' feeding behaviour demonstrates their instinctual drive, agency, and role in the ecosystem. The tent caterpillars, *Malacosoma americanum* or lappet moths are univoltine, meaning they reproduce one generation per year and are native to North America:

Populations fluctuate from year to year, with outbreaks occurring every several years. Defoliation of trees, building of unsightly silken nests in trees, and wandering caterpillars crawling over plants, walkways, and roads cause this insect to be a pest in the late spring and early summer. Eastern tent caterpillar nests are commonly found on wild cherry, apple, and crabapple, but may be found on hawthorn, maple, cherry, peach, pear and plum as well. (Bessin, 2019)

The caterpillars' impact on the tiny young plum tree also shows their collective ability to shape their environment. I posted in my diary ‘Live and let live’ upon reflection after reviewing the

cellphilm. My reflection on the balance between pest control, insect lifecycles and ecological preservation also illustrated the vital materiality of insects in shaping plant life. And it showcased Nature's ability to recover and thrive despite adversity, offering lessons in perseverance and the cyclical nature of ecosystems. Furthermore, the tree's response to damage demonstrates its agency in healing and adapting to environmental challenges. Ecopedagogy learners using technological mediation can thus observe the damage and reflect on human-plant-insect relationships and plant resilience.

Educational practices might intentionally design activities that foreground these kinds of new sensorial routes of knowing. Technological mediation reorganizes sensory engagement with MTH entities, then articulates such connections which would move the discussion from abstract philosophical principles to concrete strategies for cultivating ecological literacy through embodied and technological means.

Ecopedagogical examples that align with this framing include place-based, sensorily focused fieldwork in which learners use mobile devices to document human-MTH relations through cellphilms, sound walks, or geo-tagged photos, followed by reflective dialogue on how the technologies refract what can be sensed and known. Classroom projects might also connect learners with local environmental organizations to co-create digital stories or participatory media that address situated ecological issues, making explicit how particular technological interfaces privilege certain bodily engagements (e.g., touchscreens, haptics, VR immersion) while obscuring others. Embodied cellphilming extends these by having learners produce tactile interactions with soil microbes or wind-swept trees to capture affective co-becoming - fostering emotional connections through DIY techno-crafting that recenters MTH agency in school landscapes. For instance, young learners might cellfilm intra-actions with nonhuman actors like hallways, lockers, or natural elements as co-protagonists in ecological narratives, disrupting anthropocentric views via posthuman performativity and post-production discussions on mediated embodiment. Such practices operationalize ecopedagogy's emphasis on critical, action-oriented engagement with environmental injustices by coupling embodied experience, technological mediation, and collective reflection, thereby cultivating ecopedagogical literacy as a situated, sensorial, and MTH practice rather than a purely cognitive acquisition of facts

In these last few cellphilms I was able to leverage autoethnographic impressions to extend the reach and influence of my ecopedagogical work by developing more nuanced, embodied, engaging, sensual, emotional and impactful feelings, experiences and understandings to bridge the gap between human and MTH entities. Educators can foster critical engagement with complex environmental challenges. This can include addressing the relationships between young learners and digital spaces and Nature and teaching about the influence of bio-informational forces on education and society. My approach encourages reimagining education as fluid, dynamic, and interconnected, pushing beyond traditional models.

AFFECT, MOVEMENT AND SENSING

The cellphilms “SOLAR ECLIPSE NDG MONTREAL” exemplified processual space-time by capturing the gradual darkening and subsequent brightening of the sky during the solar eclipse of April 2024. The changing exposure of the camera reflects the dynamic nature of the environment, aligning with McCormack's (2013) concept of ‘worlds in composition’ through a multiplicity of processual resonant space-times. Adjustments to light, focus, and shutter speed mirror his concept of atmospheres emerging through rhythmic interactions between bodies, tools, and environments. These technical choices aren’t neutral - they actively mediate affective transmissions, bridging immediate surroundings and distant viewers. McCormack explains that the creation of ‘atmosphere’ is a “concept with an affective resonance that precedes any attempt to theorize it as a space-time” (p. 6). He adds: “the relation between efforts to employ moving bodies and their rhythmic movement and the production of affective atmospheres” (p. 7) puts the onus on affect which sustains and transmits across and between entities at a distance. My thrilled cellphilmed reaction to the eclipse demonstrates an affective encounter, illustrating Thrift's understanding of affect as a political force shaping perceptions of space and time. It also reveals a rich tapestry of sensory experiences, emotional engagements, and critical reflections.

Consequently, my cellfilming experience does not ground some existential truth but is a result of multiplicity of agents that act upon it.^{clxxi} McCormack (2013) explains that his,

...critique affirms experience by opening it up to all those elements that are in excess of a phenomenology of presence: that is, it seeks to make explicit the non - , or more-

than-human, participants in the processuality of experience as it comes to matter. (p. 22)

Being and sensing while cellphilm is not only comprised of the experience of the filmmaker but involves MTH entities as actants engaging with the cellphilm learner.

The solar eclipse cellphilm serves as an opening to this exploration, demonstrating how a cosmic event can unite humans and MTH entities in a shared 'experience' of awe. My decision to allow the camera to operate on automatic settings, because of my inability to change exposure manually in a productive manner during the eclipse, highlights the agency of technology in capturing the event - blurring the lines between human intention and technological autonomy.

Another cellphilm explored another intimate encounter with wildlife. "DEER WALKING THROUGH TOWN, ASHLAND, OREGON" illustrated the potential for cellphilm to facilitate moments of interspecies communication and mutual recognition. My reflection in the diary on the "back and forth stares" with the grazing deer family illustrated how the act of cellphilm can create a space for reciprocal acknowledgment between humans and MTH entities. The mediated interaction between the deer family, the smartphone and my gaze challenged Northern/Western 'traditional' notions of subject-object relationships in research.

The MTH smartphone led me through the process of capturing the data balancing the dance between me and the object of my gaze. The cellphilm also illustrated Thrift's (2004) understanding of affect as a set of ever-changing processes that human and MTH entities undergo as they experience, encounter, and perform life. These forces or intensities emerge from encounters between entities, impacting their ability to act or be generators of emotions - in my case awe and pleasure, in the deer's case seemingly fear and hesitation (I anthropomorphize).

My cellphilm encounter with a deer family captured my sense of wonder and the ephemeral nature of our mutual pathways, demonstrating how cellphilm can document affective dimensions of human-MTH interactions. This example illustrated the political nature of affect in shaping perceptions of space and time and how cellphilm can challenge existing 'world' views about human-Nature relationships (Thrift, 2004). This urban park was a human area of living and the deer seemed invasive crossing the expectation of property ownership. My emotional response

of awe and curious wonderment to the deer presence highlights the potential for cellphilm to generate new ‘affective’ interfaces that wrap around my emotional and political concerns. The role of emotions in ecopedagogical approaches to environmental appreciation aligns with this experience of direct sensuous reality.

The cellphilm disrupted anthropocentric perspectives by making visible moments of interspecies encounter and mutual recognition, and invited MTH agency and subjectivity in the process. This aligns with participatory and civic engagement, as it creates new ways for entities human or MTH to ‘speak back’ to established structures and to reimagine community, belonging, and justice in urban spaces such as parks. These affective exchanges influence perceptions of space, belonging, and the value of MTHs, potentially shifting public attitudes and policies toward wildlife and urban nature. The cellphilm captures and communicates these affective moments, making them part of a broader political conversation about how humans relate to MTHs.

While the cellphilm “ANTS WORKING IN JAVEA/XÁBIA GARDEN” primarily focuses on ants bringing food to their nest. It also provides insights into human-plant-insect interactions. I observed how this cellphilm can create new ‘affective’ interfaces that engage with the subjects' concerns. The cellphilm showed ant behaviour, focusing on the rhythms and patterns of their movement. My quiet, steady and concentrated holding of the smartphone allowed me to embody the moment which created a feeling of active participation in the social life of ants – I was the giant entity with the movie camera. This non-representational approach aligns with the concept of direct sensuous reality by emphasizing the tangible, sensory aspects of MTH interaction with Nature.

The emotional responses evoked by watching the ants' coordinated efforts can range from fascination and admiration to unease, depending on the viewer's relationship with insects and ants in particular. These affective experiences play a crucial role in ecopedagogical approaches to environmental appreciation, including an understanding of cultural and social perceptions based on Western philosophical traditions. Fables of ant work ethics and anthropomorphic projections on their collaborative ‘work’ habits are prevalent in most cultures. Furthermore, the cellphilm also raised important considerations about agency and reciprocity in ecosystems. Observing the ants' intricate movements among plants evoked a sense of wonder and curiosity about the complex relationships with:in Nature. From human perspective, the plants provide a habitat for the ants,

while the ants contribute to pollination and soil health, demonstrating mutual agencies and reciprocities in the ecosystem. The ants' complex interactions challenged anthropocentric notions of intentionality and decision-making aligning with Actor Network Theory and postphenomenology, which distribute agency across human and MTH entities as actants.

The immediate, sensory experience of observing ants in their natural habitat also exemplified how direct sensuous reality can be understood as an immediate, embodied experience of ant behaviour observation, capturing the rhythms and patterns of their movement. Reflecting on affect, my breath slowed - my whole autonomic system calming as I sat and gave myself over to the rhythms and movements of the ants. Direct sensuous reality refers to the immediate, lived experiences that individuals have through their senses when interacting with the environment. Abram (2017) argues that for most of human history, people were deeply attuned to their surroundings through a rich tapestry of sensory experiences - sight, sound, touch, taste, and smell - allowing them to develop profound connections with Nature. This engagement is not merely passive observation but an active participation in the environment, where every element - be the sound of thunder, a buzzing wasp, filming ants carrying seeds - invites interaction and relationship.

EMBODIED ECOPELAGOGY

Climate change and sustainability education requires a holistic approach that integrates critical pedagogy, sustainable technology use, comprehensive teacher training, and strategies to address eco-anxiety. This includes engaging with transformative skills and competences, such as critical and systemic thinking, creativity, reflexivity and empathy. They enable people to make their own informed judgements and reasonable decisions on how to address (un)sustainability issues. This eventually might lead them to practice more caring attitudes toward their environment and ultimately to the adoption of more sustainable lifestyles (Bongoza, 2018; Corcoran et al., 2017; Krasny, 2020; Misiaszek, 2020b).

The development of critical consciousness is necessary for understanding the mechanisms of climate crisis and identifying areas for action in educational systems. Critically informed EoE and ESD approaches must also be accessible and included in extracurricular approaches like informal learning and youth led activism.^{clxxii} ESD thereby aims to establish a feeling of global social

responsibility towards those issues and an awareness of how actions of today affect future generations (Bourn et al., 2024; Misiaszek, 2018; Van Poeck & Vandenabeele, 2014).

The cellphilms “FESTIVITIES FOR FUOCO WEEKEND JAVEA/XÁBIA” focuses on the sounds of partiers and firecrackers in a small park in the old towns center, and “FUOCO FIRE DANCE JAVEA/XÁBIA/XÁBIA” captured the movement, light, and heat of the fuoco festivities fire dance, focusing on the immediate, sensory experience.^{clxxiii} This festive night features many firecrackers for hours, bonfires throughout the town's historical center, with people jumping over fires while wearing flower crowns and a large bonfire at the end of the night.^{clxxiv} The purpose is to celebrate the arrival of summer by burning old furniture and junk which symbolizes letting go of the old to make way for the new. Participants at the end of the night danced around the fire as they were cooled off by firemen and onlookers spraying them with water. These events were not very sustainable as a practice, and the smoke and noise pollution were exceptionally intolerable.

The spectacular nature of the fire dance made it difficult to capture non-representationally. The cellphilming used more traditional documentary visual techniques. I tried to capture the atmosphere of the festival, my senses were animated focusing on movement, light, sound, and the fire as it raged rather than on a narrative representation. The discomfort with the smoke and crowds was evident. The fire was lit in a poor district of the community. Immigrant women looking out at the festivities from their balconies were forced to close their windows and doors as the smoke rose through the streets into their apartments. The religious aspect of the cultural event created a sense of community for the dominant Christian participants but kept other cultures living in town out of the events by not making significant gesture towards inclusion.

The fire dance and burning of the furniture shown in the cellphilms evoked a range of emotions, from awe and excitement to disgust and sadness. The potential concerns for safety and the negative environmental impact were prominent. The cultural event may foster a sense of community and belonging for some participants but raises questions about cultural preservation and environmental responsibility. In addition, my personal distancing highlighted feelings of exclusion as a tourist. My outsider perspective limited my exploration of deeper notions of belonging while cellphilming - in fact it diminished my feelings of belonging. The reflections upon viewing of the films the next

day were very affective and emotional. A ‘negative’ belonging was accentuated in the reviewing of the cellphilms. Here affect was not inducing a sense or emotion of inclusive kinship.

These local festivities might not immediately appear relevant to ecopedagogy, but these cellphilms provided opportunities to explore the environmental impact of cultural events and tourism. The role of fire in ecosystems and human cultures was brought to the fore highlighting the intersection of tradition, community, and environmental consciousness. The tension between cultural tradition and environmental concerns may complicate notions of belonging. These cellphilms sparked reflexive and critical discussions with friends, colleagues and family weeks later about balancing cultural practices and academic relevance with environmental concerns. This brought on the potential for reimagining traditions in more sustainable and less polluting ways. This cellphilms also revealed the paradox of belonging as a common distinguishing theme between cultural events and my cellphilming practice.

While seemingly focused on human leisure activities, the cellphilm “LOCAL AIRPORT BBQ MEET FOR SMALL PLANES” also offered several ecopedagogical challenges. The cellphilm shows the landing and taking off of airplanes at a gathering for small airplane enthusiasts. Located near a US-Canada border town, the grass landing Stanstead Airport is located on a large bio-beef farm. This was the yearly BBQ event for the local bio-beefalo farm. The cellphilming captured the atmosphere of the event happening off-screen, focusing on movement, sound, and the interplay between humans and flying machines. The event evoked an assortment of emotions, from excitement about aviation to potential concerns about the environmental impact of the event. The cellphilm depicted this community event, potentially fostering a sense of belonging among aviation enthusiasts. The cellphilms focus on airplanes landing and taking off made it difficult to explore the non-representational aspects. The niche nature of the event and the distance that needed to be kept from the airplanes landing on the strip limited close cellphilming. Thus, diminishing broader notions of rapprochement and belonging to the festive community and their interactions. The cellphilm however highlighted the environmental impact of recreational aviation. It led to reflections that exhibited an ethical contrast between local food production (bio-beefalo) and high-emission tourism activities. The complex relationships between community events, economic activities, and environmental concerns were defining factors emerging from this cellphilm.

This cellphilm led me to critically contemplate the contradictions in our societal approach to (un)sustainability and the challenges of balancing social, economic, and environmental factors. On the one hand the beef farm is fully bio with no chemicals and pesticides in use, promoting sustainable practices, on the other the superficial and unsustainable use of airplanes for pleasure revealed a wasted use of energy and excessive pollution. This embodied cellphilm experience allowed me to directly observe and document the contradictions. I was able to uncover valuable insights into the complex relationships between human activities, cultural practices, and environmental concerns showing the interconnectedness of all aspects of human lives with MTH entities, even in unexpected places.

The cellphilm in this section enabled me to physically engage with my environments, capturing and analyzing situated sustainability practices. I was able to recognize the interconnectedness of human activities and the impact on MTH entities, even in unanticipated contexts. The manner that I filmed showed me the possibilities of a constructive emotional and affective engagement with MTH entities. I realized by cellphilm from a distance the fuoco and airplanes belonging was not generated. It was better to cellphilm in proximity (i.e. caterpillar tracking, millennial olive tree) with minimal intervention and movement, encouraging intimate yet distanced interaction with the MTH rather than an objectifying gaze.

INDIGENOUS EMBODIMENT AND KINSHIP

Recent academic EoE discourse asks that Western researchers engage respectfully with the multitude of Indigenous ways of knowing, being and doing (Anderson et al., 2017; Garcia-Arias et al., 2023; Lowan-Trudeau, 2020). This allows for community based, MTH inclusive and engaged reciprocity. It endorses a peaceful co-habitation and mutual respect. The use of autoethnographic cellphilm offers a medium for community representation, local research methodologies and critical reflection; however, it also demands careful consideration of power dynamics, ethical implications, and the potential for perpetuating colonial perspectives (Van Borek & Abrams, 2023). Research practices can become more equitable and meaningful, respecting and empowering Indigenous communities and their knowledge systems by incorporating Indigenous methodologies and relationality (Denzin et al., 2008; Smith, 1999). Autoethnographic cellphilm performed in this research-creation integrated and utilized MTH entities within a decolonized framework with

difficulty. In ecopedagogic cellphilm, engaging respectfully with some Indigenous systems of knowledge and practices (Mi'kmaq, Cree, Ojibwe) means co-creating cellfilms with communities rather than about them, centering Indigenous voices, and ensuring the process is guided by local protocols and priorities. This did not occur easily in this research-creation given that I was cellphilm MTH entities and far from Indigenous communities near my research area. The term 'some' in the context of Indigenous systems of knowledge refers to specific epistemologies that align with relational, community-centered, and decolonized research practices, determined through protocols emphasizing reciprocity, local guidance, and cultural accountability rather than universal application across all Indigenous groups.

The following cellfilms borrowed and integrate some Indigenous ontologies and perspectives stressing on non-(neo)coloniality and resistance to extractivism. I actively avoid re-colonizing through Western academic environmental education research by considering the variety of cultures and varying relationships to Nature. As Barnhardt and Kawagley (2005) argue:

Research initiatives should engage scholars incorporating multiple research traditions and theories associated with cultural and contextual influences on learning, teaching and cognition. (Barnhardt & Oscar Kawagley, 2005, p. 17)

Including a variety of decolonizing approaches transformed my cellphilm experience fostering critical consciousness and promoting social and environmental justice. My analysis of the cellfilms through the selected Indigenous methodologies is about a pluralist, intersectional, cross-cultural and cross-disciplinary perspective on our shared engagement with MTH entities and our common Earth.

The cellfilm "CROSSING THE ATLANTIC FROM MONTREAL TO BARCELONA" is an example of global citizenship gone wrong. The cellfilm captured the interconnectedness of 'our world' through international travel – proven to be very unsustainable. This four-shot edit, lasting 2:30 minutes, showcases the beginning of a long journey from Montreal to Barcelona, highlighting the ease with which we can traverse vast distances and connect different cultures in the modern era, allowing people to experience diverse cultures and fostering a sense of shared humanity. The cellfilm also exemplified the complexities of decolonial embodiment. Decolonial embodiment is a critical awareness of how bodies move through and are situated within global systems shaped by

colonial histories, power asymmetries, and ongoing forms of dispossession. While highlighting global connectivity and supporting the idea of Global citizenship by demonstrating how air travel has made the ‘World’ more accessible, reviewing the cellphilm invited reflection on global connectivity and its environmental costs. The city lights viewed from above in the night as we departed from Montreal emphasised the extensive urban development and energy consumption that characterize ‘our modern world’ as it spreads like an infection over *Anowara:kowa*, the Great Turtle. This juxtaposition of natural and artificial beauty also raised questions about the environmental cost of our global connectivity. From an ecopedagogical perspective, this cellphilm encapsulated the tension between the interconnectedness of our ‘world’ and the ecological impact of air travel.

My mind wandered as I looked out the window over the lit cityscape by night. Magnificent comes to mind regarding the views from this transatlantic flight. Crossing the Atlantic started centuries ago, first taken by early Indigenous settlers, then Vikings hunting whales in the St. Lawrence basin, and then the French and English colonizers. This was followed by the Titanic and its sister ships, German U-boats during the war, cod fishing trawlers from Spain and Portugal, and more recently airplanes, freight ships and nuclear submarines. This underscored the historical context of this journey and emphasized how far we've come in terms of global connectivity. Yet, the very act of flying contributed significantly to carbon emissions and climate change, thereby challenging the notion of responsible global citizenship. The cellphilm's portrayal of transatlantic flight, while showcasing global connectivity, also raised important questions about the ecological costs of such journeys (Danish Ali & Abbas, 2024; Roberts et al., 2023; Whitmarsh et al., 2020). This journey can therefore be understood as a continuation of historical patterns of colonizing and exploitation across the Atlantic.

The concept of responsible global citizenship is particularly complex when viewed through an Indigenous lens. The variety of tensions exemplifies the challenges of reconciling traditional Indigenous values of environmental stewardship with modern global connectivity. Most modern travel practices diverge from traditional ways of understanding embodied, local, grounded human relationships with the land and MTH entities. Kopnina and Cherniak (2016) state: “If the result of attaining social justice is only a short-term gain at the long-term expense of the MTH, this is in itself not a sustainable process for maintaining either social or environmental equity” (p. 833).

Ecopedagogy allows for a counterpoint through critical reflection on the environmental costs of global connectivity. It encourages learners to explore alternative, more sustainable ways of living by incorporating MTH inclusion and sustainable practices.^{clxxv} Ultimately, this kind of cellphilm invites learners to grapple with the complexities of decolonial embodiment in a globalized ‘world’, challenging us to consider how we can foster global connections while also respecting Indigenous values and environmental sustainability.

Similarly, the cellphilm “STANHENGE”, depicted a human-created stone circle structure, echoing ancient monuments. It can be interpreted as an example of human intervention in the landscape, highlighting tensions between cultural practices and environmental concerns. One can argue that a place-based education in relation to the stone structure can foster a deeper embodied connection to the environment and promote a sense of responsibility for its well-being. Indigenous perspectives on land stewardship offer valuable insights for reimagining our relationship with Nature within the ‘Stanhenge’ structure.

Importing a Celtic cultural icon like Stonehenge and erecting a copy of sorts continues the cultural colonization and land exploitation of Abenaki Nation countryside. ‘Stanhenge’ was erected in my hometown of Stanstead which is located in the Eastern townships. The Eastern Townships of Quebec is Abenaki Nation Land. The intent of the builders was to create a space for human relationships within the flood zone landscape where the stones were erected. The area was to include a pedagogic garden with local, wild, and indigenous plants for school fieldtrip visits.^{clxxvi} Critical reflection examined the tension between human cultural practices, neo-liberal municipal financing, and environmental concerns. Within this neoliberal framework, public projects often rely on market-driven logics that privilege profitability and economic optimization over ecological and communal well-being. Such financing models transform environmental education initiatives into commodified experiences, aligning them with development agendas rather than relational or restorative ecological values. The potential for human-made structures to serve environmental educational purposes was problematic. On the one hand it promoted EoE and on the other hand it destroyed land through development, removed granite from the pit and was built on Abenaki land - continuing acts of colonization, exploitation and extraction. The cellphilm fails to fully create an emotional embodied connection but stimulates a critical reflection on the ethics behind the construction of such a site.

Incorporating Indigenous theory in my research-creation informed my cellphilms with embodied, land-based, and inclusive considerations. I tried to develop an enlarged understanding of how knowledge is co-produced, experienced, and storied. Guttorm et al. (2021) add that “Indigenous ontologies have changed our ways of seeing and understanding the world and life itself, thus also our academic lives and ways of writing” (pp. 117–118). For example, Amanda Monehu Yates (2021) explores Indigenous-Māori ontologies that emphasize *whanaungatanga* (kinship/relationality) and *mauritanga* (vitality and well-being of life as a collective). This framework dissolves the human/non-human binary by recognizing geological, atmospheric, hydrological, and biological entities as kin with agency and vitality (Yates, 2021). In Myanmar, the Karen people’s ontologies acknowledge spirits and nonhuman beings, such as tigers, as active agents in forest conservation. This perspective on Nature challenges Western dualisms and promotes local, grounded, socially equitable environmental governance. Indigenous knowledges more broadly treat the land and nonhuman beings as living entities and knowledge holders, producing knowledge relationally and ethically to sustain collective well-being across generations (Htoo et al., 2023).

The ontological turn in Indigenous studies underscores the importance of ethical intercultural communication and respect for ontological pluralism, reframing MTHs as intimate kin requiring stewardship rather than exploitation.^{clxxvii} Indigenous knowledge practices, grounded in distinct ontologies, offer generative theoretical frameworks that challenge Western epistemologies and open new directions in environmental management, conservation, and scientific knowledge production (Chew, 2024; Hird et al., 2023; Tym, 2024). Collectively, these examples demonstrate how Indigenous ontologies transform MTHs from inert objects into relational, agentic beings, profoundly influencing contemporary understandings and practices.

The cellphilms “PUTTING BACK A RETAINING WALL ON TOMIFOBIA IN ROCK ISLAND” captured the process of riverbank reconstruction after a flood, focusing on the movement of materials and the interaction between human labour and natural forces. The reconstruction evoked a range of reactions, from determination in the face of natural challenges to potential concern about human intervention in natural systems. The complex relationship between human infrastructure and natural waterways, raised questions about what belongs in riparian environments. The conflict between human needs and environmental preservation complicated notions of belonging to the

Tomifobia river, a MTH and its co-dependent entities, but also underlined the interplay between belonging to Nature, the town, my neighbourhood, and my neighbours who suffered from the flood that washed the banks.

This cellphilm revealed a complex interplay of land-based relationships, intergenerational trauma, and healing processes. While necessary for flood protection, this riverbank intervention can be seen as disrupting the natural flow and healing processes of the river. Some Indigenous approaches might seek ways to work with natural systems rather than imposing engineered solutions.

The cellphilm “YEARS OF GRANITE EXTRACTION IN OGDEN” captures the scale and process of extraction, focusing on the movement of machinery and the transformation of the landscape. The extraction raises questions about human belonging in relation to geological timescales, and the ethics of resource extraction. The industrial nature of the site made it difficult to capture non-representational aspects of the natural environment, yet the filming experience was deeply embodied by the sheer overwhelming size of the granite pit. The destructive aspects of the sheer scale of extraction complicated positive notions of belonging - mixing the sublime with feelings of revulsion and despair. Counter tops, memorial stones, New York’s twin tower rebuilding and the SunLife insurance building in Montreal were all benefactors of this rupture in the land.

The riverbank reconstruction in Rock Island and granite extraction in Ogden both represent forms of human intervention in natural systems that can be viewed through an Indigenous lens of land-based trauma. Many Indigenous peoples throughout the planet have experienced colonial aggression causing trauma and dispossession.^{clxxviii} Healing requires understanding, reconciliation, reciprocity, restitution, Indigenous education, Indigenous philanthropy, Land Back, and repatriation (Angel et al., 2022; Harwood et al., 2020; Khanolainen et al., 2022; Reed & Diver, 2023). In addition, disruptions to the land are not merely physical alterations but can be experienced as embodied trauma, affecting community well-being and cultural continuity (Blenkinsop & Fettes, 2020; Enns & Sneyd, 2021; Harwood et al., 2020; Todd, 2017). The large-scale transformation of the landscape through resource extraction can be viewed as a form of violence against the land, disrupting ancient geological processes and potentially severing Indigenous connections to place.

Many Indigenous approaches to environmental challenges often focus on healing and revitalization, both of the land and of human-land relationships. Several Indigenous revitalization efforts often emphasize community-led, culturally informed approaches to environmental management and healing from land-based trauma. The transmission of cultural knowledge and practices related to land stewardship is crucial for maintaining Indigenous connections to place across generations and should be adopted by non-Indigenous co-habitats. The self-declared Abenaki population in my hometown of Stanstead, Quebec is twenty-five out of a population of approximately 2,500 residents. Less than one percent of the population is Indigenous. I have only interacted with three Indigenous people in Stanstead in the past twenty years – How can there be inclusive knowledge exchange?

This analysis of the cellfilms, developed through a challenging embodied experience involving my small town's granite extraction, the creation of a colonizing cultural landmark, and riverbed destruction, also underscores the importance of 'friction,' as defined by Tsing (2011): "the awkward, unequal, unstable, and creative qualities of interconnection across difference" (p. 4). She adds: "Post-colonial theory challenges scholars to position our work between the traps of the universal and the culturally specific. Both conceits have been ploys of colonial knowledge, that is, knowledge that legitimates the superiority of the West as defined against its Others" (p. 1). Guttorm et al. (2021) explain that:

Friction opens the different ontologies to become visible, as well as a demand for them to be recognized. Friction draws attention to the formation of new cultural and political configurations that change, rather than repeat, old contests. Verran (2013) highlights that friction can be experienced as an embodied discomfort, and that we should stay with this discomfort as this can expand our ways of knowing the world (and ourselves). (p. 121)

This analytical approach encourages researchers to stay with the discomfort that can arise from these frictions, as this can expand our ways of knowing Nature, MTH entities, our Indigenous kin and ourselves.

In the course of my research for an EoE pedagogy of discomfort informed by several Indigenous knowledge frameworks, I found that learners often experience friction and unsettling emotions - fragile identities, witnessing injustice, and acknowledging preconceived ideas - that can lead to shifts in perspective and calls to action (Capello, 2023; McDowall, 2021; Mills & Creedy, 2019).

These cellphilms are subject to these kinds of friction when they capture the process of reconstruction and extraction, focusing on the movement of materials and the transformation of the landscape. Researchers like Mills and Creedy (2019), Cappello and Kreuger (2022), and others have shown that pedagogy of discomfort within Indigenous frameworks in ecology education fosters critical reflection by engaging learners with unsettling experiences. This approach helps learners confront colonial legacies, develop ethical awareness, and expand their understanding of human–more-than-human relationships, ultimately supporting decolonizing and ecologically responsible learning.

Similarly, the use of cellphilms practices within anti-oppressive education frameworks emphasizes the necessity to carefully manage affective conditions so that discomfort fosters critical empathy instead of defensiveness or superficial engagement. The cellphilming practice needs to be carefully managed by teachers, facilitators and enablers. In EoE, this means creating ethical spaces where certain site specific, land-based Indigenous ontologies are engaged, and histories are recognized. Learners must grapple with the colonial impacts on landscapes and communities, thus fostering deeper ecological and social justice awareness. Cellphilming experiences evoke complex emotions, from awe at human engineering capabilities, colonization of Indigenous lands, to concern over environmental sustainability. These cellphilms also raise questions about human belonging in relation to geological timescales and the ethics of resource extraction. They highlight human-environment interactions, resource use, and the ways in which we shape and are shaped by our surroundings. Through these examples, learners can explore ecopedagogic perspectives on themes of sustainability, technological impact, and our place within larger natural and constructed systems.

This critique highlights the inherent tension in using Western academic methodologies to study and represent non-Western communities and their environmental practices. This is especially evident when the population of Indigenous peoples is so low that contact is difficult as in the case of Abenaki people in Stanstead. This can be very different in communities where the local Indigenous populations are larger. Despite these challenges, the beneficial nature of (de)colonial footprints in autoethnographic cellphilming cannot be overlooked. Cellphilming practices with/by/in Indigenous communities offer unique opportunities for local communities to represent themselves and their relationships with the environment (Burkholder, Aladejebi, & Josh Schwab-Cartas, 2022; LeBel, 2022; Schwab-Cartas, 2018). Cellphilming can challenge Northern/Western

‘traditional’ power structures and give voice to Indigenous and other marginalized communities in environmental discourse. The use of cellphilms as a research method also provides a platform for critical reflection on the researcher's positionality by confronting their own biases and assumptions, potentially leading to more nuanced and culturally sensitive environmental research.

The benefits to MTH entities can only be increased if we teach young learners the tenets and practices of an ecopedagogy informed by various onto-epistemologies. Additionally, cellphilmimg inclusive of locally specific Indigenous methodologies and values, can support decolonization, empower Indigenous self-representation, and foster equitable, meaningful research that benefits both communities and researchers. In this research-creation, I underlined the need for learners to understand and apply to their pedagogical praxis various socio-cultural practices to enhance their transformation and conscientization processes. For example, I would weave socio-cultural practices into my pedagogical praxis by first mapping the young learners' diverse cultural referents - stories, rituals, play, languages - onto our shared curriculum, turning abstract lessons into mirrors of their lived realities. In practice, I would launch dialogical circles where we co-generate themes from their experiences, like communal resistances, family victimization, fostering conscientization through Freirean problem-posing that disrupts binaries and sparks collective agency. To deepen transformation, I would invite family and community voices via cellphilm shares or guest ateliers, ensuring praxis evolves as intra-active, engagement with issues such as neo-colonialism, patriarchy and capitalist exploitation.

CONCLUSION

The corporeal turn has brought renewed attention to centering the body and bodily life as fundamental to understanding experience, meaning, and knowledge in social sciences. In the context of ecopedagogy, this shift emphasizes the importance of sensory engagement with Nature and MTH entities with whom we share Earth as kin. Embodied learning recognizes that our physical interactions with the environment shape our understanding and relationship with Nature and MTH entities.

Smartphones and other digital devices are not merely tools, but extensions of our embodied experience, shaping how we perceive, interact with, and remember the World around us. This

chapter mainly explored the postphenomenological embodiment that occurs when using digital recording devices, focusing on the sensorial and affective integration of the body and technology. This integration can be both enabling and detrimental to our understanding of ourselves and our environment. I established the cellphone camera as an active mediator, not a neutral tool, shaping experiences and understanding of Nature. This mediation revealed aspects of the environment that might otherwise go unnoticed. I encouraged critical reflection on these technology-mediated experiences, considering how my cellfilms can affect relationships with the environment.

The cellfilms analyzed in this chapter offer several angles, including postphenomenological, sensuous, affective, embodied, mundane and local. They also highlight my personal and emotional human-MTH-environment interactions, my resource use, and the ways in which I shape and am shaped by my surroundings and ideologies. Through these examples, my practice explored themes of sustainability, technological impact, and my place within larger natural and constructed systems. I singled out smartphones as a technological mediator, shaping perceptions and experiences of the environment. I found that smartphones created a unique embodiment relation because of their light weight and easy manipulation, extending my sensory apparatus and influencing my perception of Nature.

Upon reflection, I recognized in my cellfilming process the ethical, epistemological and ontological tensions in using Western academic interwoven with certain Indigenous ways of knowing methodologies. I experienced this through heightened awareness of vulnerability, relationality, or ecological interdependence. Positioning ethics as emergent in and through mediated engagement strengthened the ecopedagogical framing.

I acknowledged the importance of (de)colonial footprints in autoethnographic cellfilming of an embodied experience. Reflexivity in cellfilming names Western tensions and (de)colonial footprints yet falters where my gaze recentered self over collective kin, trapped in my academic individualism. Within Mi'kmaq Two-Eyed Seeing (MTH), it risks branding lived principles as mere methods, opaque to non-Mi'kmaq eyes despite accountability nods (Bartlett et al., 2012; McKeon, 2012). Cellfilm's digital gleam privileges spectacle over land's quiet sovereignty, while institutional chains - ethics, timelines - curb true co-governance.

I also understood that cellphilming could challenge Northern/Western ‘traditional’ power structures and amplify marginalized and MTH voices in environmental discourse. I used cellphilms as a platform for critical self-reflection, confronting my own biases and assumptions. This led to a more nuanced and culturally sensitive research-creation. While these methods carried historical power dynamics and risked perpetuating colonial perspectives, they also offered unique opportunities for embodied learning, critical reflection, and collaboration with MTH entities.

I understood that within the context of a recent Indigenous ontological turn, especially in Western academic research, my inquiry did not practice cellphilming with Indigenous members of our society, thus propelling my research toward its ethical limitations and possibly maintaining a continued colonial practice. My research and co-creation with MTHs could not stay within the many versions of Indigenous knowledge informed limits recommended when co-creating with MTHs. I could not share authority in my cellphilming and diary texting, nor let MTH re-ask questions, which meant I could not return iteratively without fixing. Reflections in my diary struggled with these paradoxes. Inviting the diary reader into these experiences is not intended to generalize or universalize them, but to provide a situated point of departure for theoretical interpretation. Explicitly marking this distinction can prevent the conflation of phenomenological description with conceptual analysis, thereby sharpening the theoretical claims that emerge from my intended decolonial narrative.

In retrospect I used cellphilms as a platform for critical self-reflection, confronting my own preconceptions and expectations. This led to more nuanced and culturally sensitive research. I investigated the extent and limitations of embodiment with MTH entities. I realized that some cellphilms seemed more engaged with MTH entities both as actants and in reciprocity for various reasons: intimacy, affect induction, emotional resonance, technological limitations, production of memory and nostalgia. I appreciated the active and passive collaborative nature of cellphilming with MTH entities. I also recognized the need to remain vigilant about the potential impacts of these practices on living entities within the broader field of environmental research.

Cellphilming with MTH entities through representational and non-representational approaches demonstrates the complex relationship between technology and Nature-based (in)formal education. I distinguished between representational and non-representational cellphilming as affective

inducers of feelings of belonging. I presented examples of how both generated these affects in their own way. While both (non)representational cellphilmaking offer new ways to explore and document environmental interactions, they also risk diminishing direct sensory experiences and misleading embodied relationships through intermediate digital technology. To address these concerns, educators must carefully design cellphilmaking assisted activities that balance the benefits with the need for immersive engagement in:with Nature. This approach requires a nuanced understanding of how the cellphilmaking process affects embodied relationships with MTH entities. Educators can create a successful ecopedagogy by thoughtfully integrating smartphone technology that leverages the advantages of cellphilmaking while preserving the essential elements of direct Nature experiences.

CHAPTER 5

BELONGING THROUGH MY CELLPHILMING PRAXIS

INTRODUCTION : GUIDED REFLEXIVE INQUIRY

This research-creation delved into the correspondence of imagery, the self, MTHs, Earth and Nature. In this chapter I engage more specifically with the cellphilms through my practice, diary notes and my reflections on their affective fabrics in reviewing the cellphilms. I analyze how we project our notion of belonging to Earth (Nature) and more explicitly to MTH entities through kinship. The research question guiding this inquiry was: *How does autoethnographic filming using mobile cellphilming technology engaged with the participant's senses and affects contribute to ecopedagogies that connect humans to MTH entities?* I discovered that the shared cellphilming praxis with:of Nature and MTH entities through reflexivity, allows one to wonder, embody, and feel awe in a complexity of care, kinship and belonging.

KINSHIP THROUGH AFFECT, SENSES AND RECIPROCITY

Throughout the cellphilming process described in this chapter, I sought to create spaces for reflexivity, empathy, and critical engagement with MTHs and Nature. My aim was to challenge unsustainable norms, promote ecoliteracies, and foster a sense of responsibility towards all (non)living MTH entities. Through intimate and visceral portrayals, ranging from water purification plants, bird life to bull run violence, these kinds of ethically engaged cellphilms connected with MTHs, sparked dialogue, and inspired action all within my identity and political biases as described in the introduction to this dissertation.

My initial approach to cellphilming was rooted in a desire to capture the essence of my surroundings, often focusing on scenes that might seem commonplace to others. The scenes were often environments that one waits in, passes by, or drives through. Instead of inspiring reflection, I often treated these places as mere sensory fillers - aural and visual background noise on the way to my ultimate destination. A deeper sensorial engagement and deliberate focus on my interactions with my environment changed my perception and understandings.

In “REGROWTH AFTER LAST YEAR'S FIRE IN PEGO HILLS,” I remember a specific moment as I drove in the countryside near Pego, Spain. I got out of the car took photos and filmed the landscape two years after a wildfire. At one point, the camera was fixed on a mountainside covered with re-growing vegetation from the ashes. The subsequent photographs taken complemented the cellphilm, creating a photomontage that I integrated into the final cellphilm edit. Olive trees that had resisted the fire were green again. Their black stumps juxtaposed against the new green fields were uncanny. Flowers and tree saplings started to grow throughout the rocky terrain. While filming, I began to question and anthropomorphize: Did they feel the pain of the fire? Are they rejoicing in their new growth? Do they miss their elders? Can they communicate all their life struggles and pleasures with other entities?

As I improved my cellphilm approach I began to experience embodied feelings with MTHs. Sensory integration, empathy, emotional attachment took over my practice making me question my relationship with MTHs and Nature.

PERIPATETIC CELLPHILMS: TALK THE WALK

Cellphilm through non-representational practices that prioritize embodied, sensory intra-actions with MTH entities over static depictions, allow for spontaneous filming to capture affective atmospheres and vital forces during OEE such as forest walks or garden encounters. The aim is an ecopedagogy that fosters critical kinship, urging learners to engage with transformation and confront extraction's hybrid violence. Reciprocity demands hybrid praxis - pairing tech-free walks with cellphilm - to navigate this duality, where mediation's estrangement heightens ethical urgency, transforming distance into accountable Earth-sharing.

In my research, I examined perspectives of embodiment, movement, sensing and knowing related to walking (Ingold & Vergunst, 2008; Bang et al., 2017; Gray & Colucci-Gray, 2019; Beavington, 2021b; Blades, 2021; Amoroso, 2021). I also examined, while reflecting on my cellphilm, literature inclusive of MTHs and the recent theoretical ‘turns’ towards more eco-centric, less anthropocentric perspectives.^{clxxix} Key ideas and values inherent in these constructs contribute to the social and cultural milieu of walking and how that contributes to forest walking, bushwalking, city walking and OEE practice.

As a child of a German, Lower-Saxon mother, the notion of *Wanderlust* was preeminent in the myths and stories recounted to us at bedtime, which included children's songs.^{clxxx} In my youth, I had often disappeared into the forest becoming part of the whole and feeling that sense of completeness.^{clxxxi} I first attempted forest walks as an ecopedagogic method in a philosophy of education class at Bishop's University (Chbib, 2023). This does not mean that I had not deeply walked in the forest before, but the perspective requested by the professor required an introspective repositioning of my existence within the anthropocenic, holistic and cosmic 'being.' As John Muir said: "The clearest way into the Universe is through a forest" (1938, p. 77).

Pedagogic forest walks happen worldwide in many cultures and in many forms. For example, Norwegian forest pedagogy features seasonal excursions where children follow child-initiated paths ("the path is made in the walking"), blending play with topics like traceless travel and holistic development (Hindmarch et al., 2021). Danish forest schools, started in the 1950s, involve child-led play and hands-on learning in woodlands, now adapted in Singapore's Forest School with rainforest sessions exploring local flora like Seraya trees (Lee, 2022). These emphasize independence and sensory discovery over structured curricula. *Shinrin Yoku* or Japanese forest bathing is a mindful practice of slowly immersing oneself in a forest using all five senses - sight, sound, smell, touch, and taste - to foster deep Nature connection and reduce stress. It emphasizes relaxed presence in Nature for mental and physical health benefits. This approach promotes relaxation, lowers anxiety, and enhances well-being through sensory engagement with the environment (Clifford, 2021; Garlits, 2023).

Martens et al. (2011), Sobel (2014) and Häggström (2019), explored how forest walking methodologies can attune researchers to MTH agencies and affects as methods for capturing the sensory experiences and affective atmospheres that emerge through encounters with MTH others. Moving beyond research to pedagogy, several scholars investigated how outdoor educators can cultivate learners' attunement to MTH entities and environments. Sensory activities in forest school settings are shown to foster young learners' connections with trees (Thorsnes & Fredriksen, 2023). Multisensory encounters with trees, such as touching bark, smelling leaves, and listening to rustling branches cultivate young learners' embodied knowledge and affective bonds with the MTH entities (Waite & Goodenough, 2018; Jukes, 2020; Scott et al., 2022; Garden, 2024). These methodological,

research and pedagogic innovations demonstrate efforts to develop approaches aligned with MTH ontologies.

I define forest walks as specifically grounded in Nature walks;^{clxxxii} although walking in urban areas should be included. As De Certeau argued, walkers transform empty spaces into a space of enunciation like the speech act (1984, p. 119).^{clxxxiii} Illeris' (2022) elaborates on this perspective:

By walking, sitting, lying on the ground, listening, watching, sensing, writing, photographing and filming, I experiment with how I can craft connections to the land which challenge the ways in which I usually approach land on my walks. With my moving body I try to embrace the former gravel pit through ecological forms of awareness, including intimacy and affect. (p. 186)

Forest walks are common in OEE and EoE in general. Kimmerer (2003) walking through the forest in *Gathering Moss*, revealed her deep engagement with Earth:

I had studied with fascination the intricate connections between plants and the rest of the ecosystem. But the web of interconnection had never before included me, except as an observer, outside looking in. (p. 102)^{clxxxiv}

She takes us on an adventure with: into Nature, drifting us into the sky and then quickly back into the humus - we partake in enriching the soil, we turn over leaves, we taste bark and smell the fern. She embraces us into the inner 'wild child':

Looking at mosses adds a depth and intimacy to knowing the forest. Walking in the woods, and discerning the presence of a species from fifty paces away, just by its color, connects me strongly to the place. That certain green, the way it catches the light, gives away its identity, like recognizing the walk of a friend before you can see their face. Just as you can pick out the voice of a loved one in the tumult of a noisy room, or spot your child's smile in a sea of faces, intimate connection allows recognition in an all - too - often anonymous world. (p. 13)

The experience of a forest walk, being physically present forecloses a possibility of making meaning through critical reflexivity, similar to the Freirean process of conscientization. This allows for an understanding and discernment of the violence inherent in the separability imposed by Cartesian dualism, which is driven by anthropocentrism - whether or not this results in the intended racialized impact of the biological divide.

Walking through a forest is a pedagogy of inclusion, a necessary adjunct to an inclusive (in)formal EoE informed by ecopedagogy tenets. These kinds of pedagogies have been losing prominence in education informed by a neo-liberal prerogatives and cutbacks (Leather, 2018; Waite & Goodenough, 2018; Warner et al., 2020; Beavington, 2021a). Kennedy (2006) proposes a transformation that, adopts an emergent, systemic balance of multiple pedagogies and curricula, from the most open to the most closed forms of structure and organization (pp. 173–176).^{clxxxv} A ‘school of the third way’ that diversifies pedagogical strategies brings in emergent curricula, complexifies grouping practices, project works, tutoring skill development and includes Nature walks (p.173). Through mindful, multisensory activities participants develop attunement to MTH entities, fostering relational, lived, and dynamic forms of ecological understanding.

In this research-creation, I shot several walking cellphilm in different settings as ecopedagogic praxis. The cellphilm “LEAVING MOUNT ROYAL PARK AT NIGHT” captured my afterhour departure from the park, a familiar walk I have taken countless times since my university days at McGill in the late 70s. The cellphilm begins with a shot of the path emerging from the park’s forest.^{clxxxvi} The camera moves along the illuminated pathway, capturing the contrast between the darkness of the park and the brightness of the city lights emanating from the university housing complex.

Creating a peripatetic cellphilm allowed me to reflect on the changes in the park and my relationship to it. The cellphilm process made me reflect on how my perception of the park has evolved over time, influenced by the urban development and management practices that have reshaped the landscape. The shift from the natural darkness of the woods to the artificial lights of the city also highlights the tension between the natural and the artificial (Ladak et al., 2023). MTH participants (streetlights, concrete pathways, birds chirping in the middle of the night) provoked a gut reaction about the interconnectedness of social-ecological systems and the need to face exploitation in land management.

Forest walks are vital to ecopedagogy because they engage the whole body and senses, offering embodied, sensory, and emotional learning experiences that deepen our connection to Nature and MTHs. This aligns with experiential research emphasizing walking as ecopedagogical praxis, where feet sense terrain, skin registers air and moisture, and breath syncs with wind, generating

affective bonds that traditional classroom methods cannot replicate. Rodrigues (2018) advances this through ecomotricity, framing (bush)walking as an ecocentric movement practice in outdoor education that reimagines adventure via ecophenomenology and ecofeminism, evidenced in Australian case studies of intra-actions with geo-cultural landscapes. His work reveals walking's role in dismantling dualistic nature/culture divides, promoting embodied ludic time-space moments that deepen ethical commitments to environmental justice (p. 98).

Ecopedagogical forest walks offer an indispensable practice by engaging learners' bodies and senses to foster deep, embodied connections with Nature and MTH entities. This sensory immersion cultivates ethical awareness and dissolves the nature/culture divide, reinforcing the role of walking as an act of environmental justice and responsible engagement with place. Ultimately, such embodied experiences are essential for nurturing transformative learning that challenges dominant paradigms and encourages a more just and interconnected relationship with the World.

These walks also move us beyond human-centered perspectives, encouraging us to relate to plants, animals, and ecosystems as part of a broader community. The essence of a peripatetic approach to ecopedagogy lies in its recognition that learning is not confined to the classroom but unfolds within the dynamic interplay between body, time, and space. Peripatetic walking is not just the act of locomotion but transforms into a mindful practice of paying attention to the present moment. This resonates with Næss's concept of 'activeness' as an internal form of relationship, where awareness of both inner affectivities and outer interactions with the environment converge (2008, p. 243).^{clxxxvii} Such active engagement, facilitated through peripatetic movement, de-centers the human body, positioning it within the broader ecological context. Learners shift from a human-centered perspective to a relational one, where meaning and agency are shared with MTHs.

The cellphilm "VISIT TO THE LOCAL RIVER PARK" documents my evening walks along the Tomifobia River - a practice I have maintained for the past twenty years. The meandering camera along the path, capturing the vegetation, insects, waterways, and fauna that make up this small piece of protected land - protected because as flood zone urbanization is not allowed - how lucky is a that!

I looked at the fisher king diving for minnows, the hoof prints of deer, grass snakes crossing the paths. I defined the structures of animals and their behaviour as well as their relationship to humans and MTH entities. Pyyry (2016) states:

...the students were encouraged to explore their everyday hanging out spaces by walking and taking photographs in the city in their free time in order to make the familiar unfamiliar... In the project, photography served as a creative tool that inspired “thinking with” the mundane everyday spaces. (p. 102).

The scents of the wet park, the river, the flowering asters, the milkweed seeds dancing through the fields even the subtle signs of pollution (coke bottles, chips wrappers), all contributed to a richer understanding of this familiar ecosystem as I performed my mundane, daily walk. It included a peripatetic and (auto)ethnographic exploration of my relationship with MTH entities.

The walks required me to understand my situated and grounded place within the intricate web of life with MTH kin, revealing the agency of MTH entities that surround me as I cellphiled with them. As Pink et al. (2016) state:

It also acknowledges the intangible as a part of digital ethnography research, precisely because it invites us to consider the question of the ‘digital intangible’ and the relationship between digital, sensory, atmospheric and material elements of our worlds. In effect, we are interested in how the digital has become part of the material, sensory and social worlds we inhabit, and what the implications are for ethnographic research practice. (p. 6)

This requires extending our sensorial field, awakening sensibility, and fostering meaning-making through movement. Drawing on Lingis (1998), sensory data exists in terms of a non-exclusive temporal and spatial dimensions, and aligns with Abram whose philosophy emphasizes active engagement with the environment as a means to cultivate immanence and a deeper connection to Nature (2010, 2012, 2017).^{clxxxviii} This intentionality in perception, where I perceive something as having certain qualities or affordances, involves an active engagement with the materiality of the landscape and MTH entities - where bodily senses and the spatial dimensions of the environment allow for an embodied ‘knowing’ engaged with various affects, emotions and senses. This active engagement creates a space for immanence, vitality and a sense of openness and receptivity to the surrounding environment. Immanence here focuses on the interconnected presence and

relationality of life within the environment, emphasizing unity and inseparability. Vitality additionally highlights life's active processes, resilience, and self-organizing tendencies, emphasizing dynamic forces within living organisms.^{clxxxix}

It is important to understand that unmediated walks with learners foster holistic sensemaking through relational processes, emphasizing interconnectedness and ecocentric awareness without technological disruption. Technology-disturbed walks risk fragmenting the experience into isolated events, reducing performativity by prioritizing visual output over multisensory presence in Nature. I agree with Naess (2008) who proposes that tech-free immersion critiques anthropocentrism more effectively than mediated alternatives. He adds that it deepens aesthetic-affective bonds more effectively. However, I believe well mediated cellphilmaking adds value by enabling reflexive documentation and communal sharing of MTH encounters, transforming personal immersion into performative, co-creative narratives that challenge traditional ecopedagogical boundaries and amplify underrepresented voices through (non)edited embodied fragments evoking collective sensemaking. This requires balancing direct, unmediated walks with hybrid approaches that enhance immersive meaning while preserving embodied depth and spontaneity.

CELLPHILMING PLANT AND ANIMAL LIFE

The following cellphilmaking are unfiltered observations intended to provoke reflection and connection. Some were edited as the representational took on the upper hand. Nevertheless, I came to understand how these seemingly simple acts of filming could become a powerful tool for embodied learning and fostering a sense of belonging and Earth sharing.

My Friends in the Gardens

Four cellphilmaking “STANSTEAD GARDEN HARVEST AT BIO FARM”, “BEEFALO FEEDING GARDEN PLANTS”, “FILMING CAMERA FILMING GRAPE PICKING” and “RESTING UNDER THE FIG AND POMMEGRANITE TREES” became explorations of attunement, each revealing complexities in my relationships with MTH plant entities and prompting reflection on our interconnectedness within larger social-ecological systems. Attunement in forest walks for ecopedagogy is the process of becoming deeply harmonious and responsive to MTH entities through sensory, emotional, and embodied engagement. It involves “bringing into harmony with”

or “being at one with another plant, animal, or locale,” fostering an intimate, intuitive connection that opens us to the agency and vitality of Nature (Jardine & Lange, 2024, p. 49). This heightened state of awareness allows walkers to sense, feel, and respond to the living world as an active participant, rather than a detached observer (Lynch & Mannion, 2016; Lyle & Snowber, 2021; Blades, 2024). Attunement thus nurtures a sense of ecological identity and belonging, shaping how we relate to and care for the environment throughout our lives

In “STANSTEAD GARDEN HARVEST AT BIO FARM”, I documented my weekly harvest as a customer at a local organic farm. The abundance in the garden struck me – there was good rain this season. Garden plants grow better when they are planted tightly, especially the carrots growing close together in bunches, evoked a sense of ‘family’. The camera observed my harvesting without sensing an intended composition, I felt my position guided, moving away from a detached gazing observer to a participant in the garden's vivacious life. I now knew the landscape after years of harvesting on this farm - from the repetition of routine practices with the various MTH entities. This allowed materialization of the landscape and a new way to perceive it. The garden revealed itself by indirectly participating in the cellphilmaking of the harvest. The vegetable patches directed my eyes, pleading that I head in one direction or another, that I point the smartphone camera to one patch over the other.

This bio farm, with its commitment to diversified organic farming, presented a living example of interconnected social-ecological systems. Young and Malone (2023) caution that EoE can become reduced to mere ‘doings’, like vegetable gardens disconnected from systemic thinking and deeper ecological understanding (p. 1080). The disconnect happens when pedagogy focuses on tasks over holistic systems. Most EoE tends not to explore relationships and context, as it is constrained by institutional standardization that favour measurable actions over transformative experiences. Gardening approached with curiosity and attention can challenge the ‘fixed notion’ of what EoE should be. This can demonstrate that deeper ecological understandings can emerge from the banal, daily practice of gardening. This cellphilmaking practice in the garden resonated with the concept of ‘planty knowledge’, where a combination of human understanding and plants' own sensing of the World is brought together (Pitt, 2015, p. 49). My attunement and ‘being with’ the plants, allowed me to let them flourish driven by my emotional attachment and empathy. And as R. M. Hall et al. (2023) propose, I learned from them as well, fostering a deeper understanding of my needs, their

needs and the shared vitality. The bio farm itself became a symbol for me of a pedagogy of eating healthy, unpolluted food and underlined my persevered good food gathering practices.

“BEEFALO FEEDING GARDEN PLANTS” presented a different, more complex relationship with the MTH. The beefalo is a cross of five-eighths shorthorn and three-eighths buffalo - the bull that participates in the cellphilm is an example. Each fall, I feed fallen apples and cabbage plants to a local family of beefalo at the farm. I am always struck by their eagerness, their gaze and their tense involvement. They somehow sense me from far and quickly approach the gate. They must have known I was near, perhaps having heard the car’s identifiable sound, or recognized my voice as I spoke to my granddaughter or having smelled and seen me coming.

While I meant well, my action was troubled by the fenced framing. This created an atmosphere fraught with underlying anxieties: Should I be doing this? and, is this disturbing their day to day lives? For example, the electric fence, a stark reminder of biopower demarcated boundaries creates specific types of human and animal subjects. Shortall and Brown (2021) highlight how cattle can be reduced to ‘anonymous animal subjects’ through biosecurity practices. They state:

Here humans and animals are still separate entities, but their relationships and subjectivity are shaped by biopower forces...that animals cannot become self-governing subjects...but they are enrolled by farmers and with farmers into biosocial collectives. (p. 7)

However, unlike the industrial mass-raised cattle in confined spaces that Shortall and Brown discuss, these beefalos were raised with care and without chemicals in large fields that have no pesticides and fertilizers - which challenges the perception of a distinctive ‘fixed notion’ of cattle. There are grey zones in most human-MTH relationships even within demarcated biopower settings.

The cellphilm was an exploration of the (un)sustainability of this practice, the way in which care and consumption intertwine. The manner cattle are raised in different parts of Earth, highlighting *for who’s consumption*.^{cx} Upon reflection in the re-viewing of the cellphilm, I had to consider the broader implications of raising animals for consumption, even within a seemingly caring and sustainable context. The herd had nevertheless more freedom to live out their lives, free of toxins

and accessing more space. They were healthy, vibrant, and happy presumably. They were flourishing within their human bound ecosystem.

“FILMING CAMERA FILMING GRAPE PICKING” took on a more self-referent approach within the research-creation’s quest for belonging. Here, the smartphone became the central actor, a nod to its mediating role in my interactions. Ingold (2010) and others (Thrift, 2008; Anderson & Harrison, 2010; Vannini, 2015) point to the importance of the ‘*relational turn*’ in research, critically reassessing the ways of knowing implicated in the production of academic knowledge.^{cxci} When I placed the smartphone in the foreground as an interlocutor, I aimed to acknowledge its influence as a technological form of the MTH that plays a role in shaping my perception and understanding of the grape harvest. The smartphone’s presence disrupts passive observation, instead positioning it as a “meshwork” (per Ingold) that entangles human agency, grapevines, and digital capture. The different frame rates of the two cameras created unexpected visual effects, highlighting the diffraction of reality through various lenses. The frame-rate artifacts became a metaphor for the relational ontology of ecosystems - emphasizing dynamic, non-linear connections over static representations. Digital tools, in this case the smartphone and the cellphilm, shape perceptions of plant lifeworld. It underscores the need to situate knowledge production within the ‘ongoing formation’ of social-ecological systems. The smartphone’s dual role - as both recorder and disruptor - mirrors the paradoxes of modernity: a tool that simultaneously connects and alienates, demanding reflexive engagement with our hybrid ecologies. I framed the smartphone as an interlocutor; therefore, the act of cellphilm becomes a relational practice that disrupts anthropocentric hierarchies. The camera’s gaze shifts from documenting grapes as inert objects to tracing their vibrant materiality - how sunlight interacts with their surfaces, how wind alters their motion, and how human hands intersect with plant life during harvest. This aligns with Indigenous relational frameworks, where reciprocity with land (harvest) and MTH kin is central, and critiques extractive research paradigms that treat plants as passive subjects. The cellphilm challenges extractive epistemologies and advances attunement as a method to navigate the ethical, perceptual, and ecological complexities of MTH worlds.

“RESTING UNDER THE FIG AND POMMEGRANITE TREES” captures a moment of human-plant interaction, offering intimate portrayals of my connection to cultivated spaces. These images shot at our Spanish family home, not only captured the visual beauty of the garden but also evoke

memories and emotions, demonstrating how our relationships with plants can be deeply personal and formative. This cellphilm focuses on the sensory experience of resting under trees, capturing the play of light, sound, and texture. This fostered my belonging within natural spaces and denoted the trees' belonging in the cultivated environment.

My reflection of my childhood experiences, as outlined in the diary describes my youth as a flaneur through the Lebanese and Syrian olive, banana, loquat and fig groves. The act of resting under trees evoked feelings of peace, comfort, and connection with Nature and in my case nostalgia and melancholy. While the trees provide shade and a restful environment, human presence contributes to their care and protection, a form of reciprocal relationship. My reflections on childhood memories and personal connections to Nature, showed how cellphilm can allow participants to share personal insights and deconstruct experiences.

An ecopedagogic approach transforms a seemingly ordinary moment of repose into an exploration of human-MTH relationships and personal memory. The cellphilm brought back memories of my experiences in a Jesuit run primary school surrounded by groves and orchards.^{cxcii} The cellphilm evoked a sense of peace and connection with Nature, highlighting how even the most ordinary interactions with MTH entities can be deeply meaningful, direct, sensuous and emotionally resonant. Here, immanence, affect and vitality play decisive roles for engaging with kin and feeling a sense of belonging.

Birds, Fish and Other MTH Entities

The first of the three cellphilms that participated with animals is “FISH IN MARINA AT MOREIRA”. It was a single shot that tilted down abruptly from the docked boats at the marina into the water where various fish swam. Hundreds of boats were docked, waiting to be used briefly each summer. The water was slightly murky tinged with a milky green hue, but I could see the seabed littered with plastic. It struck me as a scene of blatant contradiction: expensive, polluting boats used for limited pleasure, juxtaposed with a surprising abundance of fish – seabream (*Diplodus sargus*) and saddled seabream (*Oblada melanura*) - swimming below.^{cxci} This marina cellphilm became an examination of greed and environmental degradation. This scene became a stark reminder of the arrogance of not only fishing extraction but dumping waste and sewage causing water pollution.

Of these cellphilm, “PERROQUETS HIDING FROM HELICOPTER SOUND”, was edited down from 40 minutes of footage. I assembled five shots depicting: a grove of pine trees where the birds had settled; several large hanging nests; birds making a lot of commotion and flapping about having their daily afternoon fun; a nearby helicopter leaving causing the birds to hide and be completely quiet; and finally, a panning shot of the general silent pine grove - their habitat. This cellphilm became a lens through which to explore themes of MTH migration and adaptation, including human intervention in natural ecosystems. Unlike most, this cellphilm because of the editing had a specific representational narrative, offered a glimpse into the lives of monk parakeets (*Myiopsitta monachus*) in Javea/Xàbia. I learned from locals that these parakeets, native to South and Central America, had established themselves in a local pine grove. The pines where they nested were also considered non-native and invasive just like the parakeets.^{cxciiv} The parakeets live in couples and disturb the native birds by competing for food and territory. Their large nests, hanging precariously from the branches, were impressive as architectural feats, and their cacophonous sound overwhelming. These were very intelligent yet very intrusive birds.

This cellphilm was not directly affective for engaging with belonging but remained informative as a representational artefact. Reflections on native and non-native species were highlighted in the cellphilm’s re-viewing. Notable is the interaction with the nearby helipad that disturbed the daily lives of the birds. When the very noisy helicopter got ready to head out the birds scattered into their nests, and their lively active and exuberant cacophony disappeared. Still and full of fear, they fell silent for fifteen minutes after the helicopter had left. Slowly they re-emerged and continued their chants.

The third of these cellphilm, “JAVEA/XÀBIA ARENAL SWALLOWS FEEDING FRENZY”, was a fixed shot looking down at a town park where hundreds of swallows were diving about and eating insects. In the middle of the local town of Javea/Xàbia in a public park, hundreds of swallows (*Hirundo rustica*) were dancing in fast swooping motions thriving on mosquitos and small insects. After a couple of minutes of filming quietly and remaining still, the swallows started to fly around me. As the seconds passed, the swallows flew closer and closer to the smartphone. I was always on edge as they swooped down on me. I remembered as a ten-year-old boy while searching for a newborn calf on our family beef farm, I approached a sand dune full of holes that had dozens of

swallows' nests. Fearing my intentions they suddenly flew out and started to attack me as I ran away in fright.

Onlookers expressed joy and admiration for the swallows' flying skills. As I set up for cellphilm, a German family of tourists walked by and stood next to me. They were six people in the family. The grandparents were my age, the children were young teenagers. We exchanged comments about the swallows and how many there were. I jokingly sang a childhood song by Heintje "*Im Herbst, wenn die Schwalben gegen Süden zieh'n, Moeg ich gern hinterher übers blaue Meer*" which translates to: In the fall when the swallows head south, I would love to follow them over the blue sea.^{cxcv} A cultural connection was made, the grandparents laughed. The teenagers had no idea what that all meant.

I noted in my diary about this experience that this cellphilm was both a 'feel-good story' and a cautionary tale. I learned that these swallows had found an unconventional nesting place - a supermarket building. The supermarket works closely with the environmental charity SEO/Birdlife, and has managed to get official protection for the swallow breeding ground in their building (News@cbnews.es, 2023). Management had even set trays up beneath the gables to prevent bird excrement from dropping onto the pavement below. This raised complex questions about neoliberal sustainability and the potential co-optation of Nature and MTH entities for marketing purposes by a local shopping mall. This neoliberal tactic markets superficial eco-friendliness to boost consumption, dodging systemic ecocide by privatizing Nature into profit-driven hygiene. It exemplifies "Nature Inc.," co-opting ecology for corporate image without restraining growth imperatives. Just another mode of consumption, I cynically noted in the diary.^{cx cvi}

In these cellphilms, focusing my attention on these specific animals, living MTH entities and their environments, the act of cellphilm heightening my awareness of my own positionality within these ecosystems. I began to understand how these cellphilms as a whole acted as a form of embodied learning. As J.-A. Scott (2018) explains:

Storytelling is embodied...A personal story is first lived through a body; identity and meaning surface through embodied interactions in the world... Visceral stems from the place where we feel hunger and fullness, the sinking of dread and disappointment, the fluttering of anxiety and attraction, and the swelling of hope and faith. (pp. 4–5)

I wasn't just an observer. For a few minutes, I was an active participant, my senses engaged, my emotions stirred. I smelled the pines, the wet park, the fishy marina with its pollution spread on the bed of the sea, reeking of sewage and pollution.

Moreover, the cellphilm fostered a sense of Earth sharing. By decentering the human perspective and focusing on the lives and experiences of the fish and birds, I began to recognize their inherent value and agency. As Bayne (2018) notes, posthumanism involves “making an ontological shift from understanding ‘the human’ as an individuated entity separate from and observant of the World and its (human and nonhuman) inhabitants, to one which is inextricably connected to the world and only conceivable as emergent with and through it” (p. 3).^{cxvii} This shift in perspective challenges the anthropocentric norms that often underpin (un)sustainable practices.

From an ecopedagogy perspective, each cellphilm situates the learner within an embodied ecology, generating emotional as well as intellectual awareness. In the cellphilm “FISH IN MARINA AT MOREIRA,” the downward tilt from glistening boats to the polluted seabed visually performs a moral descent - from surface luxury to submerged consequence. This moment of contradiction provokes eco-reflective thought: learners confront their own participation in systems of privilege and pollution. The sensory tension of sea decay beneath human abundance prompts ethical discomfort, an important affective trigger for sustainable consciousness.

“PERROQUETS HIDING FROM HELICOPTER SOUND” deepens this consciousness through relational reflection. By showing how non-native parakeets adapt and struggle amid human intrusion, it invites learners to question belonging - not only who belongs where, but how belonging is negotiated across human and more-than-human entities and histories. The sudden silence following the helicopter’s roar dramatizes vulnerability and coexistence; it turns the human-made soundscape into a moral landscape. Ecopedagogy learners begin to sense interdependence and fragility as shared conditions of life.

In “JAVEA/XÁBIA ARENAL SWALLOWS FEEDING FRENZY,” the joyous energy of the swallows and spontaneous cross-cultural exchange create social-ecological bonding. The birds’ teaming flight blurs boundaries between observer and environment, transforming perception into participation. Yet the supermarket’s commodified “eco-protection” of nests complicates this joy,

pushing learners to question forms of neoliberal sustainability that mimic care while perpetuating consumption. The cellphilm thus models critical ecological literacy - to see care, complicity, and commerce entangled.

Together, these films enact an ecopedagogy through attention: learners practice seeing, feeling, and situating themselves ethically in multispecies 'worlds'. Reflection shifts from abstract principle to lived encounter. Belonging becomes not ownership but co-presence; sustainability evolves from conserving things to sustaining relationships; eco-ethical behaviour emerges from embodied empathy. In watching, learners learn with the Earth, not about it.

REFLECTIONS ON PLASTIC

As I filmed the two hundred or so short cellphilms, I found myself increasingly drawn to the pervasive presence of plastics in our daily lives and their implications for outdoor pedagogic practices. The notion of embodied learning took on a new meaning as I began to consider my own relationship with this ubiquitous material, not just as a consumer, but as a co-inhabitant of a World increasingly shaped by its presence. Davis (2022) explains that this forces us to reckon with our shared existence alongside these materials:

The saturation of the world by fossil fuels is a potent manifestation of our turning away. Under these chemical regimes, there is no barricade or safe zone. There is no control group, no before to return to, no cleaning all of it up. Rather, we, the inheritors of plastic matter, are forced into being-with. (Davis, 2022, p. 105)

This realization underscores the inescapable reality that plastics and fossil fuel by-products have permeated every aspect of our environment. As plastics infiltrate terrestrial and marine ecosystems globally, they embody a material presence that resists simple removal or reversal (Carney Almroth & Eggert, 2019; Iroegbu et al., 2021; MacLeod et al., 2021; Kibria et al., 2023). Borrelle et al. (2020) emphasize this sobering reality, noting that plastic pollution is a persistent challenge worldwide with profound impacts on living and nonliving components of the environment, and determine that:

Increasing global efforts to manage plastic waste must consider plastic pollution as a multidimensional issue. This includes evaluating the financial and social costs of implementing (or not implementing) mitigation strategies and also the impacts of

different mitigation strategies on economies, social justice, and human and environmental health to achieve global sustainable development goals. (p. 1518)

This recognition compels us to reconsider pedagogic practices and personal engagement, acknowledging that we are inseparably entwined with these synthetic materials as co-inhabitants of a plastic-impacted world. In the three cellfilms that follow, I sought to explore this complex relationship, recognizing the agency of MTH entities like plastics and their intricate intra-relations with other MTH entities.

“CHILDREN LED OUT OF A PLASTIC PARK”, captured a single, extended shot of children being led out of a playground made entirely of plastic. The scene struck me viscerally. The playground, a space ostensibly designed for freedom and play, felt more like a contained environment, a ‘world’ built from petroleum. The image of children being led like cattle out of the playground made entirely of petrochemical products in a borough of Montreal was disturbing. I couldn't help but wonder how the long multi-child harness, or leash, can condition children to feel anxiety about exploring on their own. Under some circumstances, I realized it can make sense to use one - if the ratio of children to teachers and guardians makes it difficult to manage the children for their safety, especially what is commonly called as ‘runners’.

Using a leash for your child has clear safety benefits, such as preventing them from running into the street traffic. This made me question how risk is calculated in this age of insecurity. The plastic itself is a long-term planetary risk. These children’s play structures contribute to the normalization of our dependence on plastics. The bright colors and smooth surfaces, while seemingly inviting, mask the reality of their petrochemical origins. The soft feeling of plastic playgrounds became a point of critical reflection, a questioning of the sensual appeal of a material that embodies ecological damage. This contrasted with the wood, stone, and sand in the playgrounds that I grew up with causing many scratches and cuts. While they may offer certain advantages in terms of security, maintenance and longevity, their environmental cost is significant so is the hard sell to parents regarding their children’s physical safety.^{cxviii} Plastic pollution worsens the impacts of all planetary boundaries (Belontz et al., 2019; Horton & Carrington, 2023; Villarrubia-Gómez et al., 2024; Cowger et al., 2024).

This cellphilm did not generate an affected feeling of belonging but generated a sense of alienation and critical discomfort. Rather than fostering the communal, imaginative, and inclusive spirit often associated with playgrounds, the imagery of children being led out of a plastic playground-tethered together by a harness-evoked feelings of containment and control, highlighting the artificiality and ecological cost of such environments. The result was a critical questioning of both the material and social structures that shape children's play, ultimately producing a mood of estrangement from the environment and from each other, rather than a sense of belonging. This in turn generated critical reflection and a passive sense of belonging with the MTH plastic as kin.

“RIVER MEETS MEDITERRANEAN BATHERS”, is a montage of four shots taken at the intersection of the local small river, the Rio Gorgos, and the man-made saltwater canal running through the Playa el Port to the Mediterranean in the Spanish town of Xàbia/Javéa. It captures the intersection of the river, a canal, and the Mediterranean Sea, teeming with summer bathers. It was a record tourist year in Spain ([“Spain Expects More Tourists This Year after Record 94 Mln Visitors in 2024”](#), 2025). Were these tourists so sure that the waterway was clean, or did they not care? The water, while seemingly pristine, was inevitably affected by the presence of pollution, pesticides and plastics. All around I saw plastic including dinghies, boats, paddles, bathing suits, yachts, paint, garbage, cars and other vehicles passing by.^{cxix}

The inability to communicate with plastics through human-centered frameworks necessitates a shift toward vitality, affect, and materialist philosophies that recognize plastics as active participants in ecological and political assemblages. Plastics are not just inert pollutants but are dynamic agents that co-constitute ethical and material realities. A passive and (un)intentional communication with MTH entities through agency, vitality and embodiment becomes indispensable. Plastics are influencing water quality, marine life, and even the experience of the bathers. The cellphilm speaks with:for:about MTH plastic entities by examining interconnected social-ecological systems.

The third cellphilm, “NEST MADE PARTIALLY OF PLASTIC FOUND WHILE TRIMMING BUSH”, was perhaps the most unsettling. I broached what looked like a robin's nest, or maybe a blackbird's nest, full of plastic weaved into the structure as I was trimming the Forsythia bush. I remember the disbelief I felt when I discovered plastic interwoven with the branches in the nest - large pieces of plastic in the nest's periphery and smaller thin plastic threads entwined in the central

area that holds the eggs.^{cc} Plastic is one of the most common anthropogenic materials found in bird nests (Batisteli et al., 2019, p. 201), indicating a widespread problem for bird viability. This image underscored the concept of MTH agency, highlighting how even seemingly harmless materials such as microplastics can have devastating consequences by transcending boundaries and altering processes and co-habitation with other species (Horton & Carrington, 2023; Villarrubia-Gómez et al., 2024).

In my cellphilmaking praxis, I could not only see the plastics but also feel the plastics in the nests as well in my hands while I cellphilmaked with the smartphone. This embodiment is grounded and common in my everyday experience. Instead of imposing a narrative or trying to represent the plastics in a particular way, I simply allowed them to be present, to exist in their own right. Moreover, the decision to cellfilm the bathers with multiple shots and the subsequent editing of the scene created a representational narrative. This may have caused the diminishing of the feeling of intimacy with MTH entities as I was shooting. I had decided on several shots which implied that I was not concentrating on the affects, senses and vital engagements with MTH entities.

Plastics are both incredibly useful and deeply problematic, symbols of progress and agents of ecological destruction - yet they are MTH kin sharing our Earth. Nevertheless, learners integrating digital practices such as cellphilmaking in OEE and ecopedagogy can develop a more environmentally conscious mindset and actively contribute to reducing plastic consumption and pollution (Hills & Thomas, 2020; Caiman & Kjällander, 2024; Garden, 2024; Persson et al., 2024). By engaging in reflexivity, embracing MTH perspectives, and grounding an ecopedagogic cellphilmaking practices, learners can begin by recognizing plastics as kin-material, technological, and hybrid MTH entities sharing our Earth. This invites a relational ethic that transcends simplistic narratives of villainy or utility. This perspective encourages learners to see plastics not as alien intruders, but as part of the broader web of life with which we are entangled. The key is to use experiential learning, ecoliteracy and dialogue to cultivate environmental citizenship and care for a shared Earth inclusive of these mostly unrecognized MTH entities.

EMBODYING AFFECT, EMOTIONS AND VIOLENCE

In the next two cellphilms I engaged with self-reflexive and compassionate learning. The first cellphilim, “HOLDING SEDATED FATHER'S HAND IN HOSPITAL” emerged from a deeply personal space - the bedside of my dying father. It was in the last month of my father’s life as he spent two weeks in hospital. I often spent time with him holding his hand in these final days. The scene captured a gesture laden with love, grief, responsibility, and the stark reality of mortality. He was sedated and at times confused, often delusional and erratic in his communication. He recounted different memories from different periods in his life. He was confused, and the unrelated memories were often jumbled. Memories were put together in his mind and were recounted through a collage of disassociated affective memories. The events happened at times more than 80 years apart but were remembered as if continuous in time. I thus inadvertently cellphilmed his reflections as a linear story of disparate spatio-temporal events.

Intimate and personal this cellphilim depicting a close-up of two caressing hands is not only autoethnographic and empathetic but engaged with kinship and belonging. It transcends a simple familial connection. It becomes an exploration of embodiment and sensual empathy, acknowledging the shared vulnerability of all living entities. Vagg (2022) writes:

Engaging data with empathy begins with the researcher encountering the research assemblage with wonder, being conscious of and open to affecting and being affected, decentering self, and engaging in embodied experiencing with the data, rather than observing and analyzing from the outside. (p. 545)

I was not merely observing the hands through the smartphone viewer. I was intimately intertwined with the subject matter, allowing myself to be affected by the profound emotions of the moment.

The cellphilim embodies the ecopedagogic tenet of care for humans, Earth, and extending that care to the human experience of death and dying. It challenges unsustainable norms by prompting viewers to confront the reality of our own mortality and the importance of compassion in the face of suffering. This approach aligns with Actor-Network Theory, which recognizes the agency of MTH actors, including emotions and the physical environment of the hospital room. The ANT perspective encouraged me to consider the hospital setting, the medical technology, and even the sedative drugs as active participants in the unfolding narrative. As Latour (2005) suggests, starting

from the “uncertainties and controversies about who and what is acting when 'we' act opens up avenues for exploring these complex relationships” (p. 45). Vagg (2022) explains, “It also involves understanding that our experiencing-with is only ever partial and is steeped in our personal historical experience and therefore not equivalent to the experiences of others” (p. 545). Therefore, my personal history and relationship with my father inevitably influenced my perception and portrayal of this intimate moment.^{cci} This is further projected onto the cellphilm.

As discussed by both Latour and Law, ANT seeks to reveal and help us understand how actors within a practice are connected, positioned, and brought into relation with one another, and how these relationships emerge. Law (2008) adds: “It is that elements in a system are significant – and indeed achieve their form and character – only in relation to one another” (p. 631). Each actor is a network of entities, human, MTH with:in:for Nature. This cellphilm presented objects, feelings, death and the senses as legitimate singular and distinct entities performing as co-actors.

In stark contrast, the second cellphilm, “PUBLIC BULL RUN JAVEA/XÁBIA” captures the chaotic and ethically fraught spectacle of a traditional Spanish bull run. I went at night to Javea to cellphilm a bull running in a community arena surrounded by onlookers and prospective amateur toreadors. It was visceral, affective and stirred many emotions. Many scared and violently instigated bulls were running around and aggressed for human entertainment pleasure. The conventional, mythic and cultural *man versus animal* power dynamics were inescapable. The cellphilm shows a bull lunging at amateur toreadors waving colored sheets. The Northern/Western ‘traditional’ human male and female familial and social distinctions are sustained.^{ccii}

When I was growing up on our farm, I always cared for the animals with respect making sure they were not in pain or ill-treated. I would have never attended such an event if it was not for this research-creation. I wanted to cellphilm this violent act to understand it. Raised on a beef ranch, I have seen many animals sent to slaughter and I have witnessed and slaughtered many animals myself. I used to have names for all the cows and bulls, and along with my brothers, I often played with the calves, goats and many other animals we raised. I showed cattle for many years in my youth at the local 4H clubs and fairs. My treatment of our farm animals was empathetic and respectful; killing them for consumption was cultural, traditional and economic. My revulsion at

this bull running entertainment practice was related to the disrespectful treatment of animals and was laden with contempt. Watching this bull running event made me cringe.

The cellphilm plunges the viewer into a scene of apparent ludic, cultural, and machistic performance. This cellphilm served as a critical examination of human dominance over MTH entities. It challenged the anthropocentric view that positions animals as mere objects for our entertainment and exploitation. Witnessing the bull run forced me to confront my own complicity in systems of animal exploitation, even as a beef consumer.

ANT further illuminates the complex network of actors involved in the bull run: including the bulls themselves, human participants, spectators, and cultural traditions. Cellphilm the bull run helped me understand the violence inflicted upon them and the ethical implications of this form of cultural entertainment. The bull run revealed social issues with masculinity, patriarchy, and the perverse thrill of the crowd induced by the violence of its palpable affects. It also highlights how such practices are often repurposed by the tourism industry - becoming symbolic representations of the nation and reshaped to cater to the expectations and consumption of outsiders.

Through “HOLDING SEDATED FATHER’S HAND IN HOSPITAL”, learning emerges as an act of embodied empathy. The intimate gesture of touch between father and son becomes more than personal grief - it becomes an ecological encounter with mortality, shared vulnerability, and the cyclical nature of life. The hospital room, its sterile air, the beeping machines, and the sedated body all participate as active agents in this network of care, inviting me to sense how humans are entangled with MTH and technological others. In this space, compassion becomes pedagogy - cultivating belonging, humility, and attentiveness to the fragile ecologies of life and death.

By contrast, “PUBLIC BULL RUN JÁVEA/XÁBIA” exposes the rupture of such belonging. It reveals how cultural rituals founded on domination and spectacle alienate humans from MTH kin. The visceral discomfort captured through the lens becomes a site of critical reflection, prompting ethical introspection and unsettling inherited norms of masculinity, tradition, and anthropocentrism. Through witnessing both care and cruelty, I am moved to interrogate my own positioning and responsibility within ecological networks.

Together, these cellphilms enact an ecopedagogy grounded in reflexivity and relational ethics. They transform viewing into a moral and sensory apprenticeship - learning with grief, violence, and compassion rather than about them. They cultivate sustainability not as ideology but as lived practice: belonging through care, reflection through vulnerability, and ecoethical behaviour through accountability to all forms of life.

CELLPHILMING STATIC MTH ENTITIES

MTH entities in their own state of being/existence/presence perform agential vitality intra-actively with their MTH and human kin. This includes their interactions with me in the research-creation along with the smartphone and thesis writing (data analysis, theorization, determinations, and engagements). As Lauren Tynan (2020) tells us:

Thesis as kin is not limited to the doctoral journey of thesis writing. It is a way of caretaking all our relations and living the processes of relationality with research. While conceptualised here as a research practice, thesis as kin mimics a mode of relational accountability that extends to all our relationships; Country, sisters, family, story, love. (p. 169)

These MTH performances are always inter-intra-acting with the research-creation and are therefore repeatedly brought to the fore, in the writing and fixing on a medium. The speculative and academic ideas in this research-creation are co-created with MTH participants. Cellphilms become the vehicle through which our communications are inscribed and brought to the real and present.

In this section I refer to six cellphilms that seemed to be representational at first sight in my re-view screenings. However, the non-representational intention during the cellphilming brings out a very different picture upon reflection and during the praxis *in situ*.

The six cellfilm examples that follow were each filmed as simple static shots. I established the camera on a solid support, be it a car hood, log, retaining wall, or fence. I framed a shot that representationally recorded the 'object' that I wanted to film. Slowly and surely the MTH entity participating engaged me in an affectively ambiguous agency, by making me change the angle and reframe away from the 'object' towards MTH actant. Sometimes I am led to exclude other participants, sometimes making me frame the MTH entity that is co-creating along with

neighbouring MTH entities, sometimes the glimmer of reflections leads me to another angle adjustment, like a choreography we danced as we set the frame. The framing is limited because cellphilm only really engage two senses (sight and sound) even if they invoke more participation – such as hapticity when holding the smartphone or balance on the ground we stand on. This happens through back-and-forth reflection on my framing informed by my will and the MTH's indirect 'will'. This occurs as I take in the reflection of light from the oil reservoir, or the sunset's position, the flow of the tracks seen through the front of the train, or the complexity of the wiring in the street excavation. An absent, ambiguous dialogue ensues that communicates mostly through silence. My aesthetic of image becomes challenged as I reframe to account for MTHs. MTHs co-create co-direct and co-design the shot passively, aesthetically and deliberately with a shared agency.

The act of observing in the cellphilm the “NEW COMMUTER TRAIN BETWEEN DENIA AND ALICANTE” that passed in front of my waiting car, encouraged in me a shift in positionality. It unsettled my human-centric viewpoint to embrace a more inclusive, ecological perspective of the train passing. I began by observing its rhythmic movement, a stark contrast to the stillness of my camera.^{cciii} As I was examining the interconnected social-ecological systems I realized that I was enacting a form of public engagement that fostered solidarity with MTH entities around me. I prioritised humility, sensory attunement, and institutional critique, through solidarity as an ongoing negotiation of our shared habitats. I was captivated by the potential of simple, static shots to foster a sense of belonging and Earth-sharing with MTH entities, a concept rooted in ecopedagogic principles. When filming the Spanish commuter train, I focused not only on the visual image of the train passing by, but also on the sounds of the city, the smells of the air, and the feeling of the sun on my forearms. I became attuned to the subtle, often overlooked details, creating a contemplative mood and a deeper sense of belonging with my environment.

The excavation of electrical wiring in Barcelona, through a static camera lens for an extended period made me engage with my surroundings in a novel way. The formidable order and disarray of an “EXCAVATION OF ELECTRICAL WIRING IN BARCELONA” was shot as a static image eventually panning down to the cables, aimed to disrupt the conventional cinematic language that often prioritizes human narratives and perspectives. An affect-driven response arises from the tension between stasis and motion. A slow downward pan elongates temporal perception, allowing

me to absorb details that might otherwise be overlooked. This prolonged exposure shifted my focus from human-centric narratives to the materiality of the setting, evoking a tactile connection to the environment. I gave the MTH the time to engage with me as observer, participant and co-actant. This bridges objective observation and subjective immersion. This duality also fosters a sense of belonging that is both intellectually anchored in the scene's structure and emotionally resonant through its embodied simulation. This fixity emphasizes spatial order and documentary objectivity, grounding the gaze in tangible, symbolic elements (e.g., wiring as urban infrastructure). The gaze thus becomes a conduit for non-representational engagement, where the cables' 'thingness' resonates viscerally rather than symbolically.

The excavation of electrical wiring in Barcelona wasn't just about wires, plastic tubing and dirt. It was a meditation on the hidden networks that power our lives, the materiality of our technological (inter)dependence. The use of cellfilms for embodied kinship learning offers a tool for documenting and exploring our intricate interactions with MTH entities. The excavation of electrical wiring in Barcelona, at first glance, seemed devoid of natural elements. While holding the gaze on the electrical wiring, I activated new relations, more attuned to the subtle movements and energies within the frame. As I panned to the public walking nearby the image contextualized the MTH within its social environment. I thought about the kinetic activity that this image produced. I decentered my own voice and began to appreciate the agency of MTH actors involved – the copper conducting electricity, the optical wiring, the fence protecting the site, the tools shaping the landscape, the multitude of passersby, and Earth resisting the intrusion. My initial focus wasn't on copper or other materials as natural resources, since humanist habits of thought often lead me to privilege anthropocentric creation and agency. As I shifted toward a more kinetic awareness of MTH activity, I began to sense how this decentered the human focus, opening space to recognize copper, optical wiring, and soil as intra-active participants (in Barad's sense) that shape conductivity, visibility, protection, and resistance.

I no longer saw copper as only a commodity or industrial element but as an active conductor of affect, energy, and relation. Its movements link mines, labor, and ecosystems; they vibrate with extraction, dispossession, and technological dependence. Attending to its agency allows me to understand copper not as a tool for human ends but as part of a distributed ecology of action, where both human and nonhuman forces co-compose the event. My gaze, which resisted the urge to

intervene or narrate, allowed for a different kind of agency to emerge. By simply observing the excavation of electrical wiring in Barcelona, the cellphilm became a testament to the hidden networks that power our lives, a reminder of the interconnected social-ecological systems that (un)sustains.

Re-viewing the cellphilm as representational, however, shifts focus to the shot's affective duration: the prolonged tilt amplifies the cables' textures, rhythms, and chaotic relationality, triggering embodied sensations (disorientation, tactile immersion) that bypass symbolic interpretation. The single shot and its pans to the square, devoid of editing or manipulation, challenged me to slow down, to truly see and feel the interconnectedness of the scene in both representational and non-representational form. It was about fostering my ecopedagogic experience to reflect on, understand and re-invent my perspective of the interconnected social-ecological system dug up at my feet.

Affect emerges not from cinematic manipulation but from the viewer's embodied simulation of inspecting the scene. The static gaze's power lies in its refusal to mediate. It renders the environment a co-creator by technically bracketing human intervention. In contrast, dynamic cellphilms amplify human-MTH collaboration through unstable framings that reject monolithic narratives. Static and dynamic cellphilm techniques disrupt anthropocentrism - where static shots ontologically privilege the MTH, dynamic cellphilms epistemologically democratize agency across hybrid networks by dispersing agency across multiple actants such as the camera's panning motion, including generated edits, and visual and audio narratives.

I turned my lens to "OIL RESERVOIRS AT SAULT- ST-MARIE ONTARIO" a Canadian refinery across from my motel - upon my return from the conference on holistic education that I attended in Oregon.^{cciv} I remember setting up my smartphone on the hood of the car to film the oil reservoir on a cold spring evening. There was just the dull sheen of metal under a hazy nightfall sky. At first, I felt like a passive observer, a detached recorder of a scene laden with ecological implications. I subsequently drew upon the ecopedagogic tenet of challenging (un)sustainable models of carbon energy consumption. Ecopedagogy values care for Earth, and this required a more profound look into the intra-activity of the MTH vitality of the reservoir, which can be enlivened with sensual affection. I wasn't just filming a reservoir; I was witnessing a node within a complex social-ecological assemblage based on oil extraction, a system that demanded critical examination and a

commitment to justice for all life (Schneider-Mayerson, 2015; Foster, 2018; Enns & Sneyd, 2021; Harvey & editor, 2023; Gayle, 2024; Milman et al., 2024). It seemed like a symbol of industrial dominance, a testament to our unsustainable practices. However, by simply holding the gaze, allowing the image to unfold in its own time, I noticed the subtle details: the play of light on the metallic surface, the movement of the wind across the trees, the sleepy adjacent housing complex, and the presence of dogs nearby. This simple act of witnessing fostered a deeper awareness of the reservoir's place within a larger ecological system.

This static shot became a catalyst for critiquing harmful technologies while simultaneously acknowledging the vitality of atomic structures. Here, my cellphilm practice revealed how technical restraint (static filming) and embodied reflection (diary) transmute a representational record into a site of MTH emotional exchange. The oil reservoir's 'gaze back' through affective duration, dissolved the symbolic fixity. This affective resonance, coupled with diary-driven awareness of my embodied encounter, reorients the shot as non-representational. The reservoir ceased to only signify 'oil pollution' and 'extraction,' instead materialised as MTH collaborators in an emotional field with its agency felt, not decoded. I found myself embracing the posthuman entanglements of responsibility, correspondence, and reciprocity, recognizing that even in this industrial setting, there was potential for kinship with the MTH.^{ccv} I remembered Bennett's provocation to reconsider matter, challenging the idea of it being passive stuff, as raw, brute, or inert (2010, p. vii). Filming the oil reservoir, I wasn't just capturing a storage tank, I was attempting to acknowledge the fossilized forests, oil wells, and the crude oil itself as living and agentic (Bussewitz & Irvine, 2021). The cellphilm of the oil reservoir was more than just a visual representation of industrial infrastructure, it became an invitation to consider its place within a larger social-ecological system, to grapple with its implications for climate justice, extractivism, epistemicide, ecocide and to question the (un)sustainable practices it embodied. The static framing thus transforms the reservoir from a symbol of industrial dominance into a provocation: a demand to dismantle unsustainable practices and recenter climate justice in energy transitions. The cellphilm positions the reservoir as a vibrant actant within extractive systems. It invited me to trace its entanglements with coloniality, capitalism, and ecological collapse. In doing so, it disrupted the epistemicide of petroculture, offering a counter-narrative where matter's agency fuels resistance and reparation.

A static shot through a front window of an electric commuter train entering Montreal at night, “NEW SUBURBAN TRAIN FROM BROSSARD”, prompted reflections on nocturnal ecosystems. The city lights flickered in the distance as downtown approached my field of vision. The shot was a dance of light and metal, a convergence of human technology and Earth's resources. Here, ecoliteracy, public engagement, and solidarity, as tenets challenged ecojustice perspectives. I wondered what it would feel like to not think of the train as a mode of transportation but as a living system, and how that would change how I viewed its purpose. The track was lit throughout and there was no driver, automated by artificial intelligence - one less union worker to pay. I closed my eyes to listen to the hum of the train, I felt the vibrations beneath my feet, and imagined the journey of the electricity powering the vehicle. Closing one's eyes to listen to the train's hum enacts ecopedagogic decentering, shifting focus from human-centric progress to MTH entanglements. The vibrations beneath the feet materialize electricity's journey - from hydro dams flooding Indigenous lands to substations heating urban islands - inviting reflection on energy justice. This multisensory approach rejects the train's symbolic role as a sustainable icon, instead positioning it within a contested web of anti-oppression, animal agency, and intergenerational equity.

Cellphilm the train captured an embodied experience of interconnectivity and unsustainability and through reflection grounded the inter-entities appeal for a shared living in Nature. The cellphilm's power lies in its refusal to aestheticize techno-optimism. By holding the gaze, it transforms the train into a provocation: a demand to interrogate greenwashed infrastructures and recenter climate justice in urban transitions. The static shot, like the oil reservoir, becomes a portal to unsettle sustainability, revealing how even 'eco-friendly' systems perpetuate extractivism - and how solidarity must encompass MTH temporalities.

The train emerges as a MTH interlocutor, its rhythmic presence inviting attunement rather than passive observation. Through metallic vibrations and cyclical clatter, it speaks in a language of force that exceeds its utilitarian form. Viewed through the lens of cellphilm, the train's vitality becomes tangible - a rhythm that enfolds human perception within its machinic circuitry. In this exchange, the train no longer represents progress or industry but unfolds as a sensorial ecology that reconfigures awareness through cadence and resonance. Its hums and movements become communicative gestures, dissolving the boundaries between human and technological life and revealing a shared field of aliveness where agency is distributed across bodies, matter, and motion.

Standing before a quiet hospital water purification plant the cellphilm “WATER TREATMENT PLANT AT DENIA HOSPITAL” became a metaphor for the interconnectedness of entities. I found myself questioning the bifurcations between human and MTH, animate and inanimate entities, as I observed the subtle movements and sounds of the purification process. The water purification plant in Denia was close to our family home in Spain. Silent and still, it was a place of constant invisible transformation, where water was cleansed and revitalized – a transversal mode of perception was needed to understand its MTH impact.^{ccvi} The purification plant was not just a machine, but a vital part of the local ecosystem, invisible to most yet intricately connected to the health and well-being of the community. The sensual, caring, and grateful affection that I held for the water plant, created intra-relations with this MTH. This awareness of the purification plant, while unsettling and yet satisfying as a sustainable source of water, fostered a deeper sense of responsibility and a commitment to finding more sustainable solutions needed in dry land areas prevalent in southern Spain. This encouraged dialogue and solidarity through the reciprocated gaze into the smartphone as I cellphilmmed, fostering a sense of care for Earth within the perceived ‘slow time’ of MTH entities participating in my intra-active process.

The shared gaze fostered a sense of belonging through a mutual expression of agency in these cellphilms. The static shot’s sustained focus on MTHs (train, reservoir) enabled their material presence to ‘look back’ sensorially through hums, vibrations, and metallic sheen. This collapsed my anthropocentric detachment. This gaze as I was cellphilmmed became a dialogue where the entity’s vibrant presence (its rhythms, textures) disrupted my perceived human/Nature binaries, and fostered kinship through shared aliveness. The train’s AI-driven motion or the reservoir’s inert bulk, when framed statically, ceased to be passive objects and instead asserted their relational force by making me bounded to extractive supply chains, nocturnal ecosystems, or fossilized forests. Belonging emerged not from intellectualizing these ties but from the affective pull of the gaze’s reciprocity. I was compelled by the feeling of the train’s electricity in my bones or seeing the reservoir’s sheen as a mirror of petroculture’s reach. I became answerable to the MTH’s lively demand for solidarity, reorienting belonging as an ethical entanglement rather than a symbolic ideal.

“WATCHING SUNSET AT MOUNT ROYAL LOOKOUT” overwhelmed my sense of curiosity and awe. Before cellphilmmed I walked through the Mount-Royal lodge and read the display describing this iconic Montreal park’s history and its preservation. This included narratives of the

appropriation of the land by the French and English invaders, the transformation of Indigenous land into Anglo-Canadian leisure and sports site, the original use of the island by the Iroquois Nation from the village of Hochelaga, and the mountain as a meeting place and burial ground for various Indigenous Nations – covering before and after the first settlers arrived (Poulter, 2009; Lepage, 2019). I understood that the history displayed at the lodge was from the colonizers perspective (see Fournier & Les amis de la montagne, 2007; *The Mountain - Canada's History*, 2025). A different story of the mountain's preservation were told by elders whose Indigenous ancestors lived in the region (Borrows & Ipperwash Inquiry (Ont), 2005; Bosworth, 1839; Fast, 2014). Watching the sunset from the lookout at Mount Royal Park, I perceived the land not as a resource to be exploited, but as a living entity with its own inherent value. This involved slowing down, paying attention to the subtle cues of the environment, and acknowledging the presence of the ancestors who have stewarded the land for generations. The simple act of watching the sunset from Mount Royal Park became not only sensual, but an exercise in decentering the human voice. It allowed adding the history, memories and colonial events to the colors, the light, and the atmosphere – now polluted by urban smog. All spoke for themselves. Land, ecosystems, and even inanimate matter exhibited agency by actively shaping environments and interactions. My experience at the Mount Royal Lookout illustrated how land communicates through its history, colonial legacies, and ecological presence. By perceiving the mountain's 'inherent value' beyond human utility, I acknowledged its capacity to 'speak' through geological, cultural, and temporal layers.

These static cellfilms depicting mundane installations embraced the senses, moving beyond the dominance of sight and sound producing effects with:in actions, feelings and memories. I created affective experiences that resonated with the body, engaging me to feel the vibrations of the train, the smell radiating from the oil reservoir, the history of the lookout, and the quiet stillness surrounding the water purification plant. This is where the notion of spatio-temporal embodiment came into play through cellfilming praxis. As Manning (2013) writes, spacetime itself begins to vibrate with movement expression (p. 101). The cellfilms analysed in this section highlighted the vitality and agency inherent in all matter, from the atomic structures of an oil reservoir to the complex systems of a hospital water purification plant. I was compelled to consider the unseen

forces and connections that animate the shared Earth, fostering an enhanced sense of kinship with MTH entities and Nature.

ANALYZING THE PRAXIS

It is with empathy and care for:with MTHs that the concept of embodiment becomes relevant. This also means embracing all the senses, moving beyond the dominance of sight and sound including the haptic, smell, taste and balance to name but a few of the engaged senses. I wished to align with the commonplace labours of becoming sentient to whatever is happening. It is crucial to suspend the naturalized relationship between thinking subject, concept, and Nature. Drawing on Nancy's (1997) *The sense of the world*, K. Stewart (2011) proposes the concept of 'speculative attunement.' She states:

Instead, they might propose a pause, or to try to write theory through stories, or try, through descriptive detours, to pull academic attunements into tricky alignment with the amazing, sometimes eventful, sometimes buoyant, sometimes endured, sometimes so sad, always commonplace labor of becoming sentient to a world's work, bodies, rhythms, and ways of being in noise and light and space (Nancy, 1997). (p. 445)

The cellphilms in this chapter allowed me to relinquish control, to attune and surrender to the rhythms and textures of the scene, the vitality of the participating entities, and glimpse at Nature through a different lens. The separation between thinking subject, concept, and Nature remained forever partial, a speculative pause amid ceaseless atmospheric flows where sentience surges through bodies, rhythms, and noise without clean rupture. K. Stewart's (2011) attunement lingers in commonplace labors - buoyant, endured, sad - yet the subject's exposure, never returns to itself, entangled in worldly compositions that exceed grasp. In cellphilming the purification plant, oil reservoirs, and bird calls attune me, but my anarchist-feminist lens refracts them, suspending naturalization only to recompose in biased rhythms of care and resistance. Effectively and affectively the separation is never fully possible, suspension of the naturalized relationship is always problematic, contested, and impossible.

The challenge, as articulated by de Castro (2012), lies in achieving a MTH point of view or at least close to it. In each shot, the absence of representational narrative invites a shift in perspective. Informed by Amazonian Indigenous thought, Viveiros de Castro's work suggests that different

entities (humans, animals, spirits) recognize themselves and their relations as human, but are perceived by others as non-human entities. For example, a tapir experiences itself as a person, just as humans do, but appears as an animal to others. This perspective asks us to let go of a single, universal narrative and instead recognize a World made up of many overlapping realities. It challenges traditional Western nature/culture divisions and emphasizes the importance of adopting different perspectives to understand Earth and Nature.^{ccvii} MTH perspectives are essential for embodiment through cellphilm practice.

The embodied cellphilm practice fosters the development of kinship, belonging and environmental citizenship and promotes a more sustainable, just future for all forms of (non)life on Earth. Experiential sense related learnings therefore became central as I engaged in the ordinary daily activities of gardening, walking, filming and feeding animals. Kinship with MTH beings, including non-living entities, was fostered through creative and imaginative engagement (Greeson, 2019; Strang, 2023; Tavella & Spiegelhofer, 2025). The act of cellphilm practice became an act of kin-making, of forging connections with MTH entities and cultivating a sense of sensual affection for Nature. My cellphilm practice embodied the core strengths of this methodology: it challenged and shifted perspectives by materializing, making visible and vibrant the entanglements of H-MTH-N relations; it served as a tool for self-reflection through embodied, iterative, and critical engagement; and it prompted belonging by creating spaces for dialogue, empathy, and shared stewardship - ultimately fostering a deeper sense of connection to place and to MTH communities. These cellfilms became more than just recordings of the 'natural world' because they foregrounded MTH agency, decentered human narrative, and reinforced my sense of community.

Therefore, these cellfilms, born from simple observation and personal reflection, became a potent method of embodied learning and Earth sharing inciting planetary and global citizenship. Through the autoethnographic lens, I explored the complex relationships between humans and MTH entities, questioning unsustainable practices and promoting a more eco-centric Earth:Nature:World view. Cellphilm practice became an act of reciprocity - a way to map interconnectedness, like documenting air travel as harmful on many levels, how non-native species adapt to disrupted habitats, or how corporate 'green' gestures coexist with market-driven consumption.

My cellphilms operationalized belonging not as a fixed identity but as a practice of Earth sharing - a continual negotiation of responsibility across species and cultures. By making visible the “webs of relations” (Todd, 2020) that bind humans, ants, fish, rainfall, irrigation, oil reservoirs and swallows, I modeled an ecopedagogy that is both critically aware and relationally grounded. This approach doesn’t just foster belonging; it redefines it as a multispecies, multi-scalar commitment to reciprocity - an essential shift for just climate futures.

In addition, the autoethnographic cellphilming approach treated emotions not as secondary to analysis but as generative forces shaping political subjectivity. The smartphone’s multisensory affordances (e.g., haptic feedback, ambient sound) amplified affective entanglement: vibrations from bull run onlookers reverberated in my palms, while glare on the screen blurred my gaze, mirroring the overwhelm of navigating systemic injustice. As I re-viewed, in turn, I encountered MTH cellfilm participants not as passive observers but as sensory participants - invited to feel the weight of my struggle through blurred erratic framing, or my silence where speech failed.

The method exposed how political learning emerges through bodily negotiations (e.g., trembling hands framing a MTH) rather than detached critique by refusing to separate emotion from epistemology. Cellphilms became affective feedback, where my body’s tensions and the phone’s material agency co-composed a politics of vulnerability, solidarity, or resistance. This meant that in my autoethnographic cellphilming, my emotions and bodily feelings were central, not just intellectual reflections. The process revealed how political emotions shape identity, belonging, and participation. The cellfilm captures the ongoing negotiation of feelings and meanings, rather than fixed representations.

Through these cellphilms, I began to understand how single-shot, static cellphilming can create a space for experiencing belonging and the sharing of Earth. This underscored my presumptions that a single shot is better than an edited cellfilm for the purposes of creating a connection with the MTH to incite belonging and kinship. It requires a shift in perception, a willingness to move beyond representational imagery and embrace the sensual and affective dimensions of our interactions with the MTH as we become (co)actants of mutual relations. The use of the smartphone acted as a means of bringing awareness and paying attention to the smallest details of MTH entities engaged in:for:with Nature, which is where all connections begin. By eliminating editing and maintaining

fixed framing, the static cellphilms activated specific mechanisms that align with ecopedagogic goals.

Static-shot cellphilmmaking fosters belonging and ecological awareness by grounding creators in patient, immersive observation. Holding a fixed frame for extended periods - whether cellphilming grasshoppers mating, parakeets retreating from helicopter noise, or bathers in a polluted estuary - shifts focus from crafting a narrative to witnessing the vitality, vibrant rhythms and engaged actions of MTH entities. This unbroken gaze reveals details often overlooked. The smartphone becomes a tool not for control but for deepening attention, capturing the interplay of senses - the smell of sewage, the vibration of wings, the tension of proximity. Staying still, both physically and technically, allows the World to unfold on its own terms, dissolving boundaries between observer and observed. Through this practice, belonging transforms from a static identity into an ongoing dialogue - a shared space where human fragility and ecological resilience meet.

My praxis reinforced the idea that single shot, static camera cellphilms were better suited for generating an image-viewer engagement free of interference and distraction. Static-shot cellphilming transformed smartphones from distraction devices into instruments of radical attention and by marrying technical constraint (no edits, fixed angles) with extended duration. This materializes posthumanist theory through accessible practice. It also makes visible the labour of ecological care. But more importantly it allowed me to position belonging not as identity but as continuous act of co-presence. Sometimes doing less with technology achieves more epistemic justice - a crucial lesson for climate education in capitalism's platform mediated attention economy.

CONCLUSION

In this chapter, I explored the use of cellphilming as a method for embodiment that connects humans to MTH entities. I engaged in cellphilming everyday experiences in natural settings, reflecting on my interdependence with MTH entities. Through this reflexive praxis, I delved deeper into the concept of ecological belonging and examined the affective fabric that shapes our connection to Earth and its MTH entities.

Throughout the chapter, I examined my cellphilming of MTH entities, highlighting the vitality and agency inherent in all matter. I argued that these entities perform their material, agential vitality

intra-actively with their multitude of MTH and human kin. I defined forest walks as a means of combining physical movement with reflection and learning in Nature. I emphasized the importance of embracing decolonial practices and incorporating Indigenous land-based epistemologies to contribute to systemic change in pedagogy. In my exploration of plant and animal life through cellphilming, I found that unfiltered observations could provoke reflection and connection. I suggested that single shot cellphilms might be more effective in creating connections with MTH entities than edited versions.

Furthermore, I recognized the agency of plastics and their intricate intra-relations with other MTH entities, which helped me develop an understanding of positionality and Earth sharing. I acknowledged the agency of these MTH entities as actants by simply observing inclusively without intervention. I thus realized that even in seemingly mundane scenarios, cellphilming can reveal the hidden vitality of our co-existence with MTH entities. In the processes and subtle interactions between humans and MTH entities through technology, cellphilms can highlight our interdependence with the unseen World around us.

My critical ecopedagogy practice assumed that learners would be willing to question and confront the capitalist paradigms that most educational systems reinforce. I saw this clearly in my cellphilming: For example, when I documented granite extraction in my hometown, I was faced with the reality that economic interests and resource extraction are deeply embedded in our landscapes and our ways of thinking and living. This created what I termed earlier a “*circular ecological melancholy*” that describes the recurring sense of disillusionment that arises when striving to learn and teach for ecological and social change but in so doing continually encountering systemic inertia and the normalization of unsustainable practices. It signals a persistent tension within ecopedagogical praxis, where transformative intentions are repeatedly absorbed or neutralized by entrenched structures. Ecopedagogic ecoliteracy, (un)sustainable practices, ecojustice and H-MTH relations through affective, embodied learning are repeatedly thwarted by systemic inertia - entrenched capitalist paradigms, anthropocentric norms, and institutionalized ecological practices. It describes the emotional and intellectual fatigue of aspiring toward kinship and reciprocity with MTH entities while confronting the reality that education of the environment systems often reproduces the very extractive logics they seek to teach, evaluate and unravel. These dynamics echo critical ecopedagogies’ critique of how education often unwittingly sustains the

"global ecology of exploitation," thwarting efforts to foster reciprocity with MTH entities amid systemic inertia (Kopnina, 2020). Ultimately, circular ecological melancholy describes the emotional and intellectual fatigue of pursuing ecological solidarity while confronting how environmental education frequently perpetuates the very capitalist and colonial hierarchies it aims to dismantle.

I also recognized that the very language of "sustainable development" is tied up with neoliberal modernization, and that even the Anthropocene, as a concept, can reinforce anthropocentric and Western-focused narratives. Through my cellphilm, especially in moments like filming the reconstruction of the Tomifobia riverbank or the construction of the Stanhenge monument, I saw how so-called solutions often perpetuate the same exploitative logics and overlook Indigenous or place-based ways of knowing, enacting and healing. These experiences made me realize that critical ecopedagogy needs to move beyond universal solutions and instead foster humility, reflexivity, and the willingness to sit with discomfort, fatalism, and complexity. In this way, the limitations, and frictions I encountered in my practice became openings for new, more grounded and relational forms of research and learning.

The question that rests at the heart of the collaborative dimension of research-creation - particularly when kinship and co-creation are extended beyond the human - is how reciprocity, consent, and co-creation can be ethically and meaningfully conceived, negotiated, and practiced when engagement unfolds through affective, material, and sensorial exchanges rather than shared human language, and when agency is distributed across human and MTH participants with differing capacities to express, resist, and respond. The tension between my active framing and the MTH entities' indirect agency reveals an epistemic negotiation: how can reciprocity, consent, or co-creation be ethically and meaningfully conceived when the participants do not communicate through human language or (un)intentional gesture? The collaborative nature of such work depends less on symmetrical agency than on attunement and responsiveness. Within much of Indigenous and posthumanist frameworks, kinship is not grounded in equality of expression but in relational accountability - a practice of 'listening-with' and 'responding-to' rather than 'acting-upon.' When the researcher cellfilms with land, sound, insect, wind, or animal co-creators, the collaboration occurs through the affective and sensorial exchanges that emerge *in situ*. The dog's joy or the birds' withdrawal can thus be understood as forms of retroaction - material, behavioural, or energetic

responses through which the MTH communicates its comfort, resistance, or refusal. Consent, in this sense, becomes perceptible through the other's presence or absence, proximity or distance, rhythms or silences.

However, these exchanges demanded a heightened ethical awareness. Kinship cannot be presumed simply because one invokes Indigenous or ecopedagogical ontologies; it must be continuously negotiated through humility, vulnerability, and reflexivity. When a MTH presence recedes - as with the birds who fly away - it signals a limit to co-creation. This withdrawal is not a failure but a communicative act that marks where the practitioner's accountability must end. Within an Indigenous ethics of relationality, respect manifests as honoring such refusals and recognizing that not all entities wish to participate (Todd, 2016; Simpson, 2017).

Research-creation, viewed this way, models collaboration not as parity but as reciprocal responsiveness - an ethical choreography where creation happens between agencies that are uneven, situated, and contingent. The cellphilm becomes a site of this negotiation, capturing not only what was shared but also what withdrew, what resisted representation. To speak of mutual co-creation, then, is to include both the expressive vitality of participation and the meaningful silence of refusal - each a gesture of kinship, each a form of communication within the MTH dialogue.

Truly decentering the human requires moving beyond the mere inclusion of MTH actors; it necessitates acknowledging how humans are fundamentally constituted through MTH relations. My journey through this inquiry has deepened my understanding of my place within the intricate web of life, inspiring me to encourage others to engage in similar explorations for a more just and sustainable World.

CHAPTER 6

CONCLUSION

This research-creation explored how integrating MTH entities into ecopedagogy through autoethnographic cellphilmaking - using digital mobile filming to document personal, sensory experiences - fostered deeper kinship and inclusivity. The central question asked how cellphilmaking that engages the senses and emotions might enrich ecopedagogical practices by connecting humans more closely with MTH entities. The research-creation aimed to strengthen emotional relationships with the MTH, moving beyond Northern/Western ‘traditional’ subject-object divides by focusing on affective and sensory engagement during the cellphilmaking process. This methodological approach blended autoethnography, smartphones, and ecopedagogy to create a more reflexive and dialogic understanding of ecological relationships. Ultimately, the goal was to contribute a new practice for ecopedagogy that encourages critical, politically engaged environmental education and advances both theory and practice for future research.

My inquiry began with the simple guiding research-creation question: *How does autoethnographic filming using mobile cellphilmaking technology engaged with the participant’s senses and affects contribute to ecopedagogies that connect humans to MTH entities?* Specifically, this inquiry set out to investigate the sensual, affective ability to engage during learners’ autoethnographic cellphilmaking, in order to induce belonging with the MTH. What followed was a journey of profound reflexivity that challenged my assumptions, biases, and deeply embedded anthropocentric perspectives. Through the lens of my smartphone, I sought to cultivate a sense of belonging and Earth sharing with MTHs in an ethical engagement with Nature, and to understand my role as a filmmaker doing an ecopedagogic research-creation.

Initial attempts lacked a deeper engagement with the ecopedagogical principles I hoped to embody. I found myself operating from a human-centric viewpoint, observing MTH entities as something “out there”, objectified and not integrated to myself. I expanded on my practice and started to cellphilm scenes that were more ecopedagogically significant. I documented a variety of scenes

including, a mountainside re-growing after a wildfire, Barcelona's underground network of electrical and media cables, children led out of a plastic playground, and a polluted marina seabed.

This juxtaposition of my senses, emotions and cellphilm practice sparked a reflection on my relationship with the environment and how I constructed 'Nature' in my early education. Trnka (2013) proposed that sensory experiences and bodily sensations are embedded in social and political relations, emphasizing a collective and relational understanding rather than an individualistic one. The senses are intertwined with social responsibilities, political power, and collective life: "the senses, then, mediate our sense of the world, 'continually linking bodily experience to thought and to action'" (p. 2). This prompted me to move beyond mere visual documentation and embrace a more embodied, sensory way of 're-knowing'. As I have noted several parameters directed the research - disruption of Northern/Western 'traditional' binaries, exploration of alternative temporalities, attunement to intra- inter-actions, consideration of emotional responses, collaborative agency of the actants, movement and emergence, sensing affective vibrant matter, alternatives narrative structures, and aesthetic dispositions.

My autoethnography inherently involved a deliberate 'push' onto the self through rigorous reflexivity, where my research systematically turned inward to interrogate personal experiences, biases, emotions, and assumptions in relation to cultural or social phenomena, rather than treating it as an imposed external force. This self-imposition is not passive but an active, ongoing process of reflexive introspection - asking what biases I am bringing, or how my emotions shape this inquiry. This disrupted comfortable self-narratives and fostered vulnerability, growth, and critical analysis. In my attunement to intra-actions, affective matter, and alternative temporalities, this push manifested as an embodied commitment to Freirean 're-knowing' through sensory and MTH collaborative emergence, transforming personal documentation into a politically charged critique without external coercion.

Readers may wonder why earlier arguments about the theoretical and practical underpinnings of the relationship between humans and MTHs and their shared agency, participation and communication were left unredacted in retrospect during thesis editing. I persisted to minimize revision due to the iterative nature of thesis writing, where my foundational claims build progressively before limitations were fully articulated in my conclusions, a common practice in

qualitative ecopedagogic and decolonial research that I have perused and researched. Revising prior sections retroactively risks disrupting narrative flow and theoretical coherence, especially when limitations emerge from reflexive analysis rather than initial design. This approach underscored my ethical relationality in my MTH collaborations, urging future work to integrate decolonial frameworks earlier via co-creative methods like Indigenous *storywork* principles (Archibald, 2008).

CONCEPTUAL FRAMEWORKS, METHODOLOGY AND PRACTICES

This research-creation was guided by my positionality, embodiment, and informed by Western theory and certain Indigenous knowledge systems. I also relied on the new-materialist intra-relations with other MTH entities, to induce a sense of belonging and kinship. This inquiry was not merely about documenting, but about engaging in a deeply reflexive, sensual and affective manner. The concept of direct sensuous reality, as articulated by Abram (2017) in *The spell of the sensuous*, plays a pivotal role in fostering ecological learning by emphasizing the importance of direct, embodied experiences with Nature. This contrasts sharply with contemporary lifestyles that often prioritize electronic and abstract interactions over genuine sensory engagement. However, the cellphilmaking process I experienced engaged the MTH into my indirect, vital and affective sensual reality.

Dewey's, Freire's, and Rancière's pedagogical philosophies were not simply adopted for my conceptual framework as inspiration, but reinvented through a more-than-human, postdigital praxis that challenged dominant epistemological hierarchies in environmental education. Dewey's (1962) notion of experiential learning was reconceptualized beyond human perception to include the sensory and affective exchanges among human, MTH, technological, and ecological agencies. By using cellphilmaking to capture moments of sensation and agency, I aimed to foster a deeper connection between learners and MTH entities. Through cellphilmaking, my research aimed to explore the surroundings, engage with natural environments (Nature), and reflect on my experiences, thereby developing a more nuanced understanding of my place within these ecosystems.

Revisioning Freire's (2000) critical pedagogy also played a significant role in shaping my research-creation through praxis. His ideas on empowerment and critical consciousness were essential in designing an educational praxis that not only informs but also transforms learners' relationships with Nature. I acknowledged the agency of MTH entities and encouraged my learning to question dominant narratives. I aimed through the analysis of this postdigital praxis to inspire critical thinking and environmental responsibility. My critical engagement with the Nature aligned with Freire's vision of education as a tool for social change, where learners become active participants in shaping their own understanding of the 'World' and their role within it.

Rancière's (1991) concept of the 'ignorant schoolmaster' further influenced my approach by emphasizing the importance of equality in the learning process. In the context of ecopedagogy, this meant recognizing that learners and MTH entities are co-educators, each contributing unique perspectives and knowledge through their own active or passive 'will'. Is it possible that I decentered the human subject by acknowledging the role of technology and materiality in shaping my experiences? I created a space where I as learner could engage with the environment in what I perceived as a more 'egalitarian' manner. This approach challenged Northern/Western 'traditional' hierarchies in education, allowing for a more inclusive and collaborative learning environment that values the contributions of all participants, human and MTH alike. Rancière's emphasis on equality, translation and intellectual emancipation can be applied in future ecopedagogies by encouraging learners to explore and interpret their environmental experiences without relying on preconceived notions or expert explanations. Through these theoretical reinventions, the research generated a framework for ecopedagogical engagement that positions knowing as a relational, participatory, and multisensory act.

Autoethnography by cellphilming was a foundational methodology, allowing for a reflexive exploration of my own experiences and biases. I drew on relational or 'ecological' autoethnography, which explicitly frames the autobiographical 'I' as a node in a web of human and MTH relations, thereby repositioning autoethnography as a situated, communal, and ecological practice rather than a purely person-centred one. I then mobilized dialogical or collective forms of autoethnography with MTH entities as passive participants in an intra-active relationship (co-autoethnography, collaborative autoethnography) to show how individual cellfilms sit within broader constellations of human co-participation, making clearer how ecopedagogical community emerges alongside, and

not instead of, MTH co-creation. Furthermore, a more explicit engagement with posthuman performance, affect theory, and media ecology helped to conceptualize the cellfilm not only as a record of human experience with MTHs, but as a site where the capacities of bodies, environments, and devices are jointly composed. Taken together, these moves would not eliminate the tension, but would reframe it as a productive, theorized instability rather than an unacknowledged slide in meaning.

The integration of postphenomenology provided a theoretical framework for understanding how technology mediates our experiences and perceptions of the World. Furthermore, my exploration into decolonial epistemology allowed for diverse ways of knowing that have been historically marginalized. I engaged several Indigenous knowledge frameworks in collaboration with Western methodologies. I examined and challenged Eurocentric assumptions and power structures predominant in academic research practices by questioning the universality of Western scientific methods and including research from various traditions, epistemologies, and communities. I reflected on how colonial legacies shaped my research-creation agenda and methodologies. I adopted a pluriversal approach that recognized multiple coexisting realities and ways of understanding the H-MTH-N relationship. Finally, I engage in critical reflexivity throughout the research-creation process by acknowledging my positionality, biases, and assumptions as a researcher. My methodology aimed to be transparent about limitations and contributed to more equitable and inclusive knowledge production.

Affect underscored the emotional and sensual dimensions of engaging with MTH entities. Through autoethnographic cellfilming, I demonstrated how affective engagement can inspire a sense of belonging and kinship with Nature. This affective dimension was explored through themes such as wonder, awe, and care, highlighting the potential for transformative action towards environmental and social justice. The senses were also a central aspect, as I explored how cellfilming can engage participants' senses and affects to foster deeper connections with MTHs.

My ecopedagogical praxis integrates critical theory with reflective, hands-on environmental education through cellfilming, a postdigital method that entangles my senses and affects with MTH entities to foster kinship and belonging. This praxis reworks Freirean conscientization via place-based, experiential encounters that disrupt anthropocentric hierarchies, enabling me to

cultivate ecological literacy and ethical responsiveness through multisensory interactions captured on film. In this inquiry, the cellphilms materialized this praxis's potential, revealing how my affective engagements with Nature generated relational agency and challenged narratives of human-environmental separation. Invoking a postdigital approach to my ecopedagogic praxis, I opted for non-representational cellphilming to challenge Northern/Western 'traditional' notions of representation and subjectivity, aligning with posthumanist and postqualitative paradigms. This approach decentered the human subject and acknowledged the agency of MTH entities, offering new insights into the complex interplay between humans, MTH entities, technology, and Nature. In addition, the Internet provided access to diverse sources of knowledge about MTHs, ecopedagogies, performative research, and autoethnographic praxis.^{ccviii} This inquiry built upon this postdigital integration, creating a new and ever-expanding forum for performative writing that includes text, sound, images, and ecopedagogic cellphilms presented in myriad ways.

I cultivated kinship with MTH entities through a year-long autoethnographic practice of non-representational cellphilming. By focusing on mundane, everyday moments - like feeding birds, riding the train, harvesting from the garden, and walking in ecosystems - I attuned myself to the affective, embodied dimensions of human-MTH interactions. My smartphone became a mediator, not just a tool, reshaping how I perceived and engaged with my surroundings.

In practice, I cellphilmed abstract textures (tree bark, light on water), subtle soundscapes (bird calls, rustling leaves), and ephemeral encounters (nocturnal flower blooms, caterpillars crawling). These fragments prioritized felt experience over polished narratives, disrupting anthropocentric perspectives. For example, lying on the grass to cellphilms ants revealed their vibrant agency, while tracking a gecko fleeing varnish fumes highlighted unintended human impacts on wildlife. MTH elements co-create knowledge by intertwining with my body and writing practice, forming a relational ontology where human reflection arises from environmental interactions - in this case the gecko and fumes. Physical discomfort, spray of the screen, fleeing gecko, and natural elements like wind, smells and sound, become inseparable from interpretive processes, expanding epistemology beyond anthropocentric individualism. Such embodiment reveals knowledge as emergent from hybrid human-MTH encounters, challenging views of the researcher as sole agent

Embodied learning helped me document (by cellphilm and in my diary) my emotional responses - awe, guilt, curiosity. I explored how learners might develop ecological literacy through affective engagement rather than abstract concepts. Cellphilm of mundane moments (e.g., watching rain, tracking caterpillar journey) transformed routine acts into lessons in sustainability and reciprocity.

While narrowing down 200 cellphilm to a selection of 50 for further analysis, I prioritized MTH agency and non-verbal communication in my decision-making process. My selection method underscored the importance of respecting MTH inclusivity, a principle transferable to teaching young learners to cellfilm ethically and reflexively. My struggle to avoid anthropomorphizing MTH entities (e.g., projecting despair onto pollinator-less flowers) revealed the tension between human narratives and MTH realities. This critical reflexivity aligned with ecopedagogy's goal of decentralizing human exceptionalism.

Cellphilm of mined and degraded landscapes (quarries, post-fire regrowth) and cultural practices (festivals with environmental costs) highlighted how personal actions ripple into broader ecological systems. These cellphilm became portals for discussing eco-justice and unsustainable practices in education, foregrounding local-global interconnectedness.

This practice demonstrated that belonging emerges through sustained, sensorial attention to the everyday. By framing cellphilm as a relational act - not just documentation - I provided a template for ecopedagogy that roots environmental education in embodied, emotional, and ethically grounded encounters and engagements with MTH entities and Nature.

PURPOSE AND AIMS OF THE RESEARCH-CREATION

My research took as its foundational goal Misiaszek's (2018) persistence to transform environmental education by having learners critically read and understand the human made interconnected factors that are driving the planet to destruction. He states:

Ecopedagogues' goal is to teach for deepened and widened students' critical environmental literacy within learning spaces and, more importantly, gaining the critical tools for better understanding of environmental issues they encounter outside of non-/formal learning spaces. Such deepened and widened literacies are essential for citizens' praxis. (p. 3)

This informed me to consider, elaborate and enhance cellphilming as one such transformative ecopedagogical tool that ‘deepens and widens’ learners’ understanding of environmental issues by decentering their anthropocentric perspective.

Several scholars throughout this inquiry emphasized that truly decentering the human requires moving beyond simply including MTH actors (Deleuze & Guattari, 1987; Barad, 2007; Lorimer, 2013; Braidotti, 2013; Abram, 2017; Horsthemke, 2020; Nicenboim et al., 2024). Praxis was needed as a determining factor in decentring ecopedagogy beyond anthropogenic perspectives. As an anarcha-feminist environmentalist with socialist tendencies and fierce resistance to patriarchal order, I oppose hierarchical power structures that entwine capitalism, patriarchy, and colonialism, pushing instead for direct democracy, communal solidarity, and ecological care beyond human dominance. My praxis reflected on my positionality and my filmmaking experience informed the way that I was to engage technically, emotionally, and communicatively with my MTH kin. My attempts at decentering were done by cellphilming in a single, unedited shot, which forced me to collaborate with unpredictable elements like wind, device glitches, and/or animal, reptile and insect interruptions, letting them shape the outcome.

Instead of relying on narrative or dialogue, I used camera angles, lingering shots, and silence to amplify MTH presences - such as focusing on water dripping, plant regrowth or insect movement. I attuned my perception to micro-relations, like the sounds of my own body or the slow movement of a caterpillar. I began to sense the symbiosis between human and MTH entities. Letting environmental forces like awe, colors, gecko movement, crawling caterpillars or vanishing sun rays guide my camera movements further dissolved my own intentionality and opened space for the agency of MTH entities participating. This approach meant that my cellphilming was not just about capturing what I wanted, but about being responsive to what the environment and its MTH participants offered in each moment.

This openness made the agency of MTH entities palpable. The MTHs were not just backdrops but active collaborators, shaping the outcome of the cellphilms. My role became less about directing and more about attending and responding - being attuned to the subtle invitations and resistances of the World. Through this, I experienced a shift: I was no longer simply observing Nature, but

entering into a dynamic, reciprocal relationship with it, where both human and MTH agencies were present and intertwined.

Even in editing multiple shot cellphilms, allowing algorithms, data glitches, or collaborations with digital and biological processes to shape the final cellphilms ensured that authorship is shared, and the boundaries between human and MTH remained fluid and open. In each cellphilms shot, while seeking an absence of representational narrative I invited a shift in perspective, urging me to get out of my own head, so to speak, and into MTH entities around me (both sensed and unsensed).

Throughout this research-creation I reminded myself of why I engaged with ‘ecopedagogy’, and why ‘belonging’ and ‘kinship’. Ecopedagogy, as a transformative educational approach, seeks to revolutionize our understanding of environmental issues and social justice. My engagement with ecopedagogy arose from a desire to move beyond abstract or distant understandings of environmental issues, and instead to cultivate a lived, embodied, and affective relationship with the MTH entities in the World around me. I wanted to experience and document how every day, local, and mundane encounters could reveal the complex, reciprocal relationships that bind humans and MTH entities together.

I was motivated to pursue this path because I saw the potential for such embodied, affective practices to inform not just my own understanding, but also to inspire and model ecopedagogical approaches for younger learners EoE. I directed my work to find ways of homing in young learner’s eco-consciousness as part of a broader ecopedagogy. Early childhood is a formative stage where young learners develop lifelong values and behaviours. This period nurtures curiosity, creativity, and emotional connections to the environment, engaging learners with Nature and helping them understand their interdependence with MTH entities.

In addition, smartphones allow children to document their observations, engage with MTH entities *in-situ* through play, science and autoethnography. They can also develop digital skills, explore interactive tools like plant identification apps, and link classroom lessons to everyday environmental issues. This enhances ecological literacy, empathy for MTH entities, and a sense of responsibility toward Earth and Nature. If we apply cellphilming praxis to ecopedagogy with learners, we begin to see the classroom itself as a dynamic, interconnected system. We recognize

that the water we drink, the desks we sit at, and even the smartphones we use are all part of this web of relations. Throughout my research-creation, I linked my cellphilm practice directly to early childhood eco-literacy by intentionally modeling the kinds of sensory-rich, affective, and reflexive engagement that I believe are essential for young learners. I recognized that early childhood is a formative stage, where curiosity and emotional connections to the environment are naturally strong. This understanding shaped the way I approached my own cellphilm: I focused on every day, local encounters - like filming the emergence of seedlings, the movement of ants, or the play of light on water - because these mirrored the exploratory, playful ways children engage with their 'world'.

I used my smartphone to experiment with close-ups and multisensory cellphilm, such as capturing the sound of water trickling, watching insects, or the tactile experience of touching tree bark, to evoke wonder and curiosity - qualities that are central to early childhood learning. I was always mindful of the accessibility of my methods, choosing not to use expensive equipment, so that the practices I developed could be realistically replicated by young learners and teachers in diverse settings. I informed the research with the limitations of smartphone in school use. I also reflected on the ethical and emotional aspects of documenting MTH entities, understanding that fostering empathy and responsibility begins with small, personal acts of care and attention - like celebrating the growth of a plant, feeding beefalos, or noticing the agency of insects in a garden.

I demonstrated how eco-literacy can be cultivated through lived, sensory-rich experiences, rather than abstract instruction. In this way, my cellphilm praxis showed that the classroom - and the World beyond - is a dynamic, interconnected system. In my inquiry I offered concrete, embodied examples of how young learners can develop ecological literacy, empathy for MTH entities, and a sense of responsibility toward Earth and Nature through creative, participatory, and emotionally resonant engagement.

In many ways this research-creation has opened up many questions and possible ecopedagogic praxes for my future research. I aim to expand my research-creation by applying cellphilm praxis directly with young learners in early childhood settings. I will also investigate how guided sensory-rich filming activities foster empathy and ecological awareness among children. I could explore integrating digital tools like plant identification apps to link embodied encounters with

critical discussions on environmental justice. I will seek to develop ethically informed protocols for documenting MTH entities that respect their agency and aim to cultivate care. I will attempt to collaborate with educators to co-design curricula that make classrooms living systems interconnected with local ecologies.

FINDINGS FROM THE RESEARCH-CREATION

The findings engaged with overarching ecopedagogy teaching practices real-world barriers like poverty or injustice that feel like unbreakable walls holding people back from full freedom. These aren't fixed or natural; they're human-made and changeable through history that informed this research-creation - namely, a transformative, conscientizing and experimental educational approach.

Autoethnographic performative cellphilmaking praxis allowed me to experience a deeper sense of belonging and kinship with MTH entities by encouraging more intimate and immersive identifications. For example, as I cellphilmaked the “OLDEST MILLENNIAL OLIVE TREE IN TOWN,” I didn't just record its ancient bark and twisted limbs - I held the tree, traced its textures with my hands, and even chewed on an olive leaf to taste its oils and aromas. This multisensory engagement made me feel part of the tree's long history and the landscape it anchors, evoking a profound sense of awe, care, and responsibility for its continued survival. It helped me embrace the sensual towards an affective embodiment of:with MTH entities interacting with my autoethnography. I became entangled with my surroundings. This brought into clearer perspective MTH entities performing as actants in my praxis. I was thus engaged in a communal act with MTHs that required me to reveal my positionality, biases, hypocrisy and entitlement as human and as a Western researcher engaged with several Indigenous and Southern methodologies and knowledge systems.

The inclusive praxis highlighted the diversity of experiences and embodiments. For example, cellphilmaking the eclipse using automatic smartphone settings revealed how digital recording technology/smartphones distort ecological encounters. The device flattened this cosmic event into a digital artifact, contrasting with its awe-inspiring reality. This exposed my reliance on extractive technologies (smartphone minerals) conflicting with Indigenous relational materiality. My

cellphilm depicting the transatlantic flight also underscored the tension between academic mobility and land-based knowledge systems. The cellphilm “Stanhenge” documents a Stonehenge replica on unceded Abenaki land. The Western fetishization of ‘sacred’ landscapes, the structure’s colonial mimicry, and the more recent tourist-driven purpose clashed with many Indigenous views of land as kin, not resource. I confronted how Western environmental education aestheticizes exploitation by highlighting granite extraction for the replica, forcing me to grapple with my role as a settler researcher on stolen land. Finally, cellphilm post-flood reconstruction showcased the clash between concrete engineering and the river’s agency. Initial awe at human ingenuity shifted to unease, recognizing the arrogance of ‘fixing’ Nature - a stark contrast to much of Indigenous cosmologies viewing rivers as ancestors. The machinery displacing soil and flora revealed my embeddedness in capitalist control, urging me to sit with Tsing’s ‘friction’ of unsustainable solutions.

The resulting cellfilms brought to the fore ethical, emotional, and linguistic consequences and significances. Ethically, they raised questions about consent, ownership, representation, and the need for ongoing ethical reflection throughout production and dissemination, especially given the participatory and potentially vulnerable nature of MTH contributors. Emotionally, cellfilms often surfaced deep feelings - such as empathy, care, or discomfort - by making visible personal and collective experiences, sometimes challenging me to confront difficult truths or build new forms of connection and understanding. Linguistically, cellfilms demonstrated how meaning is constructed not just through spoken language but also through visuals, tone, rhythm, and non-verbal elements, allowing for implicit, affective, and culturally diverse ways of knowing and communicating. For example, the multisensory experience of rain on a distorted window or the soundscape of a blackbird’s call illustrated how cellfilms can communicate affect and knowledge in ways that go beyond language - making room for implicit, embodied, and culturally diverse ways of knowing. Developing new linguistic frameworks, definitions, and metaphors is central for helping future teacher/learner to ecopedagogically understand, critique, conceptualize and communicate with/about MTH entities (Affifi, 2018, 2023; Ferguson & Weaselboy, 2020; Maijala et al., 2024; Novikova et al., 2024). This includes understanding animal communication through vocalizations, pheromones, and body language, as well as cultural and ecological perspectives that treat MTH entities with respect and animacy.

I also began to give extra attention to my other senses, discovering the affects, vitality and agency that interact with my co-creators. The feel of the soil, the gentle rain on my skin, the scent of flowers, and the taste of fresh herbs became integral to my cellphilm practice.^{ccix} One particularly poignant moment occurred while filming “Leaving Mount Royal Park at Night”. As I captured the interplay of darkness and city lights, I felt a profound emotional response that emanated from an affect induced bodily sensation. This produced anxiety and a reflection on loss of memory and aging. I understood the relevance of embracing all the senses as intra-action with emotions, deep thought and feelings. The potential of affect and haptic intra-action in pedagogic practices through cellphilm became increasingly clear as my journey progressed. While filming the bull run, I experienced a visceral sense of unease, thinking “I should not be here”. This haptic response aligns with Searle et al.'s (2024) exploration of “affective encounters and relational reflexivity” in research practices (p. 3).

Emotionally, the process surfaced deep feelings - empathy, care, discomfort, and sometimes guilt - by making visible both personal and collective experiences with MTH entities. Cellphilm a gecko escaping toxic varnish, for instance, forced me to confront the unintended consequences of my own actions on local wildlife. Similarly, documenting the aftermath of wildfires or the struggles of seagulls in overheated, toska mined landscapes evoked a sense of responsibility and sometimes sadness, challenging me to reflect on my place within these ecological webs.

In my practice, communicating with non-living MTHs such as objects involved understanding how we interact with them, often influenced by cultural beliefs that attribute life, affect, vibrancy, and spirituality to objects.^{ccx} Ontological and epistemological shifts were required to understand communication with objects, drawing on theories of vibrant matter, intra-action, and Indigenous relational ontologies. For example, my smartphone reshaped human behaviour not through intentionality but via its material design, algorithmic operations, and integration into social practices. This required changing my use of language: instead of using words that enforce human control, I used expressions that acknowledge objects’ agencies and influences. Language became more about interaction and mutual influence, blurring the line between subject and object. As I communicated with MTHs, I understood the interaction as a material process, where meaning emerges through our embodied, affective, and responsive engagement with objects, not just through words or shared space alone. Such (in)formal attunement in language practices I

understood as vital for developing a more profound connection to the environment by addressing MTH agency and their (in)direct physical and vibrant engagement.

In my ecopedagogical praxis, the cellfilms demonstrated that there was a potential for engaging learners' senses and affects with kinship and belonging. My re-viewings and subsequent analysis fostered a sense of connection and belonging by encouraging personal, emotional, sensory-rich interactions with MTH entities. Fostering emotional connections with MTHs and Nature is crucial for developing genuine ecological care and commitment to environmental action (Abram, 2017; Webb et al., 2020; Behzad et al., 2022; Liu, 2023).^{ccxi} Connection with Nature leads to reduced stress, improved mental well-being, and a sense of meaning, while MTHs offer shared knowledge, intellectual exploration, and a broader understanding of the World.

These cellfilms also revealed both the promise and the challenges of this methodology. While the cellfilms fostered my own sense of kinship and belonging with MTH entities - especially through repeated, sensory-rich interactions - they also highlighted the limitations of anthropocentrism and the difficulty of fully representing MTH agency. My re-viewings and analysis of the cellfilms encouraged personal reflection and deeper connection, suggesting that even though this was a solo inquiry, the approach holds significant potential for others. It can help learners engage their senses and emotions, fostering ecological awareness and a sense of belonging that is grounded in lived, affective experience rather than abstract knowledge.

While the cellfilms fostered my own sense of kinship and belonging with MTH entities - especially through repeated, sensory-rich interactions - they also illuminated the limits of anthropocentrism and the difficulty of fully representing MTH agency. From an (eco)feminist standpoint, however, such reflexivity remains entangled within human perceptual and epistemic boundaries, revealing how efforts to speak with rather than for MTH beings are always partial and situated (Haraway, 1988; Alaimo, 2016).

This inquiry also revealed a practice that combined digital literacy with environmental education. This study will inform my future plans to prepare participants to engage with complex ecological challenges in the digital age. My year-long autoethnographic cellfilming praxis deepened digital literacy by integrating technical experimentation, ethical reflection, and adaptive problem-solving

with everyday smartphone technology. My cellphilm practice advanced digital literacy by requiring me to solve technical problems, making me think critically about ethical and practical choices. Shooting mostly single, unedited clips, I learned to plan, adapt, and reflect in real time, showing how everyday technology can be used creatively and thoughtfully for learning and sharing environmental experiences.

Finally, my cellphilm praxis highlighted what many have stated, that ethical implications are crucial to address when interacting with MTH entities (Braidotti, 2006; Beavington, 2016; Eriksen & Kay, 2022; Korsant, 2024). Ethically, each cellphilm required me to confront questions about consent, representation, and the agency of MTH participants. For example, when I cellphilm birds feeding on sunflowers, I realized my presence and the smartphone itself affected their behaviour, prompting me to hide the phone under leaves to minimize intrusion. This raised ongoing questions about how to ethically engage with MTH entities and who gets to decide what is shown or shared. My research-creation practice stressed the need to extend our ethical responsibilities beyond human-centric views, acknowledging the interconnectedness of all life forms and the shared environment.^{ccxii}

Communicating with MTH Entities

Over the course of my research-creation, I discovered that accessing and communicating with MTH entities required attentiveness, empathy, and sensorial awareness. In some instances, silence was helpful, but with Hooper the dog vocalizing while playing was more effective. I co-created cellphilm with MTHs by feeling a genuine sense of connection and agency with MTH entities participating. Ultimately, it was my willingness to remain open and receptive - to truly tune in to the subtle cues of the environment - that enabled this connection to emerge. Cellphilm made me witness, collaborate with, and even be changed by the MTH through critical and engaged empathy.

I communicated with MTH entities by surrendering control and attuning my senses to the subtle, often overlooked rhythms of the World around me. This was not a dialogue of words, but of embodied presence, affective resonance, and technological mediation. For instance, while filming the morning birds calling or crystal bowls humming, I let the sound guide my camera's focus. The smartphone became an extension of my ear, amplifying the sonic textures of rainfall and birdsong.

I didn't just hear the environment; I felt it as a shared acoustic space where human and MTH rhythms intermingled. By lingering on these sounds, I recognized how MTH entities like water, crystal bowls and birds 'spoke' through landscape and territorial patterns older than human property lines, reshaping my understanding of belonging as a collective, sonic act.

Lying on the grass under the fig tree to cellfilm, I allowed the ecosystem itself to direct my gaze. Ants navigated stems, spiders spun webs, and bees hovered - all without my intervention. Resisting the urge to anthropomorphize, I instead noticed how their movements redirected my framing. The smartphone, propped on a brick for stability, became a collaborator, its lens capturing vibrations of life I had previously dismissed as mundane. This shift from observer to participant, mirrored Bennett's "vibrant matter," where even the grasshopper's tremors under my gaze felt like a form of dialogue.

Ethical tensions also surfaced, sharpening my awareness. When cellfilming parrakeets hiding from the helicopter noise, I acknowledged the intrusion of my gaze. Their return, cautious yet trusting, revealed a fragile contract: technology could document only if it minimized harm. These mirrored Indigenous principles of relational accountability, and reciprocity where cellfilming became less about capture and more about negotiation.

The nocturnal blooming of the Reina de la Noche flower epitomized this receptivity. Its scent - intoxicating, ephemeral - drew me into a decades-old kinship. The plant's pheromones compelled me to care for it year after year. cellfilming its brief flowering, I felt the absurdity of its struggle mirrored my own - a silent pact between species clinging to meaning in fragmented ecosystems.

Ultimately, communication emerged through surrender. By letting rain warp, wind blur sound, or a caterpillar's crawl destabilize my frame, I ceased to cellfilm and instead witnessed and experienced. The smartphone, flawed and accessible, became a bridge - not a barrier - to MTH 'worlds.' In these moments, belonging wasn't claimed; it was received, a gift from entities whose languages I learned to feel, not decode.

I learned how to reclaim my lost connection with Nature by my heightened sensory awareness leading to a deeper appreciation of ecological complexity and a sense of harmony or belonging.

This sensory, emotional, and affective immersion also allowed me to appreciate the complex interconnectedness of ecological systems. It fostered a sense of belonging with:in:for Nature. Cellphilming allowed me to experience Nature (in)directly, transcending traditional boundaries to live within (embody) a co-created narrative that required the agency of the smartphone, the filmmaker, and the vitality of participating MTH entities.

Indigenous Informed Relationality and Inclusivity

Looking down at Abenaki, Iroquoian, and Haudenosaunee land from the plane as I flew back to Europe crystallized for me the urgency of incorporating alternate epistemologies and ontologies into my practice. The view from above, with city lights flickering like “small deaths” yet life still persisting, brought into sharp focus the limits of Western-centric worldviews and the profound importance of Indigenous perspectives. It was a moment of realizing that decentering dominant narratives is not just an academic exercise but a vital step toward honoring the interconnectedness and respect for the land that much of Indigenous and Global South epistemologies embody. This aerial vantage opened a doorway to a more holistic, relational understanding of our shared world - a reminder that as inhabitants of this Earth, our knowledge and actions must reflect the multiplicity of realities that shape our collective existence. This perspective changed during my cellphilming practice and re-oriented my environmental education towards holistic learning.

Ecopedagogy through the cellphilming creation process informed by Indigenous storytelling, also taught me how to share stories reflecting the complexities and interdependencies of Nature.^{ccxiii} Several forms of Indigenous storytelling, as practiced in many communities, is inherently relational and holistic. My cellfilmed stories were not simply about Nature; they sought to be with Nature. I recognized land, water, and animals as living relatives (kin) and knowledge holders. I integrated these principles into my cellphilming practice, and I began to see my own story-making as an act of becoming-with MTHs, rather than merely representing them. This embodied communal story making became crucial as I sought to cultivate a sense of belonging and Earth sharing throughout my cellphilming practice. Throughout, I tried to minimize my recolonizing through cultural extractivism and appropriation – with inherent difficulty.

Instead of making films about Nature from an outsider's perspective, I engaged in cellphilm making with MTH entities, treating them as active participants in the creative process. I listened to the rhythms and presences of the land, allowing their stories to emerge through my embodied engagement and sensory awareness. By integrating these Indigenous principles, I shifted my focus from representation to co-creation, understanding my cellphilm practice as an act of becoming-with MTH entities. Several versions and aspects of Indigenous theory transformed my ecopedagogic cellphilm use by (de)centering relationality, invoking land-based knowledge, and engaging with decolonial praxes. When guided by the selected Indigenous theories, cellphilms such as the granite extraction, the riverbank construction, and the airplane flying over Abenaki territory, become living archives of (non)survivance, epistemicide, challenging Eurocentric (un)sustainability narratives while regenerating localized ecological knowledge systems.

Connecting as Intra-beings

I created cellphilms as an embodied practice which inter- intra-acts with the sensory experience and the smartphone. The cellphilm practice aligned with affect theory that stipulates consciousness was always directed toward something (or a phenomenon) implying that our perceptions are shaped by our embodied presence in Nature. It also allowed for participant-driven narrative control, which helped in experiencing thick, situated storytelling that integrated lived and sensory knowledge. The embodied act of autoethnographic cellphilm is pivotal to this depth because it made visible and tangible my own embodied experience, helping produce rich, complex, and relational stories that are more than representational; they become a process of intra-active, entanglement and shared meaning-making. I therefore felt like a part of the ecological landscape rather than as a more detached observer.^{ccxiv} Such a perspective enhanced my empathy towards MTH entities and promoted stewardship behaviours. For example, as I documented the active and expanding Granite mine in my hometown, I grappled with the realization that no plans were made for bringing the area back to a quasi-‘natural’ state. I am reminded that nostalgia was not a fair answer as we have moved beyond the tipping point of the Anthropocene and such a return becomes impossible and improbable.

The cellphilm reveals the complex interplay between human extractivism and geological processes by showing how the Granite mine actively transforms the landscape. The cellphilm scene

exemplified the complex interplay between human economic extractivism and geological processes, challenging me to see the landscape not as passive matter but as an active participant in the ongoing transformation.^{ccxv} Cellphilming supported personal expression and fostered a holistic approach to learning about environmental issues engaging emotions, senses, and local knowledge, making learning more personal, interactive, and connected to real-World experiences.

Learners using cellfilms can express their emotions and deepen their understanding of ecological relationships. The affective practice challenges learners to move beyond simplistic notions of Nature and culture, towards a more nuanced understanding of our place within ecological systems. Cellphilming captures learners' feelings and perspectives on environmental issues in their own voices and styles. It encourages them to engage emotionally and aesthetically, making their learning experience more meaningful and authentic by documenting real-life ecological interactions and sharing their observations. Learners thus deepen their understanding of ecological relationships. The act of cellphilming and reflecting on these experiences helps them connect everyday life with broader environmental concepts, fostering both personal insight and a holistic grasp of the interconnectedness of Nature and participating MTH entities.

Young learners can connect with these ideas, but in simpler, more hands-on ways. Young Learners naturally see animals and plants as active, interesting beings. By observing Nature, telling stories, and doing related creative activities (like building nests with different organic materials), learners can start to understand that MTHs have their own roles and can make choices too. They might not use words like 'agency' or 'intra-action', but they can feel empathy, curiosity, and respect for the MTHs. Activities that encourage affective observation, imagination, and discussion can help them embody these concepts at their own level, laying the foundation for deeper ecological thinking as they grow.

MTH Agency: Recognizing Vitality

One of the more transformative aspects of this cellphilming journey was recognizing the agency of MTH entities.^{ccxvi} I had to move away from the assumption that humans are the sole actors in the environment, acknowledging the inherent vitality and capacity for action of other beings and entities. This was a defining moment in the research-creation. This change is rooted in the growing

understanding within my research-creation that MTHs, non-living materials, environments etc. are not just passive backdrops for human activity, but active participants with their own forms of vitality and capacity for action.

This shift in perspective was essential for co-producing knowledge that is more inclusive and reflexive of the complex interdependencies in ecological systems. This became clear and evident when I cellphilmmed the trimming of a bush and noticed a bird's nest partially made of plastic. I noted in the diary, 'suspected fowl play' and followed with online academic research, questioning 'which species use plastic as nesting material' and how this might 'differ' in practice among birds. The nest was not merely a product of avian instinct but also a result of the bird's interaction with human-made materials, demonstrating how birds actively select and incorporate anthropogenic materials into their lives. This observation challenged my cultured understanding of the complex intra-actions between human-made materials and wildlife, challenging my preconceptions about Nature's 'purity' and highlighting the agency of MTH actors in adapting to anthropogenic changes. It revealed a shared agency where birds adapt to human-induced changes and even repurpose our waste for their own needs.

This defining shift was guided by ecopedagogical principles that emphasize interconnectedness, mutual respect, and the dismantling of human exceptionalism. In my cellphilm, I tried to respond to MTH entities that shaped the narrative and direction of each cellphilm, letting environmental forces, animal movements, and material presences guide my creative choices. I embodied an ecopedagogical ethic that values collaboration, relationality, and shared authorship with MTHs, fostering a deeper sense of belonging and responsibility within the ecological community.

Affective Dimensions and Political Implications

Cellphilm in ecopedagogy engaged Thrift's (2004) theory of affect as a political force, a subversive affective practice in controlled spaces that operates through embodied experiences and pre-cognitive intensities.^{ccxvii} It revealed how emotions and embodied experiences shape environmental consciousness. When I describe my visceral reactions to ecological crises - such as grief over deforestation or solidarity against the bull running events - my cellphilm bridged

human and MTH interactions, challenging anthropocentric views.^{ccxviii} It taught me to challenge and disrupt the repetition of the unending cycles of extraction, bio-destruction, ecocide, oppression, injustice and anthropocentrism that a socio-cultural politics of (un)sustainable economics promises.

I experienced wonder, curiosity, peace, and even discomfort - emotions that fostered a sense of connection and belonging with Nature. These affective responses were not just fleeting feelings; they shaped how I related to MTH entities and prompted me to reflect on my own place within ecological systems. Ultimately, the affective and political dimensions of my work were inseparable. My emotional engagement with everyday environments led to a more nuanced, critical, and responsible approach to environmental issues, demonstrating the transformative potential of cellphilmaking as an ecopedagogical practice.

Politically, my practice exposed the complex interplay between human actions and environmental processes. For example, documenting the expanding granite mine in my hometown forced me to confront the realities of extractivism and the lack of plans for ecological restoration. This challenged me to see landscapes not as passive matter but as active participants in ongoing transformation, and it raised questions about stewardship, sustainability, and justice. I understood from my praxis that hope can impede ecopedagogy by distracting from the need for critical action and systemic change. Uncritical hope risks complacency and a reliance on superficial solutions.

Although many have stated that fatalism leads to resignation and inaction, I understood through my cellphilmaking experience that fatalism can serve ecopedagogy in a positive way by encouraging acceptance of Indigenous perspectives for example that call for moving beyond Western solutionism, such as the narrow focus on sustainability. Fatalism opens space for deeper humility, listening, and respect for Indigenous knowledge systems that emphasize relationality, reciprocity, and living with uncertainty, rather than always seeking to 'fix' or control the environment. For example, in "NIGHT VISIT TO THE QUEEN OF THE NIGHT", the plant's futile blooming cycle forced me to confront the absurdity of human attempts to 'optimize' natural processes. This fostered humility, mirroring many Indigenous epistemologies that center acceptance of uncertainty and cycles beyond human control.

This shift allows ecopedagogy to move past Western paradigms and embrace more holistic, place-based approaches to learning and living with MTHs. My cellphilms like “STANHENGE” critiqued colonial mimicry (copying Stonehenge on unceded Abenaki land), while “CROSSING THE ATLANTIC” highlighted the violence of ‘global citizenship’ narratives that ignore Indigenous land stewardship. These experiences underscored that what the colonial imaginary has interpreted - as is much of Indigenous ‘fatalism’ - is not passive resignation but a relational ethic, embracing interconnectedness rather than seeking to ‘solve’ Nature. When educators focus on either extreme, they may overlook the deeper social and political causes of environmental crises. Fatalism (as radical acceptance of uncertainty) fosters deeper accountability to place and kin. This reshapes ecopedagogy as a practice of listening rather than solving, which my cellphilms taught me through their focus on mundane, reciprocal encounters over grand narratives. True ecopedagogies require moving beyond passive hope and should engage with transformative fatalism, fostering critical awareness and collective responsibility to address environmental challenges at their roots - their radical essence.

Reflexivity and Ethical Responsibility

Reflexivity plays a crucial role in ecopedagogical research and practice. Throughout my process, I engaged in varieties of reflexivity (cognitive, embodied, emotional, critical), questioning my assumptions and biases. Reflexivity was woven into every layer of my cellphilming praxis, shaping how I engaged with MTH entities and confronting my positionality as a Western researcher.

At every level of my reflexive practice, I interrogated my assumptions, biases, and embodied responses. For instance, when filming “TRACKING A CATERPILLAR WALK”, I resisted projecting intentionality onto the insect’s movements. Instead, I documented its behaviour as a manifestation of vibrant matter. My cellphilms exposed how Western sustainability narratives often mask exploitation. Documenting “YEARS OF GRANITE EXTRACTION IN OGDEN” on unceded Abenaki land, I asked: Who benefits from framing this quarry as ‘progress’ rather than ecological violence? This critical lens revealed the need to center Indigenous land stewardship in ecopedagogy, moving beyond technical ‘solutions’ to address systemic inequities.^{ccxix} When cellphilming “GRASSHOPPERS MATING”, I kept my smartphone at a distance to avoid disturbing their behaviour, recognizing that even MTH entities deserve respect. I transformed

abstract environmentalism into lived, affective care through sensory-rich encounters (e.g., tasting olive leaves, smelling the Queen of the Night, feeling the soil while planting). I prioritized MTH voices over human narratives, as seen in “STANHENGE”, where I critiqued colonial imitation disguised as “education.”

The ethical implications of my research-creation and subsequent reflexivity became increasingly apparent. ^{ccxx} They generated questions at every cellphilmaking praxis. For example: Was I intruding on the lives of MTH entities I was cellphilmaking? Was I imposing my own human-centric narratives onto their experiences? These questions were particularly salient when I captured footage depicting the ‘invasive’ parrots in their newfound territory and the bulls running from fear. I was prompted to consider the adaptability of MTH life and the ethical responsibilities we as community have in shaping urban environments that adapt to MTH entities.

Does curating MTH entities for academic consumption replicate colonial surveillance practices? Emotional reflexivity here becomes vital, as affective responses to the footage - awe, guilt, or discomfort - must be channeled into accountability. Critical reflection involved boundary transformation, where I reframed the MTH role from observer to co-constitutive actor within urban ecosystems that I cellphilmaked. I had to align my praxis with ecological justice - transforming urban narratives from tales of human-controlled compromise to multispecies flourishing.

These intersections (cognitive, embodied, emotional, critical) validated reflexivity not merely as a methodological tool but as an ethical imperative for ecopedagogical work seeking to dismantle anthropocentric hierarchies and reimagine urban ecosystems as spaces of multispecies justice.

Finally, an important finding in this research-creation was this continuous need for reflexivity during praxis. Learners taking up a cellphilmaking practice need to be sustained by theory and critical reflection, in order to feel and understand the affect driven embodiment and belonging that is experienced in the cellphilmaking praxis. Reviewing cellphilmakes of MTH entities required me to be critically engaged with both the cellphilmake’s content and my evolving positionality. Reflexivity as a transformative capacity, enabled me to confront human-centric assumptions and power dynamics embedded in my work. When viewing the cellphilmake after production, cognitive reflexivity surfaces through scrutiny of editorial choices - whether footage of swallows feeding and following the path

of working ants plays better as one take, or whether the ‘invasive’ parrots montage risks reinforcing anthropocentric narratives of adaptation or intrusion. Reflexivity emerges as sensory memories of cellphilm re-embodied, set against the detached act of editing, prompting questions about whether my final product authentically represents MTH agency or reduces it to human storytelling tropes.

Practitioner’s Walk

This research-creation unfolded as an ecopedagogical journey, cultivating embodied knowing and deepening ecological awareness through the rhythm of peripatetic movement. As I slowed my pace and attuned to the natural cycles around me, my mind found calm, and my body aligned with the pulse of the path. This synchronization revealed a becoming-rhythm, an invitation to embrace complexity, attentiveness to environmental events, and a challenge to the power dynamics that uphold human dominance over Nature. In this space, self, other, and Nature converged, opening a quiet room for introspection, empathy, and presence.

Walking sparked my interaction and understanding with the environment, as I grounded abstract ecological concepts in tactile experiences - feeling the roughness of bark, smelling the moss. I experienced Nature’s agency palpably, which deepened my care and respect. These moments revealed to me an ecological wholeness woven through intimate, embodied encounters. The walking cellphilm I captured on riverbanks and in parks showed me the environment’s active role in shaping my experiences, revealing how agentic Nature dynamically participated in my embodied practice. This reflection moved beyond mere repetition, as I explored how walking became a practice layering my awareness, connection, and ecological attentiveness.

The vitality of natural scapes, expressed through vibrancy and aliveness, is felt through direct contact over time. Learners can capture sensory-affective experiences (e.g., textures, sounds, micro-interactions with MTH entities) that are often overlooked in Northern/Western ‘traditional’ EoE excursions, forest walks and hikes. While field trips and hikes offer valuable exposure to Nature, cellphilm during a peripatetic adventure adds a deeper, more reflexive dimension to environmental education, especially when guided by ecopedagogy. As learners walk and cellphilm, they slow down and become more attuned to the rhythms and details of the environment, fostering

a sense of embodied connection. Walking and cellphilmaking makes us walk slower because we are in need to be focused, and that walking slower is what makes us more attuned. The act of cellphilmaking demands attention and prompts critical reflection on the relationship with the environment and the power dynamics between humans and MTHs. Learners engage more thoughtfully and creatively, developing a stronger sense of ecological awareness, responsibility, and community. My understanding of ecological kinship and responsibility was continually deepened and renewed.

In retrospect, by centering slow, attentive immersion in MTH encounters, I bypassed aspects of the rapid, spontaneous, or chaotic experiences in Nature that can surprise and shift perception. As I walked - because my practice relied on what was capturable through my smartphone - many unseen, un-filmed, or non-recordable phenomena likely slipped by unnoticed, as did MTH rhythms and agencies that resist digital mediation or translation. I learned that meaningful ecological understanding emerges not only from what we capture but also from what escapes our lens - reminding me that attunement to Nature requires humility, patience, and an openness to what resists mediation.

Ecoliteracy

I advanced ecopedagogic eco-literacy in my cellphilmaking practice by immersing myself in everyday, local encounters with MTH entities and using my smartphone to document these moments in ways that foregrounded affect, embodiment, and critical reflection. For example, cellphilmaking the “OLDEST MILLENNIAL OLIVE TREE IN TOWN” connected me to centuries of ecological history, prompting reflection on human responsibility for plant longevity and land stewardship. When I recorded the “GECKO ESCAPING FLOOR VARNISHING,” I became aware of the unintended consequences of human actions on wildlife, fostering empathy and a deeper understanding of our shared environments.

Capturing multisensory experiences - like the sound and feel of watering citrus trees with rainwater, or the emotional impact of witnessing seagulls struggling on overheated, mined stone - helped me move beyond abstract concepts to embodied, situated learning. These practices made me confront issues of sustainability, eco-justice, and the complex interplay between cultural traditions and

environmental impact, as seen in my documentation of local fire festivals and granite extraction sites.

Through these cellphilms, I learned to notice agency, resilience, and vulnerability in both living and non-living entities, and to reflect on my own ethical responsibilities. This approach modeled for learners how eco-literacy can be cultivated through direct, sensory engagement and critical, reflexive practice - making ecological issues personal, immediate, and emotionally resonant.

IMPLICATION OF THIS RESEARCH-CREATION

My research-creation stands at the intersection of several emerging fields, yet it distinguishes itself through its unique methodological and conceptual synthesis. By employing mobile cellphilming as both a research and pedagogical tool, I explored how embodied, sensory, and affective engagements can foster a sense of belonging and kinship with MTH entities - living and non-living participants in our shared ecosystems. The use of autoethnographic cellphilming as a methodological tool allows for a nuanced exploration of how an affective engagement and embodied learning can inspire transformative action towards environmental and social justice.

This inquiry is rooted in its challenge to anthropocentric paradigms that have long dominated environmental education and research. Through my own reflexive practice, I moved beyond merely observing Nature as an external object, instead striving to become-with MTH entities I cellphilmed. This approach not only made efforts to decenter the human subject but also foregrounded the agency and vibrancy of materials, animals, and environmental forces, thus enacting a posthumanist, new materialist ethic within ecopedagogical practice. The research-creation process, with its emphasis on non-representational, single-shot filming and openness to technological interference, affective influence, material vitality and environmental unpredictability, further disrupted Northern/Western 'traditional' narrative and authorial hierarchies, allowing MTH entities to co-shape the outcomes.

The cellphilming practice offers a model for integrating digital literacy with transformative environmental ecopedagogy. The accessibility and immediacy of the smartphone enables spontaneous, embodied encounters with the environment, making ecological learning more personal, affective, and situated. This is especially relevant for learners of all ages, who, through

such practices, can develop not only digital skills but also empathy, curiosity, and a sense of responsibility toward Earth and its myriad inhabitants. Through these methods, learners can develop a deeper understanding of ecological systems while imagining alternative futures that prioritize sustainability and inclusivity across human-MTH dynamics.

Furthermore, my research-creation foregrounded the importance of reflexivity - cognitive, embodied, emotional, and critical - in ecopedagogical work. I modeled a practice of ongoing self-examination that is vital for dismantling anthropocentric and colonial power dynamics by continually interrogating my own positionality, biases, and ethical responsibilities.

In surveying the literature, I found that while there are studies that incorporate elements of ecopedagogy, autoethnography, and MTH perspectives, the specific combination of autoethnographic cellphilmaking as a research-creation method to cultivate MTH kinship and belonging appears to be original. Existing works may address ecopedagogy or posthumanist methodologies, but few, if any, have woven together these threads through the embodied, affective, and technological practice of cellphilmaking as I have done here.

This research contributes to reimagining environmental education by highlighting the potential for cellphilmaking to connect humans with MTH entities in meaningful and sustainable ways. The cellphilmaking praxis aimed to create transformative educational experiences that integrate critical thinking, sustainability principles, decolonized perspectives, systems thinking, ecoliteracy enhancement, and emotional connections with Nature in EoE informed by ecopedagogies. Effective climate change and (un)sustainability education requires a holistic approach that integrates these themes across disciplines, incorporates critical perspectives, and addresses both cognitive and emotional aspects of learning. This inquiry presented an example of a possible praxis that can help to integrate some of the ecopedagogy tenets into EoE.

Ultimately, the significance of this inquiry lies in its contribution to both theory and practice: it advances ecopedagogical scholarship by offering a new, performative methodology that bridges digital and ecological literacies, and it provides a transformative model for environmental education that is attuned to the complexities, agencies, and affective dimensions of our MTH shared World. Through this work, I hope to inspire future research and pedagogical innovation that

deepens our sense of belonging, care, and responsibility in an increasingly interconnected and precarious Earth.

LIMITATIONS OF THIS RESEARCH-CREATION

I encountered several interconnected limitations. These limitations span technological, methodological, theoretical, and ethical dimensions, revealing tensions between my aspirations for post-human kinship and the realities of conducting socially engaged environmental education research. There were five principal limitations that need to be addressed. Firstly, the paradox of using a highly polluting technology such as the smartphone in research investigating eco-justice and (un)sustainability is problematic. Second, the specific limitations of a qualitative inquiry of affect induction through cellphilm for enhancing kinship and belonging are not fully addressed from a quantitative perspective (if that is even possible). This excludes cognitive and psychological (emotional) perspectives as understood by disciplines like neuroscience or behavioural psychology, which could offer complementary insights into how learners internalize eco-critical praxis. Thirdly, the lack of concrete data from young learners to support the arguments is evident as this is a qualitative research-creation based on my very personal autoethnographies. Fourthly the pedagogy is based on a learner's 'will' as theorized by Rancière, and desire for 'conscientization' as Freire proposes, and thus is heavily personalized and auto-reflexive making the research-creation subject to underlying factors such as class, race, gender, age and educational accessibility that are not addressed. Finally, Kahn (2010) states that:

Ecopedagogy, while drawing upon a coherent body of substantive ideas, is neither a strict doctrine nor a methodological technique that can be applied similarly in all places, all times, by all peoples...As Freire himself demonstrated with his own philosophy, pedagogies and theories evolve in their historical capacities as they meet actual challenges and reflect on their potential limitations" (Kahn, 2010, p. 21).

Therefore, informing learner cellphilm kinship engagement with global warming, (un)sustainability and the Anthropocene may be short lived.

A fundamental limitation was that this research-creation cannot be reproduced with the same results by other researchers. The findings are rooted solely in my own perspective and do not attempt to provide a universal or objective viewpoint. While this self-awareness enhanced the

credibility and transparency of my findings, offering a more nuanced understanding of the research context as an embodied learning practice, it also means that the insights are contextually bound and not generalizable. These irreplicable, subjective, and parochial limitations are in fact, my research-creation's most radical contributions. My work models how ecopedagogy thrives not in grand theories but in fragmented, felt encounters with the mundane. New research can build on this by treating every cellphilm as a portal rather than a blueprint - a provocation to document, reflect, and belong differently.

Throughout the project, I struggled with my inability to directly engage, communicate, and embrace MTH entities that I share Nature with. My understanding of MTH vitality, agency, and representation relied on intuition, affect, attunement, and sensory perception - methods that are experimental and remain under scrutiny in the social sciences.

I recognize the limitations and ethical concerns associated with ecopedagogic research that co-participates with MTH entities. Limited communicability was evident throughout and foreclosed an unbiased research process. This included subject selection for participation, data comprehension, potential selection bias of certain data over others, ethical implications of cellphilm without direct consent, data privacy issues, and the challenges of interpreting online content.

Indigenous knowledge systems and decolonial frameworks, while acknowledged, remained mediated through my positionality as a settler-colonial researcher, raising questions about the authenticity of integrating non-Western epistemologies.^{ccxxi} I was therefore limited as I embraced decolonial practices and incorporated certain Indigenous land-based epistemologies and storytelling practices, including knowledge systems. I nevertheless tried to contribute to systemic change in pedagogy that incorporates being with MTH entities and sharing Earth with humility, reciprocity, and respect. I made efforts to situate and clearly delineate my privileged position as a white, settler, human as I proceeded to research and create using both Western and certain Indigenous knowledge systems. However, I was not able to link my reliance on Indigenous knowledge systems with my praxis in a grounded manner, as I did not engage with Indigenous communities *in situ* - that omission was problematic.

The smartphone played a dual role as both facilitator and obstacle in my cellfilming and ecopedagogical practice. While it enabled storytelling and critical self-reflection, the device inherently imposed digital barriers to holistic environmental engagement. Technical literacy requirements for educators, participants, and learners created exclusionary dynamics between entities that cannot communicate or interact directly. These barriers were also evident between human entities in the sharing of the cellfilms, given global disparities in technology access and digital education infrastructure. The environmental costs of smartphone production - from rare earth mineral extraction to labour exploitation - fundamentally contradict ecopedagogical goals of sustainability, creating what Snaza (2022) identifies as an ‘irrefutable anxiety’ within technomediated environmental education.

I started to question throughout my research-creation praxis whether the very brevity and consumability of cellfilms might be contributing to the same patterns of rapid content consumption that are so prevalent - and often problematic - in digital culture. The cellfilm’s accessibility is part of its power: anyone with a digital recording device can make one, and the short format makes them easy to watch and share. Yet, this very ease also risks encouraging a kind of surface-level engagement, where stories are quickly viewed and just as quickly forgotten, rather than fostering the sustained, embodied participation and reflection I was seeking. So, while cellfilms can spark interest and invite people into participatory processes, I wondered if their format might also reinforce habits of fleeting attention and consumption, rather than challenging them. This tension became an important question in my analysis of both the possibilities and limitations of cellfilming as a method. This helped in making the effective distinctions between single shot and edited formats, and the difference in inducing belonging in representational and non-representational cellfilming.

Additionally, although the research compellingly highlights affective and reflexive aspects, it occasionally emphasizes personal insight more than concrete pedagogical strategies, raising concerns about its broader applicability and accessibility in formal education settings. I also grappled with inherent tensions between empirical closeness and analytical rigor in my ecophenomenological framework. The short period and limited ethnographic scope imposed temporal constraints that restricted my deep immersion in human-MTH entanglements, while self-selection bias in participant recruitment and inclusion skewed perspectives toward already

environmentally engaged subjects. My autoethnographic approach, though valuable for situated knowledge production, faces ongoing challenges in representing MTH experiences and maintaining correspondence between lived reality and scholarly articulation. I therefore navigated a fundamental paradox: attempting to decenter anthropocentrism through tools and frameworks steeped in human systems.

My critical ecopedagogy approach assumes learner willingness to confront capitalist paradigms that most educational systems inherently reinforce, creating what I identify earlier on as a ‘circular ecological’ of aspirational pedagogy meeting systemic inertia. Horsthemke (2020) noted, the very concept of sustainable development remains entangled with neoliberal modernization paradigms. The Anthropocene concept itself also emerged as a contested framework, simultaneously necessary for crisis articulation yet potentially reductive in its anthropocentric nomenclature and focus.

I further recognized that geocultural specificity presented significant barriers to generalizability. Grounded in particular Spanish and Quebecois contexts, my findings reflect localized relationships with land and technology that may not translate to diverse global settings. I also faced temporal limitations both conceptually and practically. The urgency of ecological crisis stands in tension with the long-term cultural transformation required for effective ecopedagogies, while project constraints limited the depth of multispecies ethnography. Representation challenges persisted in articulating MTH agencies through human-centric media, despite cellphilmimg’s potential for embodied storytelling. The paradox reveals that while cellphilmimg enabled intimate encounters with MTH entities, the very act of documenting and sharing these encounters through human-designed tools reintroduced anthropocentric filters. My work thus exposes the need for media practices that decentralize human authorship - perhaps through collaborative, non-linear formats or technologies that amplify MTH ‘voices’ (e.g., bioacoustic sensors, AI-generated patterns from ecological data). Ecopedagogical media-use must innovate beyond representation, embracing speculative or participatory methods that let MTH agency emerge on its own terms - to fully articulate the agency of MTH entities.

This inquiry reinforced the importance of relying on all the senses - the smell of the pines, the feel of ‘earth’ under my feet, the taste of the fruit from the garden. All these sensory experiences contributed to a richer and more meaningful understanding of Nature and MTH entities. Yet, my

cellphilm experience also met with challenges in representing these encounters, whether in translating embodied, multisensory experiences into academic writing, or in losing some of the richness, sensuousness, and immediacy of the original encounters with MTH entities. Not limited to cellphilm, the human senses have their limitations in communicating with the MTHs. In addition, many senses human and MTH were not engaged at all. Detection depended on the abilities of the smartphone and human senses (i.e. ultrasonic or infrared emissions by MTHs).

The representation of multisensory, embodied, and affective experiences in academic formats remains a persistent limitation. Research-creation projects often require examiners and institutions to adopt new forms of attention, openness, and expertise, especially when the creative work does not fit neatly into established academic categories.

The translation of the praxis of this research-creation to young learners including the sharing aspect on a platform or in screenings presented other kinds of limitations. As an adult performing this praxis, I am not able to fully depict, theorize and practice the manner cellphilm would be created, understood, shared and embodied by young participants. This all depends on their circumstances, knowledges, identities, and culture.

I did not experience the perspective that comes from shared exploration with other human participants - there was no dialogue, collective sense-making, or the unpredictable dynamism that group encounters with Nature often foster. Without other human voices, the perspectives, stories, and questions that arise from social interplay remained silent, and so did the possibilities for collaborative meaning-making that could have deepened and challenged my own reflections. I focused primarily on my embodied, sensory relationship with more-than-human entities, I missed opportunities for intersubjective learning, including negotiating difference, empathizing with other human ways of relating, and encountering the playful, curious, or even disruptive energies that groups bring to such experiences. Without a framework for feedback or dialogue, my interpretations went largely untested by others' perspectives, limiting the chance to unsettle assumptions or uncover other layers of meaning. Collaborative knowledge creation with other learners in (auto)-ethnographic processes is lacking in this inquiry as it was only intended to reveal a personal experience of belonging.

These limitations collectively highlight the complex navigation required when I tried to bridge digital ecopedagogies with ecological consciousness, belonging, and ecoliteracy. They underscore the necessity of situating techno-mediated environmental education within critical examinations of technology's material impacts, while acknowledging the persistent pull of anthropocentric frameworks in even the most conscientized research paradigms. Ultimately, I suggest that effective ecopedagogies may lie not in resolving these contradictions, but in consciously working through them as sites of generative tension, agency, and exploration. Translating my praxis into all levels of standardized education curricula for both adult and young participants would require further study.

FURTHER RESEARCH

While significant progress has been made in recognizing the importance of (un)sustainability education, numerous challenges remain in its implementation and assessment. Continued research and innovation in this field are essential for developing (in)formal educational approaches that can effectively address the urgent environmental challenges facing our Earth.

Early examples of postdigital ecopedagogy praxis are limited, there have been some notable efforts to implement and document these practices (Blades, 2024; Lyndgaard, 2008; Napitupulu et al., 2019; Rodrigues, 2018; Whitehouse, 2018). These examples of ecopedagogic research have shown promising results in fostering empathy, critical thinking, and environmental responsibility through innovative methods. This inquiry offers a model for a more inclusive and justice-oriented ecopedagogy and EoE. A practice that prepares learners to engage with complex ecological challenges by adopting empathy, critical consciousness, and a sense of shared responsibility for Earth and its MTH inhabitants.

Further study is needed to understand whether this kind of human-MTH participatory media can lead to learner's agency, engagement and action including what types of embodiments and kinship formation. Longitudinal analysis could study a gradual deepening of these connections over time, as viewers engaged with multiple cellfilms and participated in ongoing dialogues.

The praxis of cellfilming to engage with MTH entities and create a sense of kinship and community that shares Earth in a just and sustainable manner can be refined and expanded upon.

This includes (1) exploring, making sense of and disseminating the praxis in this inquiry through quantitative and qualitative clinical and empirical research; (2) implementing the gap between embodied, affective and sensual cellphilm research and their application in ecopedagogy; (3) combining cognitive, emotion and affect research studied in psychology and ecopedagogy to produce information and practical pedagogies for forming kinship with MTH entities; (4) research aimed at improving teaching and learning through embodied applications of digital practices in ecopedagogy; (5) providing a meta-analysis of recent research to confirm the reliability of digital recording device use in generating belonging with MTHs in a (in)formal ecopedagogy; (6) research on how to better include ecopedagogic tenets in contemporary EoE practices, curricula, and syllabus designs; (7) research on how to develop, improve and implement digital technology use in kinship and belonging practices to inform EoE policy; and finally, (8) comparative research on cellphilm use, syllabi, pedagogies and practices in various levels of EoE across demographics to address gender, race and class differences.

In a community and collective learning environment, direct sensuous experiences can facilitate community engagement and kinship in ecological learning. As individuals share their sensory encounters with Nature, and kin they create a collective narrative that enhances communal bonds and motivates group action towards sustainability. Research is needed on how artistic practices rooted in direct sensory experiences can serve as powerful tools for EoE. Art becomes a medium through which individuals express their relationships with Nature, fostering awareness and appreciation for biodiversity and ecological health. Research determines if we can better understand how community engagement and collective action for sustainability are fostered. Additionally, exploring the role of artistic practices rooted in these experiences can disclose powerful ways to enhance EoE, deepen communal bonds, and inspire greater appreciation for biodiversity. This research will help develop more effective educational strategies that encourage ecological awareness and stewardship within communities.

The intersection of youth climate activism and degrowth imaginaries presents opportunities to explore how cellphilm production shapes material relationships with consumption. Studies tracking young activists' eco-narratives could examine whether creating visions of post-capitalist futures influences energy use patterns or communal care networks. Comparative studies across bioregions

could reveal how cellphilms mediate climate grief differently in agricultural drought zones versus flood-prone deltas.

Research is needed on practices where learners engage in a reflexive journey balancing autoethnography, cellphilming, Indigenous understanding with critical environmental analysis. Building on my autoethnographic exploration of MTH kinship, one promising avenue involves investigating how cellfilm methodologies can be adapted to decolonize environmental knowledge systems. Researchers, academics, learners, and teachers could further explore how interactions with MTH entities shape worldviews, examine the agency of MTH actors in cultural practices, and consider the ethical implications of these interactions. They can produce richer, more nuanced accounts by embracing this more inclusive approach to autoethnography, that better reflects the complex realities of lived experience in an interconnected World.

Furthermore, the collaborative nature of cellphilming can foster meaningful partnerships between researchers and local communities. Research could explore the long-term impacts of collaborative practices involving the participants' environmental identities and behaviours, as well as investigating how sharing these cellphilms might contribute to collective ecological awareness and action.

Future work could partner with fair-trade electronics initiatives, aligning media tools with sustainable material flows while maintaining accessibility central to cellfilm methodologies. Digital tools like AI and AR expand opportunities for immersive storytelling, they risk privileging human-centric perspectives or reinforcing sensory detachment from Nature. Research is needed on how digital recording devices interacting with AI and AR can be integrated to promote ecopedagogic tenets in EoE practices in our fast-changing postdigital environment. Further studies could explore the intersection of cellphilms with emerging technologies like AR to create immersive, multisensory ecopedagogical experiences.

Research would seek to align the material and ethical aspects of digital tools with ecopedagogical values, while also questioning how new technologies might either deepen or undermine the embodied, place-based, and relational approaches that were central to my cellphilming practice. This can further immersive, multisensory experiences created with emerging tools that can support

or challenge the kind of situated, affective learning and kinship with MTHs that my research-creation aimed to model.

Learners might also engage in ‘augmented autoethnography’ that reveals hidden ecological connections, such as visualizing mycelium networks beneath forest floors or tracing migratory patterns of urban wildlife. Research would build on existing work in sensory ethnography. Just as some of my cellfilms revealed political economies of care, future inquiries might uncover human-MTH relations in ways I could never anticipate. These calls are not to reproduce my journey but to start anew and add on to it.

CONCLUDING COMMENTS - A JOURNEY IN FLUX

Cellfilming, with its mobility and immediacy, offers a unique tool for capturing and reflecting on embodied interactions with MTH entities and Nature. The transformative and emancipatory aspects highlighted in Shugurova's work (2021, 2023) resonate with the potential of cellfilming as a participatory method inclusive of MTH entities. The creative process of cellfilming and editing served as a form of ludic interaction with the environment, potentially leading to more engaging and meaningful (in)formal education experiences.

Incorporating MTH entities into autoethnographic research, allowed me to examine the complex web of relationships that shape lived experiences. This holistic approach facilitated a nuanced understanding of H-MTH-N interactions, acknowledging the agency and influence of plants, animals, landscapes, and climatic conditions in co-constituting my identities and experiences. In EoE and ecopedagogical research, my experience of autoethnography encouraged deeper reflection on H-MTH-N relationships.

Cellfilming's ability to capture real-time and MTH participant-driven insights helped me develop a more nuanced understanding of my relationship with MTH entities and Nature. This integration can foster digital literacy alongside ecological literacy, preparing learners for the complex challenges of the Anthropocene (Jandrić, 2017). Striking the right balance between technological engagement and direct experiences with Nature remains a crucial challenge in implementing cellfilm-based learning strategies. These user-generated short videos offer unique opportunities for cultural expression in (in)formal EoE and OEE informed by ecopedagogy.

Cellphilm praxis develops crucial digital literacy skills and prioritize affective engagement and embodied learning. By focusing on local, mundane, and personal encounters, my cellphilm practice challenged capitalist and anthropocentric narratives, making visible the agency and vitality of MTHs and exposing the impacts of extractivism and unsustainable practices. This approach aligns with McLaren's call for a 'revolutionary and critical ecopedagogy', and Misiaszek's (2016) proposal that "ecopedagogy is an education striving for praxis for development in which students re/question who is benefiting and who is negatively affected by environmental actions, and in which they engage in a rigorous analysis of all societies in order to determine environmental actions which are empowering " (p. 598). Ecopedagogy does not ignore how a privileged few benefits from ecological harm while marginalized communities bear the costs.

My ecopedagogy praxis seeks not only environmental awareness but also social and environmental justice through ethical co-creation, equitable access to technology, and a recognition of MTH agency. My cellphilm, by centering relationality and reflexivity, aimed to inspire transformative action and critical consciousness, showing that meaningful change begins with situated, sensory, and justice-oriented engagement with the world. MTH inclusive ecopedagogy posits that humans are part of a larger ecological web where all entities have intrinsic value and agency.

The process is in flux and needs to be relentlessly refreshed, re-examined and re-theorized. Learning, unlearning, and positioning oneself guide the insights gained through this reflexive cellphilm practice. My cellphilm praxis has revealed the transformative potential for ecopedagogical purposes. Cellphilm engaged with reflexivity, embodiment, MTH agency challenge anthropocentric perspectives and foster a deeper sense of connection with MTH entities.

Freire wished that the tenets of pedagogy not remain static but be continually readapted and transformed through enhanced dialogue, critical reflection, and participatory action. Freire believed that educational frameworks must be dynamic, continually evolving in response to new challenges and contexts. This requires a constant questioning of our assumptions and a willingness to engage in ongoing dialogue and experimentation, always guided by a deep respect for Earth and all its inhabitants - human and more-than-human.

REFERENCES

- 10Th Annual Cellphilm Festival—Re-imaginings*. (2022, July 18). McGill Faculty of Education.
<https://www.mcgill.ca/education/channels/event/10th-annual-cellphilm-festival-339475>
- Aagaard, J., Friis, J. K. B., Sorenson, J., Hasse, C., & Ihde, D., 1934-. (2018). Foreword. In *Postphenomenological methodologies: New ways in mediating techno-human relationships*. Lexington Books.
- Aagaard, J., & Ihde, D. (2018). *Postphenomenological methodologies: New ways in mediating techno-human relationships* (1 online resource). Lexington Books. WorldCat.
<https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=1847835>
- Aagaard, J., & Rosenberger, R. (2024). Experience without essentialism: On ‘posting’ phenomenology. *Qualitative Research in Psychology*, 1–19.
<https://doi.org/10.1080/14780887.2024.2355277>
- Abram, D. (2010). *Becoming animal: An earthly cosmology*. Pantheon Books.
<https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=761447>
- Abram, D. (2012, July 22). On being human in a more-than-human world. *Center for Humans & Nature*. <https://humansandnature.org/to-be-human-david-abram/>
- Abram, D. (2017). *The spell of the sensuous: Perception and language in a more-than-human world*. Vintage Books.
- Absolon, K. (2019). Indigenous wholistic theory: A knowledge set for practice. *First Peoples Child & Family Review*, 5(2), 74–87.

- Adams, A. (2022). Smartphones and data privacy ethics: International regulations in a “chessboard-web” environment. In C. Mazzucelli, J. F. Keith, & C. A. Hollifield (Eds.), *The ethics of personal data collection in international relations: Inclusionism in the time of COVID-19* (pp. 131–154). Anthem Press. Cambridge Core.
<https://www.cambridge.org/core/product/F006CE01CE689B9916D561C40FB3C29E>
- Adams, C., & Thompson, T. L. (2016). *Researching a posthuman world: Interviews with digital objects*. Palgrave Macmillan UK. <https://doi.org/10.1057/978-1-137-57162-5>
- Addone, A., De Donato, R., Palmieri, G., Pellegrino, M. A., Petta, A., Scarano, V., & Serra, L. (2021). Novelette, a usable visual storytelling digital learning environment. *IEEE Access*, 9, 168850–168868. WorldCat.org. <https://doi.org/10.1109/ACCESS.2021.3137076>
- Adeyemi, B. A., & Akinrimisi, A. R. (2024). Converging mobile technologies in environmental education: In S. Papadakis & M. Kalogiannakis (Eds.), *Advances in early childhood and K-12 education* (pp. 261–290). IGI Global. <https://doi.org/10.4018/979-8-3693-2377-9.ch010>
- Adult education: The Hamburg Declaration; The agenda for the future* (p. 30). (1997). [UNESCO]. <https://unesdoc.unesco.org/ark:/48223/pf0000116114>
- Affifi, R. (2018). The educational significance of human and non-human animal interactions: Blurring the species line. *Educational Theory*, 68(2), 243–250.
<https://doi.org/10.1111/edth.12309>
- Affifi, R. (2023). Ecologising education beyond angels and villains. *Environmental Education Research*, 29(6), 875–888. <https://doi.org/10.1080/13504622.2022.2108768>
- Affifi, R., & Christie, B. (2019). Facing loss: Pedagogy of death. *Environmental Education Research*, 25(8), 1143–1157. <https://doi.org/10.1080/13504622.2018.1446511>
- Agamben, G. (2004). *The open man and animal*. Stanford University Press.

- Ahmed, M., Ahmad, M. S., & Yusoff, M. Z. M. (2009). A review and development of agent communication language. *Information Technology, 1*(1).
- Ahmed, S. (2004a). *Affective economies*. https://doi.org/10.1215/01642472-22-2_79-117
- Ahmed, S. (2004b). Collective feelings: Or, the impressions left by others. *Theory, Culture & Society, 21*(2), 25–42. <https://doi.org/10.1177/0263276404042133>
- Ahmed, S. (2010). *The Promise of happiness*. Duke University Press.
<https://doi.org/10.1515/9780822392781>
- Akoto, R., & Piésold, K. (2008). *Indigenous cosmology of cultural heritage for impact assessment*. 28th Annual Conference of the International Association for Impact Assessment.
- Alaimo, S. (2016). *Exposed: Environmental politics and pleasures in posthuman times*. University of Minnesota Press.
- Alexander, B. K. (2005). Performance ethnography: The reenacting and inciting of culture. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed, pp. 411–441). Sage Publications.
- Alexnmitchell. (2024, July 28). Unravelling the Social and Environmental Cost of Smartphones. *Digital for Good | RESET.ORG*. <https://en.reset.org/ecological-problem-mobile-phone/>
- Alicia. (2021, May 18). Who am I? Filmic autoethnographies by artists. (S8).
<https://s8cinema.com/en/2021/05/18/who-am-i-filmic-autoethnographies-by-artists/>
- Alkorta, J. (2023). The impact of long-term smartphone use on adolescent mental health: A longitudinal study. *Archives of Clinical Psychiatry, 50*(3). <https://archivespsy.com/menu-script/index.php/ACF/article/view/2145>

- Alvi, S. (2011). Proceed with caution: Technology fetishism and the millennial generation. *Interactive Technology and Smart Education*, 8(2), 135–144.
<https://doi.org/10.1108/17415651111141849>
- Amaliati, S., Rusydiyah, E. F., & Bakar, M. Y. A. (2024). Ecopedagogy and environmental literacy in research trends in Indonesia. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, 16(2), 1083–1100. <https://doi.org/10.37680/qalamuna.v16i2.5359>
- Amoroso, L.-A. (2021). Walking as a way of knowing: An autoethnography of embodied inquiry [PhD Education, Portland State University]. In *ProQuest Dissertations and Theses*. ProQuest Dissertations & Theses Global; Publicly Available Content Database (2510316501). <https://www.proquest.com/dissertations-theses/walking-as-way-knowing-autoethnography-embodied/docview/2510316501/se-2?accountid=14719>
- An, T., & Oliver, M. (2021). What in the world is educational technology? Rethinking the field from the perspective of the philosophy of technology. *Learning, Media and Technology*, 46(1), 6–19. <https://doi.org/10.1080/17439884.2020.1810066>
- Anderson, B., & Ash, J. (2015). Atmospheric methods. In P. Vannini (Ed.), *Non-representational methodologies: Re-envisioning research*. Routledge.
- Anderson, B., & Harrison, P. (Eds.). (2010). *Taking-place: Non-representational theories and geography*. Ashgate.
- Anderson, D., Chiarotto, L., Comay, J., Aikenhead, G. S., Higdon, C., Pryce, T., & Dr Eric Jackman Institute of Child Study Laboratory School. (2017). *Natural curiosity: A resource for educators: The importance of Indigenous perspectives in children's environmental inquiry* (2nd edition). The Laboratory School, Dr. Eric Jackman Institute of Child Study, Ontario Institute for Studies in Education, University of Toronto.
 WorldCat.

- Angé, O., & Berliner, D. (Eds.). (2021). *Ecological nostalgias: Memory, affect and creativity in times of ecological upheavals*. Berghahn Books.
- Angel, N., Robinson, D., & Berthe, J. (2022). *Fragments of truth: Indian residential schools and the challenge of reconciliation in Canada*. Duke University Press.
- Antunes, A., & Gadotti, M. (2005). *Eco-pedagogy as the Appropriate Pedagogy to the Earth Charter Process*.
- Anunti, H., Pellikka, A., Vuopala, E., & Rusanen, J. (2023). Digital story mapping with geomedia in sustainability education. *International Research in Geographical and Environmental Education*, 32(3), 197–216.
<https://doi.org/10.1080/10382046.2023.2183549>
- Apostolidou, A. (2022). *Bodies that mutter: Poetic autoethnography and digital textuality*. Feminist Autonomous Centre for Research. <https://feministresearch.org/bodies-that-mutter/>
- Appadurai, A. (1990). Disjuncture and difference in the global cultural economy. *Theory, Culture & Society*, 7(2–3), 295–310. <https://doi.org/10.1177/026327690007002017>
- Archibald, J.-A. (2008). *Indigenous storywork: Educating the heart, mind, body, and spirit*. UBC Press. WorldCat.
- Ardoin, N. M., & Bowers, A. W. (2020). Early childhood environmental education: A systematic review of the research literature. *Educational Research Review*, 31, 100353.
<https://doi.org/10.1016/j.edurev.2020.100353>
- Arpaci, I., Yardimci Cetin, Y., & Turetken, O. (2015). Impact of perceived security on organizational adoption of smartphones. *Cyberpsychology, Behavior, and Social Networking*, 18(10), 602–608. <https://doi.org/10.1089/cyber.2015.0243>

- Ash, J. (2020). Post-phenomenology and space: A geography of comprehension, form and power. *Transactions of the Institute of British Geographers*, 45(1), 181–193.
<https://doi.org/10.1111/tran.12331>
- Ash, J., & Simpson, P. (2019). Postphenomenology and method: Styles for thinking the (non)human. *GeoHumanities*, 5(1), 139–156.
<https://doi.org/10.1080/2373566X.2018.1543553>
- Asselin, H., & Basile, S. (2018). Concrete ways to decolonize research. *ACME: An International Journal for Critical Geographies*, 17(3), 643–650.
- Ateeq, A., Milhem, M., Alzoraiki, M., Dawwas, M. I. F., Ali, S. A., & Yahia Al Astal, A. (2024). The impact of AI as a mediator on effective communication: Enhancing interaction in the digital age. *Frontiers in Human Dynamics*, 6.
<https://doi.org/10.3389/fhumd.2024.1467384>
- Atherton, P. F. (2023). Leaving the chasm behind: Autoethnography, creativity and the search for identity in academia. *PRISM: Casting New Light on Learning*, 5(1), Early View.
<https://doi.org/10.24377/PRISM.LJMU.0402212>
- Au, W. (2009). Fighting with the text: Contextualizing and recontextualizing Freire's critical pedagogy. In M. W. Apple, W. Au, & L. A. Gandin (Eds.), *The Routledge international handbook of critical education* (pp. 219–231). Routledge.
- Augustus, C. (2022). Reconciliation through student narratives: Autoethnography, decolonization, and Indigenous methods-based assessment in post-secondary education. *International Journal of Teaching and Learning in Higher Education*, 34(1), 144–152.
- Bachmann-Medick, D. (2016). *Cultural turns: New orientations in the study of culture* (A. Blauhut, Trans.). De Gruyter.
- Badiou, A., & Feltham, O. (2007). *Being and event*. Continuum.

- Balcombe, J. P. (2006). *Pleasurable kingdom: Animals and the nature of feeling good*. Palgrave Macmillan.
- Balyer, A., & Tabanlı, E. (2023). Publication Fetishism at Higher Education: Academicians' Views. *Journal of Educational Leadership and Policy Studies (JELPS)*, 7(1).
- Bang, K.-S., Lee, I., Kim, S., Lim, C. S., Joh, H.-K., Park, B.-J., & Song, M. K. (2017). The effects of a campus forest-walking program on undergraduate and graduate students' physical and psychological health. *International Journal of Environmental Research and Public Health*, 14(7), 728. <https://doi.org/10.3390/ijerph14070728>
- Bará, S., & Falchi, F. (2023). Artificial light at night: A global disruptor of the night-time environment. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 378(1892), 20220352. <https://doi.org/10.1098/rstb.2022.0352>
- Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of Women in Culture and Society*, 28(3), 801–831. <https://doi.org/10.1086/345321>
- Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Duke University Press.
- Barad, K. (2014). Diffracting diffraction: Cutting together-apart. *Parallax*, 20(3), 168–187. <https://doi.org/10.1080/13534645.2014.927623>
- Barnhardt, R., & Oscar Kawagley, A. (2005). Indigenous knowledge systems and Alaska native ways of knowing. *Anthropology & Education Quarterly*, 36(1), 8–23. <https://doi.org/10.1525/aeq.2005.36.1.008>
- Barrett, E., & Bolt, B. (Eds.). (2013). *Carnal knowledge: Towards a “new materialism” through the arts*. I.B. Tauris.

- Bartlett, C., Marshall, M., & Marshall, A. (2012). Two-eyed seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing. *Journal of Environmental Studies and Sciences*, 2(4), 331–340. <https://doi.org/10.1007/s13412-012-0086-8>
- Bastian, M. (2017). *Participatory research in more-than-human worlds* (1 online resource (xii, 213 pages)). Routledge. WorldCat. <http://site.ebrary.com/id/11309795>
- Batisteli, A. F., Guilherme-Ferreira, R., & Sarmiento, H. (2019). Abundance and prevalence of plastic twine in nests of Neotropical farmland birds. *The Wilson Journal of Ornithology*, 131(1), 201. <https://doi.org/10.1676/18-24>
- Bayer, E., & Finley, J. B. (2022). *Ecopedagogies: Practical approaches to experiential learning* (1st ed.). Routledge. <https://doi.org/10.4324/9781003221807>
- Bayley, A. (2020). Diffraction for performance research: A new materialist approach to theory/practice. *Performance Research*, 25(5), 1–3. <https://doi.org/10.1080/13528165.2020.1868830>
- Bayne, S. (2018). Posthumanism: A navigation aid for educators. *On Education. Journal for Research and Debate*, 1(2). https://doi.org/10.17899/on_ed.2018.2.1
- Bazzano, M. (2012). Immanent vitality: Reflections on the actualizing tendency. *Person-Centered & Experiential Psychotherapies*, 11(2), 137–151. <https://doi.org/10.1080/14779757.2012.672930>
- Beaudry, A., & Pinsonneault, A. (2010). The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use. *MIS Q.*, 34, 689–710.
- Beavington, L. (2016). Curriculum hidden: Contemplating more-than-human ethics. *SFU Educational Review*, 9. <https://doi.org/10.21810/sfuer.v9i.309>

- Beavington, L. (2021a). Hard-rooted to nature: Rediscovering the forgotten forest in science education. *Cultural Studies of Science Education*, 16(3), 745–762.
<https://doi.org/10.1007/s11422-021-10078-0>
- Beavington, L. (2021b). Walking pedagogy for science education and more-than-human connection. *Journal of the Canadian Association for Curriculum Studies*, 18, 163–178.
<https://doi.org/10.25071/1916-4467.40626>
- Behzad, A., Wakkary, R., Oogjes, D., Zhong, C., & Lin, H. (2022). Iterating through feeling-with nonhuman things: Exploring repertoires for design iteration in more-than-human design. *CHI Conference on Human Factors in Computing Systems Extended Abstracts*, 1–6.
<https://doi.org/10.1145/3491101.3519860>
- Belontz, S. L., Corcoran, P. L., Davis, H., Hill, K. A., Jazvac, K., Robertson, K., & Wood, K. (2019). Embracing an interdisciplinary approach to plastics pollution awareness and action. *Ambio: A Journal of the Human Environment*, 48(8), 855–866. WorldCat.org.
<https://doi.org/10.1007/s13280-018-1126-8>
- Benjamin, W., Arendt, H., & Zohn, H. (1986). *Illuminations*. Schocken Books.
- Bennett, J. (2010). *Vibrant matter: A political ecology of things*. Duke University Press.
<https://doi.org/10.1215/9780822391623>
- Berg, S., Bradford, B., Barrett, J., Robinson, D. B., Camara, F., & Perry, T. (2021). Meaning-making of student experiences during outdoor exploration time. *Journal of Adventure Education and Outdoor Learning*, 21(2), 172–183.
<https://doi.org/10.1080/14729679.2020.1769694>
- Berkes, F. (2009). Indigenous ways of knowing and the study of environmental change. *Journal of the Royal Society of New Zealand*, 39(4), 151–156.
<https://doi.org/10.1080/03014220909510568>

- Berlant, L. (2006). Cruel optimism. *Differences*, 17(3), 20–36. <https://doi.org/10.1215/10407391-2006-009>
- Bessin, R. (2019, November). *Eastern Tent Caterpillar* | *Entomology* [Encyclopedia]. University of Kentucky Entomology. <https://entomology.ca.uky.edu/ef423>
- Bettini, A. (2024). Sustainable futures-integrating Indigenous perspectives into an environmental assessment framework: An analysis of the Mauri Model. *Journal of Environmental Sustainability*, 8(1). <https://repository.rit.edu/jes/vol8/iss1/8>
- Biermann, F., Hickmann, T., S nit, C.-A., & Grob, L. (2022). The sustainable development goals as a transformative force?: Key insights. In F. Biermann, T. Hickmann, & C.-A. S nit (Eds.), *The political impact of the sustainable development goals* (1st ed., pp. 204–226). Cambridge University Press. <https://doi.org/10.1017/9781009082945.009>
- Black, R., Walsh, L., Waite, C., Collin, P., Third, A., & Idriss, S. (2022). In their own words: 41 stories of young people’s digital citizenship. *Learning, Media and Technology*, 47(4), 524–536. <https://doi.org/10.1080/17439884.2022.2044848>
- Blades, G. (2019). *Walking practices with/in nature(s) as ecopedagogy in outdoor environmental education: An autophenomenographic study* [PhD in Education, La Trobe University]. <https://www.tandfonline.com/doi/full/10.1080/13504622.2021.1944991>
- Blades, G. (2021). Walking practices with/in nature(s) as ecopedagogy in outdoor environmental education: An autophenomenographic study. *Environmental Education Research*, 27(10), 1557–1558. <https://doi.org/10.1080/13504622.2021.1944991>
- Blades, G. (2024). WalkingScapes as ecopedagogy. *The Journal of Environmental Education*, 1–15. <https://doi.org/10.1080/00958964.2024.2305383>
- Blaze Corcoran, P., Maathai, W., & Koninklijk Instituut voor de Tropen (Eds.). (2005). *The Earth Charter in action*. KIT.

- Blenkinsop, S. (2012). Four slogans for cultural change: An evolving place-based, imaginative and ecological learning experience. *Journal of Moral Education*, 41(3), Article 3.
<https://doi.org/10.1080/03057240.2012.691634>
- Blenkinsop, S., & Fettes, M. (2020). Land, language and listening: The transformations that can flow from acknowledging Indigenous land. *Journal of Philosophy of Education*, 54(4), 1033–1046. <https://doi.org/10.1111/1467-9752.12470>
- Blumstein, D. T., & Saylan, C. (2007). The failure of environmental education (and how we can fix it). *PLoS Biology*, 5(5).
- Bochner, A. P., & Ellis, C. (2016). *Evocative autoethnography: Writing lives and telling stories*. Left Coast Press.
- Boden, M. A. (1998). Creativity and artificial intelligence. *Artificial Intelligence 40 Years Later*, 103(1–2), 347–356. [https://doi.org/10.1016/S0004-3702\(98\)00055-1](https://doi.org/10.1016/S0004-3702(98)00055-1)
- Bodzin, A. M., Klein, B. S., & Weaver, S. (Eds.). (2010). *The inclusion of environmental education in science teacher education*. Springer.
- Boler, M. (1999). *Feeling power: Emotions and education*. Routledge.
- Boler, M. (2008). *Digital media and democracy: Tactics in hard times*. MIT Press.
<https://www.worldcat.org/title/232298956>
- Boler, M., & Davis, E. (2018). The affective politics of the “post-truth” era: Feeling rules and networked subjectivity. *Emotion, Space and Society*, 27, 75–85.
<https://doi.org/10.1016/j.emospa.2018.03.002>
- Bongoza, N. (2018). *Education for sustainable futures: An appropriate approach for early childhood development from birth to five years* [Master Thesis]. Stellenbosch University.
- Bonnett, M. (2019). Towards an ecologization of education. *Journal of Environmental Education*, 50(4–6), Article 4–6. <https://doi.org/10.1080/00958964.2019.1687409>

- Boodman, E. (2019). Radical scaffolding against critique fatigue. *Radical Teacher*, 115, 27–32.
<https://doi.org/10.5195/rt.2019.669>
- Borden, R. J. (1985). Technology, education, and the human ecological perspective. *The Journal of Environmental Education*, 16(3), 1–5. <https://doi.org/10.1080/00958964.1985.9942705>
- Borrelle, S. B., Ringma, J., Law, K. L., Monnahan, C. C., Lebreton, L., McGivern, A., Murphy, E., Jambeck, J., Leonard, G. H., Hilleary, M. A., Eriksen, M., Possingham, H. P., De Frond, H., Gerber, L. R., Polidoro, B., Tahir, A., Bernard, M., Mallos, N., Barnes, M., & Rochman, C. M. (2020). Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution. *Science*, 369(6510), 1515–1518.
<https://doi.org/10.1126/science.aba3656>
- Borrows, J. & Ipperwash Inquiry (Ont). (2005). *Crown and Aboriginal occupations of land: A history & comparison* (1 online resource (85 pages)). [Ipperwash Inquiry]. WorldCat.
<https://www.deslibris.ca/ID/251075>
- Bosio, E., & Torres, C. A. (2019). Global citizenship education: An educational theory of the common good? A conversation with Carlos Alberto Torres. *Policy Futures in Education*, 17(6), 745–760. <https://doi.org/10.1177/1478210319825517>
- Bosworth, N. (1839). *Hochelaga depicta—The early history and present state of the city and island of Montreal* (William Greig, Ed.). (Collections de BAnQ).
<https://numerique.banq.qc.ca/patrimoine/details/52327/3996437>
- Bourn, D. (2014). *The theory and practice of development education* (1st ed.). Routledge.
<https://doi.org/10.4324/9781315752730>
- Bourn, D., Tarozzi, M., & Clare. (2024). *Pedagogy of hope for global social justice: Sustainable futures for people and the planet*. Bloomsbury Academic.
- Bowers, C. A. (2001). Toward an eco-Justice pedagogy. *Educational Studies*, 32(4), Article 4.

- Bozalek, V., Braidotti, R., Shefer, T., & Zembylas, M. (Eds.). (2018). *Socially just pedagogies: Posthumanist, feminist and materialist perspectives in higher education*. Bloomsbury Academic.
- Braidotti, R. (2006). Posthuman, all too human: Towards a new process ontology. *Theory, Culture & Society*, 23(7–8), 197–208. <https://doi.org/10.1177/0263276406069232>
- Braidotti, R. (2012). Nomadic ethics. In D. W. Smith & H. Somers-Hall (Eds.), *The Cambridge Companion to Deleuze* (1st ed., pp. 170–197). Cambridge University Press. <https://doi.org/10.1017/CCO9780511753657.009>
- Braidotti, R. (2013). Posthuman humanities. *European Educational Research Journal*, 12(1), 1–19. <https://doi.org/10.2304/eej.2013.12.1.1>
- Braidotti, R., & Fuller, M. (2019). Decentering the researcher in intimate scholarship: Critical posthuman methodological perspectives in education. *Theory, Culture & Society*, 36(6), 3–29. <https://doi.org/10.1177/0263276419860567>
- Brandt, T., Dieterich, M., & Huppert, D. (2024). Human senses and sensors from Aristotle to the present. *Frontiers in Neurology*, 15, 1404720. <https://doi.org/10.3389/fneur.2024.1404720>
- Bratman, G. N., Hamilton, J. P., & Daily, G. C. (2012). The impacts of nature experience on human cognitive function and mental health: Nature experience, cognitive function, and mental health. *Annals of the New York Academy of Sciences*, 1249(1), 118–136. <https://doi.org/10.1111/j.1749-6632.2011.06400.x>
- Brebner, J. S., Loconsole, M., Hanley, D., & Vasas, V. (2024). Through an animal's eye: The implications of diverse sensory systems in scientific experimentation. *Proceedings of the Royal Society B: Biological Sciences*, 291(2027), 20240022. <https://doi.org/10.1098/rspb.2024.0022>

- Brereton, P. (2018). *Environmental literacy and new digital audiences* (1st ed.). Routledge.
<https://doi.org/10.4324/9781315169682>
- Brisset, N. (2015). Comment (et pourquoi) repenser la performativité des énoncés théoriques. *L'Homme et La Société, 197*. <https://doi.org/10.3917/lhs.197.0031>
- Bruchac, M. M. (2014). Indigenous knowledge and traditional knowledge. In C. Smith (Ed.), *Encyclopedia of global archaeology* (pp. 3814–3824). Springer.
https://doi.org/10.1007/978-1-4419-0465-2_10
- Buck, C., Horbel, C., & Kessler, T. (2017). *A four-factor framework of consumers' perception of mobile applications in context* (Working Paper No. 64). Bayreuther Arbeitspapiere zur Wirtschaftsinformatik. <https://www.econstor.eu/handle/10419/172258>
- Buell, L. (2011). Ecocriticism. *Qui Parle, 19*(2), 87–115.
<https://doi.org/10.5250/quiparle.19.2.0087>
- Burelli, T., Lillo, A., Hubert Ta, L., Touchant, L., & Klee, E. (2025). *30 climate COPs later: Stories from Canadian participants* (1 online resource.). University of Ottawa Press. WorldCat. <https://ebook.yourcloudlibrary.com/library/oclc/detail/a3qvwcr9>
- Burke, K. (2012). Strange bedfellows: The new neoliberalism of catholic schooling in the United States. *Journal of Pedagogy / Pedagogický Casopis, 3*(2), 177–197.
<https://doi.org/10.2478/v10159-012-0009-5>
- Burke, P. F., Schuck, S., Burden, K., & Kearney, M. (2025). Mediating learning with mobile devices through pedagogical innovation: Teachers' perceptions of K-12 students' learning experiences. *Computers & Education, 227*, 105226.
<https://doi.org/10.1016/j.compedu.2024.105226>
- Burkholder, C. (2018). *Looking back and looking around: Revisiting and exploring civic engagement through cellfilms with ethnic minority youth in Hong Kong* [Doctoral

- dissertation, McGill University]. eScholarship (Montreal).
<https://escholarship.mcgill.ca/concern/theses/fb494b69g>
- Burkholder, C., Aladejebi, F., & Schwab-Cartas, Josh. (2022). Embracing new paths in visual research facilitation: Opportunities, tensions & ethical considerations. *Visual Studies*, 37(1–2), 7–10. <https://doi.org/10.1080/1472586X.2021.1962735>
- Burkholder, C., Aladejebi, F., & Schwab-Cartas, Joshua (Eds.). (2022). *Facilitating community research for social change: Case studies in qualitative, arts-based and visual research*. Routledge.
- Burkholder, C., & Thorpe, A. (2019a). Cellphilm production as posthuman research method to explore injustice with queer youth in New Brunswick, Canada. *Reconceptualizing Educational Research Methodology*, 10(2–3), 292–309. <https://doi.org/10.7577/erm.3680>
- Burkholder, C., & Thorpe, A. (2019b). Cellphilm production as posthuman research method to explore injustice with queer youth in New Brunswick, Canada. *Reconceptualizing Educational Research Methodology*, 10(2–3), 292–309. <https://doi.org/10.7577/erm.3680>
- Buser, M. (2014). Thinking through non-representational and affective atmospheres in planning theory and practice. *Planning Theory*, 13(3), 227–243.
<https://doi.org/10.1177/1473095213491744>
- Bussewitz, C., & Irvine, M. (2021, July). Forgotten oil and gas wells linger, leaking toxic chemicals. *APNews*. <https://apnews.com/article/joe-biden-business-health-environment-and-nature-coronavirus-pandemic-f04ac92a45b4e02392e86b618cc4ff03>
- Butler, P., & Farah, H. (2023, July 25). ‘Put learners first’: UNESCO calls for global ban on smartphones in schools. *The Guardian*.
<https://www.theguardian.com/world/2023/jul/26/put-learners-first-unesco-calls-for-global-ban-on-smartphones-in-schools>

- Cabañas, K. M. (2021). *Immanent vitalities: Meaning and materiality in modern and contemporary art*. University of California Press.
- Caiman, C., & Kjällander, S. (2024). Elementary students' 'outdoor – digital' explorations in ecology—Learning through chains of transduction. *Environmental Education Research*, 30(1), 83–100. <https://doi.org/10.1080/13504622.2023.2229541>
- Cajete, G. A. (2020). Indigenous science, climate change, and indigenous community building: A framework of foundational perspectives for Indigenous community resilience and revitalization. *Sustainability*, 12(22), 9569. <https://doi.org/10.3390/su12229569>
- Calvo, R. A., D'Mello, S., Gratch, J., & Kappas, A. (Eds.). (2015). *The Oxford handbook of affective computing*. Oxford University Press.
- Cameron, F. R. (2021). *The future of digital data, heritage and curation: In a more-than-human world* (1st ed.). Routledge. <https://doi.org/10.4324/9781003149606>
- Cameron, L. (2022). Indigenous ecological knowledge systems – Exploring sensory narratives. *Ecological Management & Restoration*, 23(S1), 27–32. <https://doi.org/10.1111/emr.12534>
- Cantón, A., & Garcia, B. I. (2018). Global citizenship education. In *New Directions for Student Leadership* (No. 160; Vol. 2018, pp. 21–30). <https://onlinelibrary.wiley.com/doi/10.1002/yd.20307>
- Capello, S. A. (2023). Linking assessments to program outcomes in practitioner-oriented EdD programs: An alternative to comprehensive examinations. *Journal of Adult and Continuing Education*, 29(1), 25–40. <https://doi.org/10.1177/14779714221093091>
- Capra, F. (1996). *The web of life: A new scientific understanding of living systems* (1st Anchor Books ed). Anchor Books.

- Carney Almroth, B., & Eggert, H. (2019). Marine plastic pollution: Sources, impacts, and policy issues. *Review of Environmental Economics and Policy*, 13(2), 317–326.
<https://doi.org/10.1093/reep/rez012>
- Carr, P. R. (2022). Insurrectional and pandoran democracy, military perversion and the quest for environmental peace: The last frontiers of ecopedagogy before us. In P. Jandrić & D. R. Ford (Eds.), *Postdigital ecopedagogies: Genealogies, contradictions, and possible futures* (pp. 77–92). Springer International Publishing. https://doi.org/10.1007/978-3-030-97262-2_5
- Carter, D., & Martin, G. (2022). Dialogic education and Jacques Rancière. In D. Carter & G. Martin, *Oxford research encyclopedia of education*. Oxford University Press.
<https://doi.org/10.1093/acrefore/9780190264093.013.1785>
- Carvalho, I. C. D. M., Steil, C. A., & Gonzaga, F. A. (2020). Learning from a more-than-human perspective. Plants as teachers. *The Journal of Environmental Education*, 51(2), 144–155.
<https://doi.org/10.1080/00958964.2020.1726266>
- Casadevall, M., Rodríguez-Prieto, C., Pueyo, J., Martí, C., Merciai, R., Verlaque, M., Real, E., Torres, J., & Richir, J. (2020). The strange case of tough white seabream (*Diplodus sargus*, Teleostei: Sparidae): A first approach to the extent of the phenomenon in the mediterranean. *Frontiers in Marine Science*, 7, 387.
<https://doi.org/10.3389/fmars.2020.00387>
- Castelino, L. (2024). Shaping climate philanthropy through cellphilm making | Faculty of Environmental and Urban Change | York U. *Faculty of Environmental and Urban Change*. <https://euc.yorku.ca/research-spotlight/shaping-climate-philanthropy-through-cellphilm-making/>

- Castro, E. B. V. de. (2012). *Cosmological perspectivism in Amazonia and elsewhere: Four lectures given in the Department of Social Anthropology, University of Cambridge, February-March 1998* (1 ressource en ligne). HAU Journal of Ethnographic Theory. WorldCat.
- Catala, A. (2025). Mistaking linguistic privilege for epistemic privilege: Academic migration and linguistic epistemic injustice. In A. Catala (Ed.), *The dynamics of epistemic injustice: Situating epistemic power and agency* (pp. 209–247). Oxford University Press.
<https://doi.org/10.1093/9780197776353.003.0006>
- Cellphilm tips*. (2013, October 24). McGill International Cellphilm Festival.
<https://internationalcellphilmfestival.com/2013/10/24/cellphilm-tips/>
- Center for Education Statistics and Evaluation. (2018). *Impact of mobile digital devices in schools* (p. 14) [Literature Review]. NSW Department of Education.
<https://education.nsw.gov.au/about-us/education-data-and-research/cese/publications/literature-reviews/impact-of-mobile-digital-devices-in-schools.html>
- Certeau, M. de. (1984). *The practice of everyday life* (S. Rendall, Trans.; 1st ed.). University of California Press.
- Chan, B., Chau, B., Ihnatovych, D., & Schembri, N. (2016). “Safe injection and needle disposal spaces for UBC! Now!” Collective reflections on a cellphilm workshop. In K. MacEntee, C. Burkholder, & J. Schwab-Cartas (Eds.), *What’s a cellphilm? Integrating mobile phone technology into participatory visual research and activism* (pp. 119–134). Sense Publishers. https://doi.org/10.1007/978-94-6300-573-9_8

- Chapman, O., & Sawchuk, K. (2015). Creation-as-research: Critical making in complex environments. *RACAR : Revue d'art canadienne*, 40(1), 49.
<https://doi.org/10.7202/1032753ar>
- Charpentier Poncelet, A., Helbig, C., Loubet, P., Beylot, A., Muller, S., Villeneuve, J., Laratte, B., Thorenz, A., Tuma, A., & Sonnemann, G. (2022). Losses and lifetimes of metals in the economy. *Nature Sustainability*, 5(8), 717–726. <https://doi.org/10.1038/s41893-022-00895-8>
- Chassagne, N. (2023). *Buen vivir as an alternative to sustainable development: Lessons from Ecuador*. Routledge.
- Chatti, D., Archer, M., Lennon, M., & Dove, M. R. (2017). Exploring the mundane: Towards an ethnographic approach to bioenergy. *Energy Research & Social Science*, 30, 28–34.
<https://doi.org/10.1016/j.erss.2017.06.024>
- Chawla, D., & Atay, A. (2018). Introduction: Decolonizing autoethnography. *Cultural Studies ↔ Critical Methodologies*, 18(1), 3–8. <https://doi.org/10.1177/1532708617728955>
- Chbib, B. (2023). *Anthropocene critical radical ecopedagogy (CREP) using cellphilms* [Master of Education]. Bishops University.
- Chbib, B., & Misiaszek, G. W. (2025). Democratic ecopedagogy: Inclusive of more-than-humans within our postdigital world. In P. R. Carr, E. Rivas-Sánchez, & G. Thésée (Eds.), *Pygmalion democracy* (pp. 435–466). Éditions Science et Bien Commun.
- Chen, C., Shahbaz, P., & Haq, S. U. (2025). Transforming students' green behavior through environmental education: The impact of institutional practices and policies. *Frontiers in Psychology*, 15, 1499781. <https://doi.org/10.3389/fpsyg.2024.1499781>

- Cherry, M. (2016). A picture is worth a thousand words: Teaching media literacy. In S. McNicol (Ed.), *Critical literacy for information professionals* (1st ed., pp. 93–104). Facet.
<https://doi.org/10.29085/9781783301508.009>
- Cheung, M. (2019, March 9). Outdoor education and its effect on children, teachers, and the school community. *Humans in Nature*.
<https://humansinnatureproject.wordpress.com/2019/03/09/outdoor-education-and-its-effect-on-children-teachers-and-school-community/>
- Chew, S. (2024). Talking across worlds: The ontological turn and communication in natural resource co-management with Indigenous communities. *Progress in Environmental Geography*, 27539687241269336. <https://doi.org/10.1177/27539687241269336>
- Ciegis, R., Ramanauskiene, J., & Martinkus, B. (2009). The concept of sustainable development and its use for sustainability scenarios. *Engineering Economics*, 2.
- Cipolla, C. N., & Hayes, K. H. (Eds.). (2015). *Rethinking colonialism: Comparative archaeological approaches*. University Press of Florida.
- Cisneros, L., Campbell, T., Freidenfelds, N., Lindemann, A., Elliot-Famularo, H., Chadwick, C., Dickson, D., & Park, B.-Y. (2023). Eco-digital storytelling: Engaging historically excluded populations in environmental action through mentoring, geospatial technology, and digital media storytelling. *Frontiers in Education*, 7, 1083064.
<https://doi.org/10.3389/feduc.2022.1083064>
- Clarke, D. A. G. (2023). *Practising immanence: Living with theory in environmental education* (1 online resource). ROUTLEDGE. WorldCat. <https://doi.org/10.4324/9781003434337>
- Clifford, M. A., 1954-. (2021). *Your guide to forest bathing: Experience the healing power of nature* ([Expanded edition]). Red Wheel. WorldCat.

- Clough, P. T., Calderaro, B., Hultman, I., İşsevenler, T., Moyano-Ariza, S., & Nielsen, J. (2023). Mediating the subject of psychoanalysis: A conversation on bodies, temporality, and narrative. In *The Routledge International Handbook of Psychoanalysis, Subjectivity, and Technology* (pp. 17–33). Routledge.
- Clough, P. T., & Halley, J. (Eds.). (2007). *The affective turn: Theorizing the social*. Duke University Press.
- Cloutier, D. (2012). Can Neoliberalism be Catholic? | Catholic Moral Theology [Catholic Moral Theology]. *Can Neoliberalism Be Catholic?* <https://catholicmoraltheology.com/can-neoliberalism-be-catholic/>
- Cluett, S. (2006). Toward a post-phenomenology of extra-musical sound as compositional determinant. *Leonardo Music Journal*, 16, 42.
- CNN - First mobile videophone introduced. (1999, May 18). CNN.Com. <http://edition.cnn.com/TECH/ptech/9905/18/japan.phonetv/>
- Cobelo-García, A., Filella, M., Croot, P., Frazzoli, C., Du Laing, G., Ospina-Alvarez, N., Rauch, S., Salaun, P., Schäfer, J., & Zimmermann, S. (2015). COST action TD1407: Network on technology-critical elements (NOTICE)—from environmental processes to human health threats. *Environmental Science and Pollution Research*, 22(19), 15188–15194. <https://doi.org/10.1007/s11356-015-5221-0>
- Connolly, S. (2013). *Learning progression in secondary digital video production* [PhD Thesis, Institute of Education]. <https://discovery.ucl.ac.uk/id/eprint/10020015/>
- Connolly, S. (2014). 21st century artisans: Relativity, craft and techne in digital video production. *Media Education Research Journal*, 5, 32–45.
- Connolly, S., & Parry, B. (2018). Media literacy education in primary years: Carrying on regardless. *Journal of Media Literacy*, 65(1), 71–76.

- Conocimiento, V. al. (2020, February 24). The hidden environmental toll of smartphones. *OpenMind*. <https://www.bbvaopenmind.com/en/science/environment/the-hidden-environmental-toll-of-smartphones/>
- Coppola, R., Tortella, P., Coco, D., & Sgrò, F. (2021). *How can the technology be integrated in Outdoor Movement Education for children and the youth with special needs?* Autumn Conferences of Sports Science. <https://doi.org/10.14198/jhse.2021.16.Proc2.50>
- Corcoran, P. B., Weakland, J. P., & Wals, A. E. J. (Eds.). (2017). *Envisioning futures for environmental and sustainability education*. Brill | Wageningen Academic. <https://doi.org/10.3920/978-90-8686-846-9>
- Cordier, A. (2024). *Quand les adolescents racontent le smartphone: Une enquête sur la réception de la Bande Dessinée “Dans la tête de Juliette”* (p. 20) [Universités en Sciences de l’information et de la communication]. CLEMI. <https://www.clemi.fr/clemi-sup/publications-du-clemi-sup/quand-les-adolescents-racontent-le-smartphone-une-enquete-sur-la-reception-de-la-bande-dessinee-dans-la-tete-de-juliette>
- Cortese, L. (2019). Paulo Freire working in and from Europe. In *The Wiley handbook of Paulo Freire* (pp. 133–147). <https://doi.org/10.1002/9781119236788.ch7>
- Corwin, J. N. (2016). *Indigenous ways of knowing, digital storytelling, and environmental learning—A confluence of tradition and new media technology* [PhD Dissertation]. Cornell University.
- Cowger, W., Willis, K. A., Bullock, S., Conlon, K., Emmanuel, J., Erdle, L. M., Eriksen, M., Farrelly, T. A., Hardesty, B. D., Kerge, K., Li, N., Li, Y., Liebman, A., Tangri, N., Thiel, M., Villarrubia-Gómez, P., Walker, T. R., & Wang, M. (2024). Global producer responsibility for plastic pollution. *Science Advances*, *10*(17), eadj8275. <https://doi.org/10.1126/sciadv.adj8275>

- Crow, M. M. (2007). None dare call it hubris: The limits of knowledge. *Issues in Science and Technology*, 13(2). https://issues.org/p_crow/
- Cuadros, A., Basterretxea, G., Cardona, L., Cheminée, A., Hidalgo, M., & Moranta, J. (2018). Settlement and post-settlement survival rates of the white seabream (*Diplodus sargus*) in the western Mediterranean Sea. *PLOS ONE*, 13(1), e0190278. <https://doi.org/10.1371/journal.pone.0190278>
- Cubbage, J. (Ed.). (2022). *Critical race media literacy: Themes and strategies for media education*. Routledge.
- Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change*, 8(4), 275–281. <https://doi.org/10.1038/s41558-018-0092-2>
- Cyprian Obiora, A. (2015). African indigenous knowledge system and environmental sustainability. *International Journal of Environmental Protection and Policy*, 3(4), 88. <https://doi.org/10.11648/j.ijepp.20150304.12>
- D' Adamo, P., & Lozada, M. (2024). Playful enactive interventions can enhance agency, empathy and social integration in children. *Learning and Instruction*, 93, 101960. <https://doi.org/10.1016/j.learninstruc.2024.101960>
- Dagenais, M. (Director). (2019, May). *The Mountain—Canada's History* [Video recording]. <https://www.canadashistory.ca/explore/environment/the-mountain>
- Dang, D. H., Filella, M., & Omanović, D. (2021). Technology-critical elements: An emerging and vital resource that requires more in-depth investigation. *Archives of Environmental Contamination and Toxicology*, 81(4), 517–520. <https://doi.org/10.1007/s00244-021-00892-6>

- Danish Ali, & Abbas, G. (2024). *Understanding the carbon footprint of aviation: A review of sustainable practices and strategies*. Unpublished.
<https://doi.org/10.13140/RG.2.2.25005.50405>
- Darder, A. (2011). It's not nice to fool mother nature: Eco-pedagogy in the pursuit of justice. *Counterpoints*, 418, 327–342. JSTOR.
- Dashper, K. (2020). More-than-human emotions: Multispecies emotional labour in the tourism industry. *Gender, Work & Organization*, 27(1), 24–40.
<https://doi.org/10.1111/gwao.12344>
- Datta, R. (2017). Decolonizing both researcher and research and its effectiveness in Indigenous research. *Research Ethics*, 14. <https://doi.org/10.1177/1747016117733296>
- Dauphinee, E. (2010). The ethics of autoethnography. *Review of International Studies*, 36(3), 799–818. Cambridge Core. <https://doi.org/10.1017/S0260210510000690>
- Davies, B., & Bansel, P. (2007). Neoliberalism and education. *International Journal of Qualitative Studies in Education*, 20(3), 247–259.
<https://doi.org/10.1080/09518390701281751>
- Davies, I., Ho, L.-C., Kiwan, D., Peck, C. L., Peterson, A., Sant, E., & Waghid, Y. (Eds.). (2018). *The Palgrave handbook of global citizenship and education*. Palgrave Macmillan.
<https://doi.org/10.1057/978-1-137-59733-5>
- Davis, H. (2022). *Plastic matter*. Duke University Press. <https://doi.org/10.1515/9781478022374>
- Davis, S. (2025). *Ericsson Mobility Report* (Corporate B-25:009321; p. 35). Ericsson.
<https://www.ericsson.com/en/reports-and-papers/mobility-report>
- de Boer, B. (2021). *How scientific instruments speak: Postphenomenology and technological mediations in neuroscientific practice*. Lexington Books.

- de Oliveira Andreotti, V. (2014). Conflicting epistemic demands in poststructuralist and postcolonial engagements with questions of complicity in systemic harm. *Educational Studies*, 50(4), Article 4. <https://doi.org/10.1080/00131946.2014.924940>
- De Paula, B. (2021). Reflexivity, methodology and contexts in participatory digital media research: Making games with Latin American youth in London. *Learning, Media and Technology*, 46(4), 435–450. <https://doi.org/10.1080/17439884.2021.1901114>
- DeBerry-Spence, B., Ekpo, A. E., & Hogan, D. (2019). Mobile phone visual ethnography (MpVE): Bridging transformative photography and mobile phone ethnography. *Journal of Public Policy & Marketing*, 38(1), 81–95. <https://doi.org/10.1177/0743915618820586>
- DeLanda, M. (2006). Deleuzian social ontology and assemblage theory. In B. M. Sorensen & M. Fuglsang (Eds.), *Deleuze and the social* (pp. 250–266). Edinburgh University Press. Cambridge Core. <https://www.cambridge.org/core/books/deleuze-and-the-social/deleuzian-social-ontology-and-assemblage-theory/5B0F0867F62405D314BC41BA6DC386A8>
- DeLanda, M. (2013). *Intensive science and virtual philosophy*. Bloomsbury.
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia* (B. Massumi, Trans.). University of Minnesota Press.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research* (4th ed). Sage.
- Denzin, N. K., Lincoln, Y. S., & Smith, L. T. (2008). *Handbook of critical and indigenous methodologies*. Sage.
- Dernikos, B. P., Ferguson, D. E., & Siegel, M. (2020). The possibilities for “humanizing” posthumanist inquiries: An intra-active conversation. *Cultural Studies ↔ Critical Methodologies*, 20(5), 434–447. <https://doi.org/10.1177/1532708619829793>

- Derrida, J. (1993). *Spectres de Marx*. Éditions Galilée.
- Derrida, J. (1998). *Of grammatology* (Corrected ed). Johns Hopkins University Press.
- Derrida, J., & Mallet, M.-L. (2008). *The animal that therefore I am* (1 online resource (iii, 176 pages)). Fordham University Press. WorldCat. <http://hdl.handle.net/2027/heb.30596>
- Dewey, J. (1962). *Experience and nature: The Paul Carus lectures, first series, 1925*. Open Court.
- Dewey, J. (with NetLibrary, Inc). (2001). *Democracy and education*. Pennsylvania State University. pdfbooks.co.za
- Digital 2025: Global Overview Report*. (2025, February 5). DataReportal – Global Digital Insights. <https://datareportal.com/reports/digital-2025-global-overview-report>
- Dirksen, R., Pedelty, M., Pang, Y., Roy, E., & Hakemulder, F. (2023). Exploring the environmental humanities through film production. In M. Schneider-Mayerson, A. Weik von Mossner, & W. P. Malecki (Eds.), *Empirical ecocriticism: Environmental narratives for social change*. University of Minnesota Press. <https://www.upress.umn.edu/book-division/books/empirical-ecocriticism>
- Dirksmeier, P., & Helbrecht, I. (2008). Time, non-representational theory and the “performative turn”: Towards a new methodology in qualitative social research. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 9(2).
- Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, 15(5), 276–285. <https://doi.org/10.1002/sd.344>
- Dockney, J., & Tomaselli, K. (2010). Third cinema, third screens, third worlds and tradomania: Examining cellphilm aesthetics in visual culture. *Communitas*, 15(1), 97–111.
- Douglas, M. L. (2020). *A non-representational focus on wilderness affect* [PhD, University of Montana]. <https://scholarworks.umt.edu/etd/11667>

- Drucker, J. (2018). Non-representational approaches to modeling interpretation in a graphical environment. *Digital Scholarship in the Humanities*, 33(2), Article 2.
<https://doi.org/10.1093/llc/fqx034>
- Ducros, H. B. (2021, November 9). *Rethinking the human in a multispecies world*.
Www.Europenowjournal.Org. <https://www.europenowjournal.org/2021/11/07/rethinking-the-human-in-a-multispecies-world/>
- Duijzer, C., Van Den Heuvel-Panhuizen, M., Veldhuis, M., Doorman, M., & Leseman, P. (2019). Embodied learning environments for graphing motion: A systematic literature review. *Educational Psychology Review*, 31(3), 597–629. <https://doi.org/10.1007/s10648-019-09471-7>
- Dunkley, R. (2023). Ecological kin-making in the multispecies muddle: An analytical framework for understanding embodied environmental citizen science experiences. *Transactions of the Institute of British Geographers*, 48(4), 781–796. <https://doi.org/10.1111/tran.12613>
- Dunkley, R. A. (2018). Space-timeScapes as ecopedagogy. *The Journal of Environmental Education*, 49(2), 117–129. <https://doi.org/10.1080/00958964.2017.1417223>
- Dunn, T. R., & Myers, W. B. (2020). Contemporary autoethnography is digital autoethnography. *Journal of Autoethnography*, 1(1), 43–59. <https://doi.org/10.1525/joae.2020.1.1.43>
- Ebrey, J. (2016). The mundane and insignificant, the ordinary and the extraordinary: Understanding Everyday Participation and theories of everyday life. *Cultural Trends*, 25(3), 158–168. <https://doi.org/10.1080/09548963.2016.1204044>
- Edwards, J. (2021). Ethical autoethnography: Is it possible? *International Journal of Qualitative Methods*, 20, 1609406921995306. <https://doi.org/10.1177/1609406921995306>
- Eliason, K. (2022). Climate change is having a huge impact across the globe. *World Economic Forum*.

- Ellis, C. (2007). Telling secrets, revealing lives. *Qualitative Inquiry - QUAL INQ*, 13, 3–29.
<https://doi.org/10.1177/1077800406294947>
- Ellis, C., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: An overview. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 12(1).
<https://doi.org/10.17169/fqs-12.1.1589>
- Ellis, C., & Bochner, A. P. (2000). Autoethnography, personal narrative, reflexivity. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed). Sage Publications.
- Enns, C., & Sneyd, A. (2021). More-than-human infrastructural violence and infrastructural justice: A case study of the Chad–Cameroon pipeline project. *Annals of the American Association of Geographers*, 111(2), 481–497.
<https://doi.org/10.1080/24694452.2020.1774348>
- Epstein-HaLevi, D. Y. (2021). Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development. *International Studies in Sociology of Education*, 30(1–2), 233–235. <https://doi.org/10.1080/09620214.2021.1880334>
- Eriksen, M. H., & Kay, K. (2022). Reflections on posthuman ethics. Grievability and the more-than-human worlds of iron and Viking age Scandinavia. *Cambridge Archaeological Journal*, 32(2), 331–343. Cambridge Core. <https://doi.org/10.1017/S0959774321000561>
- Eryaman, M. Y., Yalcin Ozdilek, S., E., O., Z., C., & Uygun, S. (2010). A participatory action research study of nature education in nature: Towards community-based eco-pedagogy. *International Journal of Progressive Education*, 6, 26–37.
- Farman, J. (2012). *Mobile interface theory: Embodied space and locative media*. Routledge.

- Fassbinder, S. D. (2012). Greening education. In S. D. Fassbinder, A. J. Nocella II, & R. Kahn (Eds.), *Greening the academy* (pp. 1–22). Sense Publishers. https://doi.org/10.1007/978-94-6209-101-6_1
- Fast, E. (2014). *Exploring the role of culture among urban Indigenous youth in Montreal*. Unpublished. <https://doi.org/10.13140/2.1.4226.3361>
- Fawns, T. (2019). Postdigital education in design and practice. *Postdigital Science and Education*, 1(1), 132–145. <https://doi.org/10.1007/s42438-018-0021-8>
- Fedotova, O., & Nikolaeva, E. (2015). Radical pedagogy: Theoretical concept and/or alternative practice? *Procedia - Social and Behavioral Sciences, The Proceedings of 5th World Conference on Learning, Teaching and Educational Leadership*, 186, 785–789. <https://doi.org/10.1016/j.sbspro.2015.04.010>
- Fels, L. (2012). Collecting data through performative inquiry: A tug on the sleeve. *Youth Theatre Journal*, 26(1), 50–60. <https://doi.org/10.1080/08929092.2012.678209>
- Ferguson, J., & Weaselboy, M. (2020). Indigenous sustainable relations: Considering land in language and language in land. *Current Opinion in Environmental Sustainability*, 43, 1–7. <https://doi.org/10.1016/j.cosust.2019.11.006>
- Ferro, C., Maggiore, P., & Champvillair, D. (2023). *Development of a computational fluid dynamics model for ice formation: Validation and parameter analysis*. <https://doi.org/10.20944/preprints202303.0434.v1>
- Flicker, S. S., & MacEntee, K. (2023). *Cellphilm as participatory visual methodology: Mobilizing opportunities for research, teaching and social change*. Routledge. <https://doi.org/10.4324/9781003093817>
- Flicker, S. S., Wilson, C., Monchalain, R., Restoule, J.-P., Mitchell, C., Larkin, J., Prentice, T., Jackson, R., Oliver, V., & Native Youth Sexual Health Network. (2020). The impact of

- Indigenous youth sharing digital stories about HIV activism. *Health Promotion Practice*, 21(5), 802–810. <https://doi.org/10.1177/1524839918822268>
- Flood, V. J., Shvarts, A., & Abrahamson, D. (2020). Teaching with embodied learning technologies for mathematics: Responsive teaching for embodied learning. In *Movement matters: How embodied cognition informs teaching and learning* (pp. 1307–1331). MIT Press. <https://link.springer.com/10.1007/s11858-020-01165-7>
- Foster, J. (2018). *Oil and world politics*. James Lorimer & Company Ltd., Publishers.
- Fournier, M., & Les amis de la montagne. (2007). Mount Royal Park, a Precious Natural and Cultural Heritage. *Mount Royal Park*. http://www.ameriquefrancaise.org/en/article-542/Mount_Royal_Park,_a_Precious_Natural_and_Cultural_Heritage.html
- Francis, C. (2011). Critical pedagogy, ecoliteracy & planetary crisis: The ecopedagogy movement. *Environmental Education Research*, 17(5), 705–708. <https://doi.org/10.1080/13504622.2010.551180>
- Freire, P. (2000). *Pedagogy of the oppressed* (30th anniversary ed). Continuum. (Original work published 1968).
- Freire, P. (2004). *Pedagogy of indignation*. Paradigm Publishers.
- Freud, S. (with Tyson, A., Strachey, A., & Freud, A.). (1999). *The standard edition of the complete psychological works of Sigmund Freud* (J. Strachey, Ed.; Repr). Hogarth Press.
- Frohman, L. (2021). *The politics of personal information: Surveillance, privacy, and power in West Germany*. Berghahn.
- Fromm, E. (1973). *The anatomy of human destructiveness* (1st ed.). Holt, Rinehart and Winston.
- Fugate, J. M. B., Macrine, S. L., & Cipriano, C. (2019). The role of embodied cognition for transforming learning. *International Journal of School & Educational Psychology*, 7(4), 274–288. <https://doi.org/10.1080/21683603.2018.1443856>

- Fuller, G. (2013). Representing affects and non-representational media theory. *Cultural Studies Review*, 19, 322–329.
- Fundamentals of Biology I (Lumen). (2025). *Libretext*. <https://LibreTexts.org>
- Gabriele, R. (2016). Autoethnography of digital fiction in Japan: A case study. *Journal of Organizational Ethnography*, 5(2), 139–151. WorldCat.org. <https://doi.org/10.1108/JOE-01-2016-0001>
- Gadotti, M. (2008a). Education for sustainability: A critical contribution to the decade of education for sustainable development. *Green Theory & Praxis: The Journal of Ecopedagogy*, 4(1), 15–64. <https://doi.org/10.3903/gtp.2008.1.3>
- Gadotti, M. (2008b). What we need to learn to save the planet. *Journal of Education for Sustainable Development*, 2(1), 21–30. <https://doi.org/10.1177/097340820800200108>
- Gadotti, M. (2010). Reorienting education practices towards sustainability. *Journal of Education for Sustainable Development*, 4(2), 203–211. <https://doi.org/10.1177/097340821000400207>
- Gadotti, M. (2019). Freire’s intellectual and political journey. In *The Wiley handbook of Paulo Freire* (pp. 31–49). <https://doi.org/10.1002/9781119236788.ch1>
- Gajardo, M. (2019). Finding Paulo Freire in Chile. In *The Wiley handbook of Paulo Freire* (pp. 99–119). <https://doi.org/10.1002/9781119236788.ch5>
- Garcia-Arias, J., Corbetta, S., & Baronnet, B. (2023). Decolonizing education in Latin America: Critical environmental and intercultural education as an indigenous pluriversal alternative. *British Journal of Sociology of Education*, 1–19. <https://doi.org/10.1080/01425692.2023.2234088>

- Garden, A. (2024). An exploration of children's experiences of the use of digital technology in forest schools. *Journal of Adventure Education and Outdoor Learning*, 24(1), 93–107.
<https://doi.org/10.1080/14729679.2022.2111693>
- Garlits, J. (2023). *Forest bathing: The no-nonsense guide to shinrin yoku* (Revised edition). [publisher not identified]. WorldCat.
- Gayle, D. (2024, July 18). Five Just Stop Oil activists receive record sentences for planning to block M25. *The Guardian*.
<https://www.theguardian.com/environment/article/2024/jul/18/five-just-stop-oil-supporters-jailed-over-protest-that-blocked-m25>
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. Basic Books.
- GEM Report UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in education: A tool on whose terms?* (1st ed.). GEM Report UNESCO.
<https://doi.org/10.54676/UZQV8501>
- Gergen, M. M., & Gergen, K. J. (2011). Performative social science and psychology. *Historical Social Research / Historische Sozialforschung*, 36(4 (138)), 291–299. JSTOR.
- Germein, S., Adams, P., & Dollin, J. (2025). Capacious methodologies for an unravelling world: Three research ecologies. *Qualitative Inquiry*, 31(2), 155–164.
<https://doi.org/10.1177/10778004241229791>
- Gibson, J. J. (1966). *The senses considered as perceptual systems*. Houghton Mifflin. WorldCat.
- Giroux, H. A. (2010, October). *Lessons from Paulo Freire*. The Chronicle of Higher Education.
<https://www.chronicle.com/article/lessons-from-paulo-freire/>
- Glenberg, A. M., Goldberg, A. B., & Zhu, X. (2011). Improving early reading comprehension using embodied CAI. *Instructional Science*, 39(1), 27–39. <https://doi.org/10.1007/s11251-009-9096-7>

Global potential of Internet remains largely untapped, says UN agency for digital technology (Press Release). (2022, June). International Telecommunication Union.

<https://www.itu.int:443/en/mediacentre/Pages/PR-2022-06-06-Global-potential-of-internet-remains-untapped.aspx>

Główczyński, M. (2023). Digital placemaking: Experiencing places through mobile media. In T. Osborne & P. Jones (Eds.), *A research agenda for digital geographies* (pp. 199–210). Edward Elgar Publishing. <https://doi.org/10.4337/9781802200607.00027>

Good practices in education for sustainable development: Using the Earth Charter—UNESCO Digital Library. (n.d.). Retrieved January 7, 2024, from <https://unesdoc.unesco.org/ark:/48223/pf0000217854>

Goodyear, V. A., Randhawa, A., Adab, P., Al-Janabi, H., Fenton, S., Jones, K., Michail, M., Morrison, B., Patterson, P., Quinlan, J., Sitch, A., Twardochleb, R., Wade, M., & Pallan, M. (2025). School phone policies and their association with mental wellbeing, phone use, and social media use (SMART Schools): A cross-sectional observational study. *The Lancet Regional Health - Europe*, *51*, 101211. <https://doi.org/10.1016/j.lanepe.2025.101211>

Goren, H., & Yemini, M. (2017). Global citizenship education redefined – A systematic review of empirical studies on global citizenship education. *International Journal of Educational Research*, *82*, 170–183. <https://doi.org/10.1016/j.ijer.2017.02.004>

Gray, D. S., & Colucci-Gray, L. (2019). Laying down a path in walking: Student teachers' emerging ecological identities. *Environmental Education Research*, *25*(3), 341–364. <https://doi.org/10.1080/13504622.2018.1499014>

Green, C. J. (2015). Toward young children as active researchers: A critical review of the methodologies and methods in early childhood environmental education. *The Journal of*

Environmental Education, 46(4), 207–229.

<https://doi.org/10.1080/00958964.2015.1050345>

Greeson, K. (2019). Pili‘Oha/Kinship: (Re)Imagining perceptions of nature and more-than-human relationality. *Imaginations: Journal of Cross-Cultural Image Studies*, 10(1).

<https://doi.org/10.17742/IMAGE.CR.10.1.12>

Grislis, E. (2003). Providence, predestination, and free will in Richard Hooker’s theology. In W. J. T. Kirby (Ed.), *Richard Hooker and the English Reformation* (pp. 79–95). Springer Netherlands. https://doi.org/10.1007/978-94-017-0319-2_6

Grusin, R. A. (Ed.). (2017). *Anthropocene feminism*. University of Minnesota Press.

Guattari, F. (2015). *Psychoanalysis and transversality: Texts and interviews 1955-1971*.

Semiotext(e). WorldCat.

Guertin, C. (2019). Gesturing toward the visual: Virtual reality, hypertext and embodied feminist criticism. *Surfaces*, 8. <https://doi.org/10.7202/1065074ar>

Gutierrez, F., & Prado Rojas, C. (1999). *Ecopedagogia e cidadania planetária*. Cortez Editora.

Guttorm, H., Kantonen, L., Kramvig, B., & Pyhälä, A. (2021). Decolonized research-storying: Bringing indigenous ontologies and care into the practices of research writing. In P. K. Virtanen, P. Keskitalo, & T. Olsen (Eds.), *Indigenous research methodologies in Sámi and Global contexts* (pp. 113–143). Brill.

<http://www.jstor.org/stable/10.1163/j.ctv1v7zvk4.10>

Haeckel, E. (1866). *Generelle Morphologie der Organismen. Allgemeine Grundzüge Der Organischen Formen-Wissenschaft, Mechanisch begründet durch die von Charles Darwin Reformirte Descendenztheorie: Bd.2*. G. Reimer.

<https://www.biodiversitylibrary.org/item/52177>

- Häggström, M. (2019). Lived experiences of being-in-the-forest as experiential sharing with the more-than-human world. *Environmental Education Research*, 25(9), 1334–1346.
<https://doi.org/10.1080/13504622.2019.1633275>
- Hale, S. (2014). A propensity for self-subversion and a taste for liberation. *Journal of Middle East Women's Studies*, 10(1), 149–163.
<https://doi.org/10.2979/jmiddeastwomstud.10.1.149>
- Hales, C. (2020). Weird and wonderful: How experimental film narratives can inform interactive digital narratives. In A.-G. Bossler, D. E. Millard, & C. Hargood (Eds.), *Interactive storytelling* (pp. 149–163). Springer International Publishing. https://doi.org/10.1007/978-3-030-62516-0_14
- Hall, R. M., Markovic, D., Kaul, H.-P., Wagentristl, H., Urban, B., Durec, N., Renner-Martin, K., & Ninkovic, V. (2023). Talking different languages: The role of plant–plant communication when an invader beats up a strange neighborhood. *Plants*, 12(18), 3298.
<https://doi.org/10.3390/plants12183298>
- Harari-Kermadec, H. (2013, November 1). Commodity Fetishism at the University [Billet]. *ACIDES*. <https://doi.org/10.58079/ak5u>
- Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies*, 14(3), 575–599. JSTOR.
<https://doi.org/10.2307/3178066>
- Haraway, D. (1991). *Simians, cyborgs, and women: The reinvention of nature*. Routledge.
- Haraway, D. (2008). *When species meet*. University of Minnesota Press.
- Haraway, D. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press.

- Haraway, D. J. (2003). *The companion species manifesto: Dogs, people, and significant otherness*. Prickly Paradigm Press. WorldCat.
- Harding, S. G. (2006). *Science and social inequality: Feminist and postcolonial issues* (1 online resource.). University of Illinois Press. WorldCat. <https://muse.jhu.edu/book/117993/>
- Harman, G. (2018). *Object-oriented ontology: A new theory of everything*. Pelican, an imprint of Penguin Books. WorldCat.
- Hartley, K., Hoffman, B., & Andújar, A. (2023). Smartphones and learning: Evaluating the focus of recent research. *European Journal of Investigation in Health, Psychology and Education, 13*(4), 748–758. <https://doi.org/10.3390/ejihpe13040056>
- Harvey, F., & editor, F. H. E. (2023, September 12). US behind more than a third of global oil and gas expansion plans, report finds. *The Guardian*.
<https://www.theguardian.com/environment/2023/sep/12/us-behind-more-than-a-third-of-global-oil-and-gas-expansion-plans-report-finds>
- Harwood, D., Whitty, P., Green, C., & Elliot, E. (2020). Unsettling settlers' ideas of land and relearning land with Indigenous ways of knowing in ECEfS. In S. Elliott, E. Ärlemalm-Hagsér, & J. Davis, *Researching early childhood education for sustainability* (1st ed., pp. 25–37). Routledge. <https://doi.org/10.4324/9780429446764-3>
- Hasanoglu, K. (2016). A non-representational understanding of visual experience. *Journal of Mind and Behavior, 37*, 271–286.
- Haseman, B. (2006). A manifesto for performative research. *Media International Australia, 118*(1), Article 1. <https://doi.org/10.1177/1329878X0611800113>
- Hassan, I. (1977). Prometheus as performer: Toward a posthumanist culture? *The Georgia Review, 31*(4), 830–850.

- Henrietta, T., Egerău, A. M., & Coșarbă, E. M. (2018). Readiness of future primary school teachers, regarding outdoor education teaching. A study case. In *Vulnerabilities in social assistance* (pp. 74–88). Presa Universitară Clujeană.
- Hickman, S. C. (2015, July 24). Fatalism and Hope: Slavoj Zizek and The Courage of Hopelessness? *The Dark Fantastic: Literature, Philosophy, and Digital Arts*.
<https://socialecologies.wordpress.com/2015/07/24/fatalism-and-hope-slavoj-zizek-and-the-courage-of-hopelessness/>
- Hill, D., & Kumar, R. (Eds.). (2009). *Global neoliberalism and education and its consequences* (1. publ). Routledge.
- Hillman, T., Weilenmann, A., Jungselius, B., & Lindell, T. L. (2016). Traces of engagement: Narrative-making practices with smartphones on a museum field trip. *Learning, Media and Technology*, 41(2), 351–370. <https://doi.org/10.1080/17439884.2015.1064443>
- Hills, D., & Thomas, G. (2020). Digital technology and outdoor experiential learning. *Journal of Adventure Education and Outdoor Learning*, 20(2), 155–169.
<https://doi.org/10.1080/14729679.2019.1604244>
- Hills, D., Van Kraalingen, I., & Thomas, G. J. (2024). The impact of technology on presence in outdoor education. *Journal of Experiential Education*, 47(2), 301–318.
<https://doi.org/10.1177/10538259231202452>
- Hindmarch, T., Boyd, D., & OMEP (UK) (Organization). (2021). *A path made in the walking: Forest school in Norway and in England*. SchemaPlay Publications. WorldCat.
- Hird, C., David-Chavez, D. M., Gion, S. S., & van Uitregt, V. (2023). Moving beyond ontological (worldview) supremacy: Indigenous insights and a recovery guide for settler-colonial scientists. *Journal of Experimental Biology*, 226(12), jeb245302.
<https://doi.org/10.1242/jeb.245302>

- Hjorth, L., & Richardson, I. (2018). Stories from the field: Playing with mobile media. In M. Schleser & M. Berry (Eds.), *Mobile story making in an age of smartphones* (pp. 75–85). Springer International Publishing. https://doi.org/10.1007/978-3-319-76795-6_8
- Hognogi, G.-G., Meltzer, M., Alexandrescu, F., & Ștefănescu, L. (2023). The role of citizen science mobile apps in facilitating a contemporary digital agora. *Humanities and Social Sciences Communications*, *10*(1), 863. <https://doi.org/10.1057/s41599-023-02358-7>
- Holmes, H., & Hall, S. M. (2020). *Mundane methods: Innovative ways to research the everyday*. Manchester University press.
- Horsthemke, K. (2020). Non-human animals and educational policy: Philosophical post-humanism, critical pedagogy, and ecopedagogy. *Journal of Philosophy of Education*, *54*(4), 900–915. <https://doi.org/10.1111/1467-9752.12463>
- Horton, H., & Carrington, D. (2023, March 8). More than 170tn plastic particles afloat in oceans, say scientists. *The Guardian*. <https://www.theguardian.com/environment/2023/mar/08/plastic-particles-oceans-marine-pollution-production>
- How smartphones are contributing to climate change. (2022, February 7). *Infomineo*. <https://infomineo.com/how-smartphones-are-contributing-to-climate-change/>
- Htoo, M. H. C., Steenhuisen, B., & Verschuuren, B. (2023). Different natures of reality inform different realities of nature: What Karen perceptions of forest reveal about nature conservation in Indigenous contexts. *Conservation and Society*, *21*(1). https://journals.lww.com/coas/fulltext/2023/21010/different_natures_of_reality_inform_different.3.aspx

- Huckle, J. (2008). Sustainable development. In J. Arthur, I. Davies, & C. Hahn, *The SAGE handbook of education for citizenship and democracy* (pp. 342–354). SAGE Publications Ltd. <https://doi.org/10.4135/9781849200486.n27>
- Huseman, J., & Short, D. (2012). ‘A slow industrial genocide’: Tar sands and the Indigenous peoples of northern Alberta. *The International Journal of Human Rights*, 16(1), 216–237. <https://doi.org/10.1080/13642987.2011.649593>
- Hussain, Z., Griffiths, M. D., & Sheffield, D. (2017). An investigation into problematic smartphone use: The role of narcissism, anxiety, and personality factors. *Journal of Behavioral Addictions*, 6(3), 378–386. <https://doi.org/10.1556/2006.6.2017.052>
- Hyers, L. L. (2018). Introduction. In *Diary methods: Understanding qualitative research* (Vol. 1). Oxford University Press. <https://doi.org/10.1093/oso/9780190256692.003.0001>
- Iftekhar, S. N., Kayombo, J. J., Kinyota, M., & Misiaszek, G. W. (2022). Ecopedagogical analysis and reinvention. In *Southern epistemologies for disrupting northern global citizenship (education) models* (pp. 41–62). Brill. https://doi.org/10.1163/9789004521742_004
- Ihde, D. (1979). *Technics and praxis*. Reidel.
- Ihde, D. (1990). *Technology and the lifeworld: From garden to earth*. Indiana University Press.
- Ihde, D. (2009). *Postphenomenology and technoscience: The Peking University lectures*. SUNY Press.
- Illeris, H. (2022). Ecological awareness with and through human and more-than-human efforts of embracing a former gravel pit. In B. C. Fredriksen & C. Groth (Eds.), *Expanding environmental awareness in education through the arts: Crafting-with the environment* (pp. 3–23). Springer Nature. https://doi.org/10.1007/978-981-19-4855-8_1
- Illich, I. (1971). *La sociedad desescolarizada*. Joaquín Mortiz: Planeta.

- Ingold, T. (2000). *The perception of the environment: Essays on livelihood, dwelling & skill*. Routledge.
- Ingold, T. (2010). *Bringing things to life: Creative entanglements in a world of materials* (NCRM Working Paper Series No. 15; ESRC National Centre for Research Methods, p. 16). University of Aberdeen.
- Ingold, T., & Vergunst, J. L. (Eds.). (2008). *Ways of walking: Ethnography and practice on foot*. Ashgate.
- Inwood, H. J. (2013). Cultivating artistic approaches to environmental learning: Exploring eco-art education in elementary classrooms. *International Electronic Journal of Environmental Education*, 3(2), 129–145.
- Iroegbu, A. O. C., Ray, S. S., Mbarane, V., Bordado, J. C., & Sardinha, J. P. (2021). Plastic pollution: A perspective on matters arising: challenges and opportunities. *ACS Omega*, 6(30), 19343–19355. <https://doi.org/10.1021/acsomega.1c02760>
- Ito, H., & Reid, A. (2020). Promoting an environmental education project: The eco-picture diary in Yokohama City, Japan. *Environmental Education Research*, 26(11), 1656–1675. <https://doi.org/10.1080/13504622.2020.1828289>
- Iyengar, R., Iftekhar, S. N., Witenstein, M., & Chand, K. (2025). Ecopedagogy as a lever for climate justice towards a just transition. *Current Issues in Comparative Education, Special Issue*, 27(1), 197–215.
- Jackson, A., & Mazzei, L. (2008). Experience and “I” in autoethnography: A deconstruction. *International Review of Qualitative Research*, 1. <https://doi.org/10.1525/irqr.2008.1.3.299>
- Jackson, A., & Mazzei, L. (2018). Thinking with theory in qualitative research: Viewing data across multiple perspectives. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (Fifth edition). Sage. WorldCat.

- Jackson, A. Y. (2013). Posthumanist data analysis of mangling practices. *International Journal of Qualitative Studies in Education*. (world).
<http://www.tandfonline.com/doi/abs/10.1080/09518398.2013.788762>
- Jackson, A. Y., & Mazzei, L. A. (2012). *Thinking with theory in qualitative research: Viewing data across multiple perspectives* (1st ed.). Routledge.
- Jackson, A. Y., & Mazzei, L. A. (2013). Plugging one text into another: Thinking with theory in qualitative research. *Qualitative Inquiry*, 19(4), 261–271.
<https://doi.org/10.1177/1077800412471510>
- Jackson, L. (2017). ‘Asian’ perspectives on education for sustainable development. *Educational Philosophy and Theory*, 49(5), 473–479. <https://doi.org/10.1080/00131857.2016.1223501>
- Jandrić, P. (2017). From anthropocentric humanism to critical posthumanism in digital education. In P. Jandrić, *Learning in the age of digital reason* (pp. 195–210). SensePublishers.
https://doi.org/10.1007/978-94-6351-077-6_9
- Jandrić, P. (2019). The postdigital challenge of critical media literacy. *The International Journal of Critical Media Literacy*, 1(1), 26–37. <https://doi.org/10.1163/25900110-00101002>
- Jandrić, P., & Ford, D. R. (Eds.). (2022a). *Postdigital ecopedagogies* (1st ed.). Springer International Publishing. <https://doi.org/10.1007/978-3-030-97262-2>
- Jandrić, P., & Ford, D. R. (2022b). Postdigital ecopedagogies: Genealogies, contradictions, and possible futures. *Postdigital Science and Education*, *Postdigital Science and Education*, 4, 3–24.
- Janic, B., Bańbura, J., Gładalski, M., Kaliński, A., Kamiński, M., Marszał, L., Pieniak, D., Wawrzyniak, J., & Zieliński, P. (2023). Plastic occurrence in nests of a large forest bird. *Ecological Indicators*, 153, 110470. <https://doi.org/10.1016/j.ecolind.2023.110470>

- Jardine, E. A., & Lange, E. A. (2024). Childhood attunements to nature impact adult behavioural patterns: The importance of “other-than-human” attachments. *European Journal of Ecopsychology*, 9, 48–83.
- Jarrahi, M. H., Goray, C., Zirker, S., & Zhang, Y. (2021). Digital diaries as a research method for capturing practices in situ. In M. H. Jarrahi, C. Goray, S. Zirker, & Y. Zhang, *Research Methods for Digital Work and Organization* (pp. 107–129). Oxford University Press.
<https://doi.org/10.1093/oso/9780198860679.003.0006>
- Jeder, D. (2014). Transdisciplinarity: The advantage of a holistic approach to life. *Procedia - Social and Behavioral Sciences*, 137, 127–131.
<https://doi.org/10.1016/j.sbspro.2014.05.264>
- Jenkins, A. (2021). Ecological global citizenship education: A reframing. *International Journal of Development Education and Global Learning*, 13(2).
<https://doi.org/10.14324/IJDEGL.13.2.03>
- Jickling, B. (2017). Education revisited: Creating educational experiences that are held, felt, and disruptive. In B. Jickling & S. Sterling (Eds.), *Post-sustainability and environmental education: Remaking education for the future* (pp. 15–30). Springer International Publishing. https://doi.org/10.1007/978-3-319-51322-5_2
- Jickling, B., & Wals, Arjen E. J. (2008). Globalization and environmental education: Looking beyond sustainable development. *Journal of Curriculum Studies*, 40(1), Article 1.
<https://doi.org/10.1080/00220270701684667>
- Jimenez, J., & Kabachnik, P. (2023). Indigenizing environmental sustainability curriculum and pedagogy: Confronting our global ecological crisis via Indigenous sustainabilities. *Teaching in Higher Education*, 28(5), 1095–1107.
<https://doi.org/10.1080/13562517.2023.2193666>

- Jones, H. G. (2020). What plant is that? Tests of automated image recognition apps for plant identification on plants from the British flora. *AoB PLANTS*, 12(6), plaa052.
<https://doi.org/10.1093/aobpla/plaa052>
- Jones, N. (2023). Reimagining Freire: Beyond human relations. *Cultural Studies of Science Education*, 18(1), 205–216. Education Source.
- Jong, M. S. (2020). Promoting elementary pupils' learning motivation in environmental education with mobile inquiry-oriented ambience-aware fieldwork. *International Journal of Environmental Research and Public Health*, 17(2504), 2504. WorldCat.org.
<https://doi.org/10.3390/ijerph17072504>
- Jorgenson, S. (2016). An inquiry into the pedagogical implications of Dewey's ecological thinking. *Occasional Paper Series*, 2014(32). <https://doi.org/10.58295/2375-3668.1048>
- Juergensmeyer, E., & Benz, B. (2020). Neoliberalism, discursive formations, and the educational intelligence complex. In E. Juergensmeyer, A. J. Nocella, & M. C. Seis (Eds.), *Neoliberalism and academic repression: The fall of academic freedom in the era of Trump*. Brill.
- Jukes, S. (2020). Thinking through making: Junk paddles, distant forests and pedagogical possibilities. *Environmental Education Research*, 26(12), 1746–1763.
<https://doi.org/10.1080/13504622.2020.1806991>
- Jukes, S. (2023). *Learning to confront ecological precarity: Engaging with more-than-human worlds* (Vol. 13). Springer Nature Switzerland. <https://doi.org/10.1007/978-3-031-34200-4>
- Kahakalau, K. (2004). Indigenous heuristic action research: Bridging Western and Indigenous research methodologies. *Hulili: Multidisciplinary Research on Hawaiian Well-Being*, 1(1).

- Kahn, R. (2008). *Towards ecopedagogy: Weaving a broad-based pedagogy of liberation for animals, nature, and the oppressed people of the earth.*
- Kahn, R. (2010). *Critical pedagogy, ecoliteracy, & planetary crisis: The ecopedagogy movement.* Peter Lang.
- Kahn, R., & Kellner, D. (2005). Oppositional politics and the internet: A critical/reconstructive approach. *Cultural Politics, 1*(1), 75–100. <https://doi.org/10.2752/174321905778054926>
- Keeley, B. L., & Matthen, M. (2014). *Nonhuman animal senses.* Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199600472.013.039>
- Kellert, S. R., & Wilson, E. O. (Eds.). (1993). *The Biophilia hypothesis.* Island Press.
- Kellner, D., Share, J., & Luke, A. (2019). *The critical media literacy guide: Engaging media and transforming education.* Brill Sense.
- Kelly, J. D. (2014). The ontological turn: Where are we? *HAU: Journal of Ethnographic Theory, 4*(1), 357–360. <https://doi.org/10.14318/hau4.1.019>
- Kenis, A., & Mathijs, E. (2012). Beyond individual behaviour change: The role of power, knowledge and strategy in tackling climate change. *Environmental Education Research, 18*(1), 45–65. <https://doi.org/10.1080/13504622.2011.576315>
- Kennedy, D. (2006). *The well of being childhood, subjectivity, and education.* State University of New York Press.
- Kernan, M. (2024). Opportunities and affordances in outdoor play. In Brooker, M. Blaise, & S. Edwards, *The SAGE handbook of play and learning in early childhood* (pp. 391–402). SAGE Publications Ltd. <https://doi.org/10.4135/9781473907850>
- Kesler, L. (2015). Painting the real picture: The benefits of autoethnographic filmmaking for children with life- threatening illness. *Boston Education Writing Program, 8*, 75–87.

- Keys, P. W., Galaz, V., Dyer, M., Matthews, N., Folke, C., Nyström, M., & Cornell, S. E. (2019). Anthropocene risk. *Nature Sustainability*, 2(8), 667–673. <https://doi.org/10.1038/s41893-019-0327-x>
- Khanolainen, D., Nesterova, Y., & Semenova, E. (2022). Indigenous education in Russia: Opportunities for healing and revival of the Mari and Karelian Indigenous groups? *Compare: A Journal of Comparative and International Education*, 52(5), 768–785. <https://doi.org/10.1080/03057925.2020.1834350>
- Kibria, Md. G., Masuk, N. I., Safayet, R., Nguyen, H. Q., & Mourshed, M. (2023). Plastic waste: Challenges and opportunities to mitigate pollution and effective management. *International Journal of Environmental Research*, 17(1), 20. <https://doi.org/10.1007/s41742-023-00507-z>
- Kimathi, E. (2023). Negotiating positionality within institutional ethnography as a non-native researcher in Norway. In *Erfaringer med institusjonell etnografi* (pp. 251–268). Cappelen Damm Akademisk/NOASP. <https://doi.org/10.23865/noasp.195.ch12>
- Kimmerer, R. W. (2003). *Gathering moss: A natural and cultural history of mosses* (1st ed). Oregon State University Press.
- Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants* (First paperback edition). Milkweed Editions.
- Kingsnorth, P., Hine, D., & Dark Mountain Project. (2009). *Uncivilisation: The Dark Mountain manifesto*. Dark Mountain Books. <https://dark-mountain.net/product/uncivilisation-the-dark-mountain-manifesto/>
- Kinyota, M. (2021). Implementing ecopedagogy in highly centralised curricula contexts: A critical analysis of an environmental education course taught at one Tanzanian university.

International Studies in Sociology of Education, 30(1–2), 153–172.

<https://doi.org/10.1080/09620214.2020.1854824>

Kirsop-Taylor, N., Appiah, D., Steadman, A., & Huggett, M. (2021). Reflections on integrating the political into environmental education through problem-based learning and political ecology. *The Journal of Environmental Education*, 52(1), 1–13.

<https://doi.org/10.1080/00958964.2020.1825919>

Kleine, R. E., Kleine, S. S., & Kernan, J. B. (1993). Mundane consumption and the self: A social-identity perspective. *Journal of Consumer Psychology*, 2(3), 209–235.

[https://doi.org/10.1016/S1057-7408\(08\)80015-0](https://doi.org/10.1016/S1057-7408(08)80015-0)

Knatz, J., & Caomhánach, N. (2020, April 20). *The ascent of affect: Emotions research and the history of emotions - interview with Ruth Leys (part ii)*. JHI Blog.

<https://jhiblog.org/2020/04/20/the-ascent-of-affect-emotions-research-and-the-history-of-emotions-interview-with-ruth-leys-part-ii/>

Kohn, E. (2013). *How forests think: Toward an anthropology beyond the human*. University of California Press.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall. WorldCat.

Kolomaznik, M., Petrik, V., Slama, M., & Jurik, V. (2024). The role of socio-emotional attributes in enhancing human-AI collaboration. *Frontiers in Psychology*, 15, 1369957.

<https://doi.org/10.3389/fpsyg.2024.1369957>

Kopnina, H. (2012). Education for sustainable development (ESD): The turn away from ‘environment’ in environmental education? *Environmental Education Research*, 18(5),

Article 5. <https://doi.org/10.1080/13504622.2012.658028>

- Kopnina, H. (2020). Critical pedagogy and eco-pedagogy: Discussing ethics and radical environmentalism at business school. *European Journal of Sustainable Development Research*, 4(3). <https://doi.org/10.29333/ejosdr/7855>
- Kopnina, H., Black, K., & Tracey, H. (2024). Ecoliteracy and ecopedagogy for environmental sustainability in education. *Visions for Sustainability*, 22(Visions for Sustainability, No 22 (2024)), 22. <https://doi.org/10.13135/2384-8677/11280>
- Kopnina, H., & Cherniak, B. (2016). Neoliberalism and justice in education for sustainable development: A call for inclusive pluralism. *Environmental Education Research*, 22(6), 827–841. <https://doi.org/10.1080/13504622.2016.1149550>
- Korsant, C. (2024). A Freirean ecopedagogy or an imposition of values? The pluriverse and the politics of environmental education. *Globalizations*, 21(2), 370–387. <https://doi.org/10.1080/14747731.2022.2038830>
- Kothari, A., Salleh, A., Escobar, A., Demaria, F., & Acosta, A. (Eds.). (2019). *Pluriverse: A post-development dictionary*. Tulika Books and Authorsupfront.
- Koutnik, V. S., Leonard, J., El Rassi, L. A., Choy, M. M., Brar, J., Glasman, J. B., Cowger, W., & Mohanty, S. K. (2023). Children’s playgrounds contain more microplastics than other areas in urban parks. *Science of The Total Environment*, 854, 158866. <https://doi.org/10.1016/j.scitotenv.2022.158866>
- Kovach, M. (2010). “Conversation method in indigenous research.” *First Peoples Child & Family Review*, 5(1), 40–48.
- Krasny, M. E. (2020). *Advancing environmental education practice*. Cornell University Press.
- Krawczak, M. (2023). Counter-mapping with sounds in the practices of postdigital pedagogy. *Postdigital Science and Education*, 5(2), 386–407. <https://doi.org/10.1007/s42438-022-00333-0>

- Kretzler, B., König, H.-H., & Hajek, A. (2022). Pet ownership, loneliness, and social isolation: A systematic review. *Social Psychiatry and Psychiatric Epidemiology*, 57(10), 1935–1957.
<https://doi.org/10.1007/s00127-022-02332-9>
- Kuby, C. R., & Rowsell, J. (2017). Early literacy and the posthuman: Pedagogies and methodologies. *Journal of Early Childhood Literacy*, 17(3), 285–296.
<https://doi.org/10.1177/1468798417715720>
- Kullman, K. (2016). Prototyping bodies: A post-phenomenology of wearable simulations. *Design Studies*, 47, 73–90. <https://doi.org/10.1016/j.destud.2016.08.004>
- Kulnieks, Andrejs., Longboat, D. R. 1954-, & Young, K. 1969-. (2013). *Contemporary studies in environmental and indigenous pedagogies: A curricula of stories and place* (1 online resource (vii, 314 pages) : illustrations). SensePublishers. WorldCat.org.
<https://doi.org/10.1007/978-94-6209-293-8>
- Kyei-Nuamah, D., & Peng, Z. (2024). Ubuntu Philosophy for ecological education and environmental policy formulation. *Journal of Philosophy of Education*, 58.
<https://doi.org/10.1093/jopedu/qhae034>
- Labrou, Y., Finin, T., & Yun Peng. (1999). Agent communication languages: The current landscape. *IEEE Intelligent Systems*, 14(2), 45–52. <https://doi.org/10.1109/5254.757631>
- Lacan, J. (1991). *The seminar of Jacques Lacan. book 1: Freud's papers on technique 1953-1954 / translated with notes by John Forrester* (J. Forrester, Trans.; First publishes as paperback). W.W. Norton & Company.
- Ladak, A., Wilks, M., & Anthis, J. R. (2023). Extending perspective taking to nonhuman animals and artificial entities. *Social Cognition*, 41(3), 274–302.
<https://doi.org/10.1521/soco.2023.41.3.274>

- Lahire, B. (2009). De la réflexivité dans la vie quotidienne: Journal personnel, autobiographie et autres écritures de soi. *Sociologie Et Sociétés*, 40(2), 165–179.
<https://doi.org/10.7202/000652ar>
- Lal, U. (2021). Ecopedagogy: A critical environmental literacy. *Education, Literacy, and Justice*.
https://www.academia.edu/61941135/Ecopedagogy_A_Critical_Environmental_Literacy
- Lall, S., & Gingrich, K. (2024). (Re)considering wellbeing for climate-just futures. *NORRAG*.
<https://www.norrag.org/reconsidering-wellbeing-for-climate-just-futures/>
- Lalujan, J. D., & Pranjol, M. Z. I. (2024). Project-based learning as a potential decolonised assessment method in STEM higher education. *Trends in Higher Education*, 3(1), 16–33.
<https://doi.org/10.3390/higheredu3010002>
- Lamb, J., Carvalho, L., Gallagher, M., & Knox, J. (2022). The postdigital learning spaces of higher education. *Postdigital Science and Education*, 4(1), 1–12.
<https://doi.org/10.1007/s42438-021-00279-9>
- Lansade, L. (2023). *Olfactory communication of emotions between animal and human* [French National Research Center]. Agence Nationale de La Recherche. <https://anr.fr/Project-ANR-23-CE20-0033>
- Larson, A. (2021, December 17). *Climate change education is failing our youth – state of the planet*. <https://news.climate.columbia.edu/2021/12/17/climate-change-education-is-failing-our-youth/>
- Lass-Hennemann, J., Schäfer, S. K., Sopp, M. R., & Michael, T. (2022). The relationship between attachment to pets and mental health: The shared link via attachment to humans. *BMC Psychiatry*, 22(1), 586. <https://doi.org/10.1186/s12888-022-04199-1>
- Lather, P. (1986). Research as praxis. *Harvard Educational Review*, 56(3), 257–278.
<https://doi.org/10.17763/haer.56.3.bj2h231877069482>

- Lather, P., & St. Pierre, E. A. (2013). Post-qualitative research. *International Journal of Qualitative Studies in Education*, 26(6), Article 6.
<https://doi.org/10.1080/09518398.2013.788752>
- Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford University Press. WorldCat.
- Latour, B. (2017). *Facing Gaia: Eight lectures on the new climatic regime* (C. Porter, Trans.). Polity.
- Latour, B., Weibel, P., & Zentrum für Kunst und Medientechnologie Karlsruhe (Eds.). (2005). *Making things public: Atmospheres of democracy; [exhibition at ZKM, Center for Art and Media Karlsruhe 20.03. - 03.10.2005]*. MIT Press [u.a.].
- Law, J. (2008). On sociology and STS. *The Sociological Review*, 56(4), 623–649.
<https://doi.org/10.1111/j.1467-954X.2008.00808.x>
- Le Bihan, G. (2013). Touch at a distance for the remote communication of emotions. *Proceedings of the 7th International Conference on Tangible, Embedded and Embodied Interaction*, 355–356. <https://doi.org/10.1145/2460625.2460691>
- Le Grange, L. (2012). Ubuntu, ukama , environment and moral education. *Journal of Moral Education*, 41(3), Article 3. <https://doi.org/10.1080/03057240.2012.691631>
- Leahy, R. (2016). *The evolution of artificial illumination in nineteenth century literature: Light, dark, and the spaces in between* [Ph.D. Thesis, University of Chester].
<http://hdl.handle.net/10034/621231>
- Leather, M. (2018). A critique of “Forest School” or something lost in translation. *Journal of Outdoor and Environmental Education*, 21(1), 5–18. <https://doi.org/10.1007/s42322-017-0006-1>

- LeBel, S. (2022). Lesbian processing at the end of the world: Lesbian identity and queer environmental futurity. *Journal of Lesbian Studies*, 26(2), 159–173.
<https://doi.org/10.1080/10894160.2021.2000560>
- Lecocq, S., & Keukeleire, S. (2018). Decentering the analysis of EU foreign policy and external-internal legitimacy: (Re-)introducing polity. *Global Affairs*, 4(2–3), 341–351.
<https://doi.org/10.1080/23340460.2018.1532307>
- Lecocq, S., & Keukeleire, S. (2023). Critical and problem-solving perspectives on decentring EU external action studies. *Journal of Contemporary European Research*, 19(2).
<https://doi.org/10.30950/jcer.v19i2.1293>
- Lee, C. (2022, January 24). *Do children learn better in forest schools?* [News]. BBC.
<https://www.bbc.com/future/article/20220105-how-asia-fell-in-love-with-forest-schools>
- Leirman, W., & Kulich, J. (Eds.). (1987). *Adult education and the challenges of the 1990s*. Croom Helm.
- Lepage, P. (2019). *Aboriginal people: Fact and fiction*. Commission des droits de la personne et des droits de la jeunesse. WorldCat.
<https://login.proxy.bib.uottawa.ca/login?url=https://www.deslibris.ca/ID/10101222>
- Lewkowich, D. (2020). Affect, alienation, and awkwardness: Why I sing to my students (a non-representational consideration). *Emotion, Space and Society*, 34, 100649.
<https://doi.org/10.1016/j.emospa.2019.100649>
- Leys, R. (2017). *The ascent of affect: Genealogy and critique*. The University of Chicago Press.
- Lindgren, R., & Price, S. (2018). Embodiment and technology-enhanced learning environments: Cultivating a new community of design research. In J. Leigh (Ed.), *Conversations on embodiment across higher education: Teaching, practice and research* (1st ed.). Routledge. <https://doi.org/10.4324/9781315266664>

- Lingis, A. (1998). *The imperative*. Indiana University Press. WorldCat.
- Lipani, B. (2021). *Guidebook to computer and smartphone security*. Lean Publishing.
(<https://thetechnologygeek.org/>)
- Liu, C. (2023). More-than-human practices of making and unmaking the smart home: A socioemotional investigation. *Emotion, Space and Society*, 49, 100982.
<https://doi.org/10.1016/j.emospa.2023.100982>
- Lloro-Bidart, T. (2017). A feminist posthumanist political ecology of education for theorizing human-animal relations/relationships. *Environmental Education Research*, 23(1), 111–130. <https://doi.org/10.1080/13504622.2015.1135419>
- Lloro-Bidart, T. (2018). An ecofeminist account of cyberbullying: Implications for environmental and social justice scholar-educator-activists. *The Journal of Environmental Education*, 49(4), 276–285. <https://doi.org/10.1080/00958964.2017.1400513>
- Lorimer, J. (2013). More-than-human visual analysis: Witnessing and evoking affect in human-nonhuman interactions. In R. Coleman & J. Ringrose (Eds.), *Deleuze and research methodologies* (pp. 61–78). Edinburgh University Press.
<https://doi.org/10.1515/9780748644124-005>
- Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder* (Updated and expanded). Algonquin Books of Chapel Hill.
- Lovelock, J. E. (1988). *The ages of Gaia: A biography of our living earth*. Oxford University Press.
- Lowan-Trudeau, G. (2015). Contemporary studies in environmental and Indigenous pedagogies: A curricula of stories and place. *Environmental Education Research*, 21(4), 652–653.
<https://doi.org/10.1080/13504622.2014.943561>

- Lowan-Trudeau, G. (2020). Methodological métissage: An interpretive Indigenous approach to environmental education research. *Canadian Journal of Environmental Education*, 23(1).
- Lowan-Trudeau, G. (2023). Digital technologies and environmental education. *The Journal of Environmental Education*, 54(1), 1–7. <https://doi.org/10.1080/00958964.2022.2152413>
- Lupton, D., & Watson, A. A. (2021). Towards more-than-human digital data studies: Developing research-creation methods. *Qualitative Research*, 21(4), 463–480. <https://doi.org/10.1177/1468794120939235>
- Lyle, E., & Snowber, C. (2021). Walking as attunement: Being with/in nature as currere. *Journal of the Canadian Association for Curriculum Studies*, 18(2), 6–20. <https://doi.org/10.25071/1916-4467.40514>
- Lynch, J., & Mannion, G. (2016). Enacting a place-responsive research methodology: Walking interviews with educators. *Journal of Adventure Education and Outdoor Learning*, 16(4), 330–345. <https://doi.org/10.1080/14729679.2016.1163271>
- Lynch, J., & Thomas, H. (2024). Digital technology in outdoor and environmental education: Affects, assemblages and curriculum-making. *Australian Journal of Environmental Education*, 40(2), 288–304. <https://doi.org/10.1017/aee.2024.32>
- Lyndgaard, K. (2008). Developing a bioregional pedagogy for transregional students: Practices and experiences from the composition classroom. *Green Theory & Praxis: The Journal of Ecopedagogy*, 4(1), 86–99. <https://doi.org/10.3903/gtp.2008.1.5>
- MacEntee, K., Burkholder, C., & Schwab-Cartas, J. (2016a). What's a cellphilm? An introduction. In K. MacEntee, C. Burkholder, & J. Schwab-Cartas (Eds.), *What's a cellphilm?* (pp. 1–15). Sense Publishers. https://doi.org/10.1007/978-94-6300-573-9_1

- MacEntee, K., Burkholder, C., & Schwab-Cartas, J. (2016b). *What's a cellphilm?: Integrating mobile phone technology into participatory visual research and activism*. Sense Publishers.
- MacEntee, K., Kendrick, C., & Flicker, S. S. (2021). Quilted cellphilm method: A participatory visual health research method for working with marginalised and stigmatised communities. *Global Public Health, 17*(7), 1420–1432.
<https://doi.org/10.1080/17441692.2021.1928262>
- MacEntee, K., & Mandrona, A. (2015). From discomfort to collaboration: Teachers screening cellphilms in a rural South African school. *Perspectives in Education, 33*(3), 42–56.
- MacLeod, M., Arp, H. P. H., Tekman, M. B., & Jahnke, A. (2021). The global threat from plastic pollution. *Science, 373*(6550), 61–65. <https://doi.org/10.1126/science.abg5433>
- MacLure, M. (2013). Researching without representation? Language and materiality in post-qualitative methodology. *International Journal of Qualitative Studies in Education, 26*(6), Article 6. <https://doi.org/10.1080/09518398.2013.788755>
- Macrine, S. L., & Fugate, J. M. B. (Eds.). (2022). *Movement matters: How embodied cognition informs teaching and learning*. The MIT Press.
- Maijala, M., Gericke, N., Kuusalu, S.-R., Heikkola, L. M., Mutta, M., Mäntylä, K., & Rose, J. (2024). Conceptualising transformative language teaching for sustainability and why it is needed. *Environmental Education Research, 30*(3), 377–396.
<https://doi.org/10.1080/13504622.2023.2167941>
- Maira, J. M., & Kauka, E. O. (2018). *Analysis of ecopedagogy: Lessons from African Indigenous education. 6*(2).
- Malinowski, B. (with Bick, M., Firth, R., & Malinowska, V.). (2004). *A diary in the strict sense of the term* (N. Guterman, Trans.; Reprinted). Routledge.

- Mammadova, T. (2018). Smartphones and their role in the modern classroom. *Revue Internationale Des Technologies En Pédagogie Universitaire*, 15(2), 5–14.
<https://doi.org/10.18162/ritpu-2018-v15n2-01>
- Mandrona, A. (2016). Visual culture, aesthetics, and the ethics of cellphilm. In *What's a cellphilm?: Integrating mobile phone technology into participatory visual research and activism* (pp. 183–198). https://doi.org/10.1007/978-94-6300-573-9_12
- Manning, E. (2009). *Relationscapes: Movement, art, philosophy*. MIT Press.
- Manning, E. (2013). *Always more than one: Individuation's dance*. Duke University Press.
- Mannion, G., Ramjan, C., McNicol, S., Sowerby, M., & Lambert, P. (2025). Outdoor environmental education: Turning back to the environment at a time of climate and nature emergency. *Environmental Education Research*, 31(9), 1916–1938.
<https://doi.org/10.1080/13504622.2025.2538030>
- Manyeredzi, T., & Mpofo, V. (2022). Smartphones as digital instructional interface devices: The teacher's perspective. *Research in Learning Technology*, 30.
<https://doi.org/10.25304/rlt.v30.2639>
- Marouli, C. (2021). Sustainability education for the future? Challenges and implications for education and pedagogy in the 21st century. *Sustainability*, 13(5), Article 5.
<https://doi.org/10.3390/su13052901>
- Marques, L., & Otero, F. (2025). Education at the core of climate resilience, say countries and the UN system. *COP30*. <https://cop30.br/en/news-about-cop30/education-at-the-core-of-climate-resilience-say-countries-and-the-un-system>
- Martens, D., Gutscher, H., & Bauer, N. (2011). Walking in “wild” and “tended” urban forests: The impact on psychological well-being. *Journal of Environmental Psychology*, 31(1), 36–44. <https://doi.org/10.1016/j.jenvp.2010.11.001>

- Martínez Cobo, J. R. (1987). *Study of the problem of discrimination against Indigenous populations* (p. 46). United Nations.
- Martinez Gasca, O., & Van Campenhout, L. (2024). The silent influence of designed things: A postphenomenological approach to embodied interaction. *Proceedings of NordDesign 2024*, 841–850. <https://doi.org/10.35199/NORDDESIGN2024.89>
- Martusewicz, R. A. (2005). On acknowledging differences that make a difference: My two cents. *Educational Studies*, 37(2), 215–224. https://doi.org/10.1207/s15326993es3702_11
- Massey, D. B. (2005). *For space*. SAGE. WorldCat.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24(4), 503–515. <https://doi.org/10.1016/j.jenvp.2004.10.001>
- Mayo, P. (2011). *Liberating praxis Paulo Freire's legacy for radical education and politics*. Sense Publishers. WorldCat.org.
- Mayo, P. (2019). Praxis, hegemony, and consciousness in the work of Antonio Gramsci and Paulo Freire. In *The Wiley handbook of Paulo Freire* (pp. 305–319). <https://doi.org/10.1002/9781119236788.ch16>
- Mazzei, L. A. (2021). Postqualitative inquiry: Or the necessity of theory. *Qualitative Inquiry*, 27(2), 198–200. <https://doi.org/10.1177/1077800420932607>
- McCormack, D. P. (2003). An event of geographical ethics in spaces of affect. *Transactions of the Institute of British Geographers*, 28(4), 488–507. <https://doi.org/10.1111/j.0020-2754.2003.00106.x>
- McCormack, D. P. (2008). Thinking-spaces for research creation. *Inflexions*, 1(1).
- McCormack, D. P. (2013). *Refrains for moving bodies: Experience and experiment in affective spaces*. Duke University Press.

- McDowall, A. (2021). Layered spaces: A pedagogy of uncomfortable reflexivity in Indigenous education. *Higher Education Research & Development*, 40(2), 341–355.
<https://doi.org/10.1080/07294360.2020.1756751>
- McGarry, D., Weber, L., James, A., Kulundu-Bolus, I., Pereira, T., Ajit, S., Temper, L., Macintyre, T. K.-J., Villarreal, T., Moser, S. C., Shelton, R., Chaves Villegas, M. C., Kuany, K. K., Cockburn, J., Metelerkamp, L., Bajpai, S., Bengtsson, S., Vermeulen, S., Lotz-Sisitka, H., ... Khutsoane, T. (2021). The pluriversity for stuck humxns: A queer ecopedagogy & decolonial school. In *Queer ecopedagogies: Explorations in nature, sexuality, and education* (pp. 183–218). Cham: Springer International Publishing.
https://doi.org/10.1007/978-3-030-65368-2_10
- McGregor, D., Whitaker, S., & Sritharan, M. (2020). Indigenous environmental justice and sustainability. *Indigenous Conceptualizations of 'Sustainability,'* 43, 35–40.
<https://doi.org/10.1016/j.cosust.2020.01.007>
- McKeon, M. (2012). Two-eyed seeing into environmental education: Revealing its “natural” readiness to indigenize. *Canadian Journal of Environmental Education*, 17, 131–147.
- McLaren, P. (2013). Seeds of resistance: Towards a revolutionary critical ecopedagogy. *Socialist Studies/Études Socialistes*, 9(1), 84–108. <https://doi.org/10.18740/S4QG6G>
- McLaren, P., & Houston, D. (2004). Revolutionary ecologies: Ecosocialism and critical pedagogy. *Educational Studies*, 36(1), 8. https://doi.org/10.1207/s15326993es3601_4
- McPhearson, T., M. Raymond, C., Gulsrud, N., Albert, C., Coles, N., Fagerholm, N., Nagatsu, M., Olafsson, A. S., Soininen, N., & Vierikko, K. (2021). Radical changes are needed for transformations to a good Anthropocene. *NPJ Urban Sustainability*, 1(1), 5.
<https://doi.org/10.1038/s42949-021-00017-x>

- Meda, C. (2010). *Apply for funding—Research-creation grants in fine arts*. SSHRC.
https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/fine_arts-arts_lettres-eng.aspx
- Media education at school: Should smartphones be banned in schools?* (2024, September 15). Klicksafe.De. <https://www.klicksafe.eu/en/news/sollten-smartphones-in-schulen-verboden-werden>
- Melanson, C. C. (2023). *A clash of interests: Neoliberalism in education*. 7(1).
- Merchant, C. (2003). *Reinventing Eden: The fate of nature in Western culture* (1 online resource (xii, 308 pages) : illustrations). Routledge. WorldCat.
<http://public.eblib.com/choice/publicfullrecord.aspx?p=182760>
- Merleau-Ponty, M. (1976). *Phénoménologie de la perception*. Gallimard.
- Merriam-Webster. (n.d.). Peripatetic. In *Merriam-Webster.com dictionary*. Retrieved January 14, 2022, from <https://www.merriam-webster.com/dictionary/peripatetic>
- Mettis, K., Väljataga, T., & Uus, Õ. (2023). Mobile outdoor learning effect on students' conceptual change and transformative experience. *Technology, Knowledge and Learning*, 28(2), 705–726. <https://doi.org/10.1007/s10758-022-09614-w>
- Meyer, E. (2019, April 18). Re-reading my old diaries-and what it taught me. *Medium*.
<https://eviedollk.medium.com/re-reading-my-old-diaries-and-what-it-taught-me-d125b2762fad>
- Mfeka-Nkabinde, N. G., Moletsane, R., & Voce, A. S. (2024). Using cellphilm-making as advocacy: Adolescent girls' access to reproductive health services in primary health care facilities in rural northern KwaZulu-Natal. *Visual Studies*, 1–13.
<https://doi.org/10.1080/1472586X.2024.2307329>

- Mignolo, W., & Walsh, C. E. (2018). *On decoloniality: Concepts, analytics, praxis*. Duke University Press.
- Miles, M., Schindel, A., Haq, K., & Aziz, T. (2025). Advancing environmental justice education: A critical review of research and practice. *Environmental Education Research, 31*(7), 1461–1480. <https://doi.org/10.1080/13504622.2025.2483443>
- Mills, K., & Creedy, D. (2019). The ‘Pedagogy of discomfort’: A qualitative exploration of non-indigenous student learning in a First Peoples health course. *The Australian Journal of Indigenous Education, 50*(1), 29–37. <https://doi.org/10.1017/jie.2019.16>
- Milman, O., Lakhani, N., & Witherspoon, A. (2024, July 24). Revealed: Wealthy Western countries lead in global oil and gas expansion. *The Guardian*. <https://www.theguardian.com/environment/article/2024/jul/24/new-oil-gas-emission-data-us-uk>
- Milne, E.-J., Mitchell, C., & de Lange, N. (Eds.). (2012). *Handbook of participatory video*. Rowman & Littlefield Publishers, Inc.
- Misiaszek, G. W. (2012). Transformative environmental education within social justice models: Lessons from comparing adult ecopedagogy within North and Nouth America. In D. N. Aspin, J. Chapman, K. Evans, & R. Bagnall (Eds.), *Second international handbook of lifelong learning* (pp. 423–440). Springer Netherlands. https://doi.org/10.1007/978-94-007-2360-3_26
- Misiaszek, G. W. (2014). Learning from Southern environmental education models: Borrowing ecopedagogy through processes of globalization from below. *Revue de Recherche Internationale et Comparative En Éducation, Éducation Comparée, (10)*, 209–241.

- Misiaszek, G. W. (2015). Ecopedagogy and citizenship in the age of globalisation: Connections between environmental and global citizenship education to save the planet. *European Journal of Education*, 50(3), 280–292. <https://doi.org/10.1111/ejed.12138>
- Misiaszek, G. W. (2016). Ecopedagogy as an element of citizenship education: The dialectic of global/local spheres of citizenship and critical environmental pedagogies. *International Review of Education*, 62(5), 587–607. <https://doi.org/10.1007/s11159-016-9587-0>
- Misiaszek, G. W. (2018). *Educating the global environmental citizen: Understanding ecopedagogy in local and global contexts*. Routledge.
- Misiaszek, G. W. (2020a). *Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development*. Bloomsbury Academic.
- Misiaszek, G. W. (2020b). Ecopedagogy: Teaching critical literacies of ‘development’, ‘sustainability’, and ‘sustainable development.’ *Teaching in Higher Education*, 25, 615–632. <https://doi.org/10.1080/13562517.2019.1586668>
- Misiaszek, G. W. (2020c). Reconstructing shallow environmental pedagogies into critical, transformative environmental learning spaces for praxis. In A. A. Abdi (Ed.), *Critical theorizations of education* (pp. 58–72). BRILL. https://doi.org/10.1163/9789004447820_005
- Misiaszek, G. W. (2021). Editorial: De-distancing ‘us’ from the rest of Earth: Ecopedagogical analysis and approaches. *International Studies in Sociology of Education*, 30(1–2), 1–12. <https://doi.org/10.1080/09620214.2021.1880333>
- Misiaszek, G. W. (2022). An ecopedagogical, ecolinguistical reading of the sustainable development goals (SDGs): What we have learned from Paulo Freire. *Educational Philosophy and Theory*, 54(13), 2297–2311. <https://doi.org/10.1080/00131857.2021.2011208>

- Misiaszek, G. W. (2023). Ecopedagogy and ecopedagogical literacy. In R. J. Tierney, F. Rizvi, & K. Ercikan (Eds.), *International Encyclopedia of Education (Fourth Edition)* (pp. 601–612). Elsevier. <https://doi.org/10.1016/B978-0-12-818630-5.01088-5>
- Misiaszek, G. W. (2025). Beyond-humans reinventions for criticality: Posthumanism to disrupt the Anthropocene and solve (super) wicked environmental problems. *Teaching in Higher Education*, 18.
- Misiaszek, G. W., Epstein-HaLevi, D. Y., Reindl, S., & Jolly, T. L. (2022). Ecopedagogy disrupting postdigital divides of (neo)coloniality, (eco)racism, and anthropocentrism: A case study. In P. Jandrić & D. R. Ford (Eds.), *Postdigital ecopedagogies: Genealogies, contradictions, and possible futures* (pp. 121–145). Springer International Publishing. https://doi.org/10.1007/978-3-030-97262-2_7
- Misiaszek, G. W., & Misiaszek, L. I. (2016). Global citizenship education and ecopedagogy at the intersections: Asian perspectives in comparison. *Asian Journal of Education*, 17(Special Issue), 26.
- Misiaszek, G. W., Popoff, J. M., & Abdi, A. A. (2022). Critical theories of education: An introduction. In A. A. Abdi & G. W. Misiaszek (Eds.), *The Palgrave handbook on critical theories of education*. Springer Nature Switzerland AG. <https://doi.org/10.1007/978-3-030-86343-2>
- Misiaszek, G. W., & Rodrigues, C. (2023). Teaching justice-based environmental sustainability in higher education: Generative dialogues. *Teaching in Higher Education*, 28(5), 903–917. <https://doi.org/10.1080/13562517.2023.2214879>
- Misiaszek, G. W., & Torres, C. A. (2019). Ecopedagogy: The missing chapter of Pedagogy of the Oppressed. In C. A. Torres (Ed.), *The Wiley handbook of Paulo Freire* (1st ed., pp. 463–488). Wiley. <https://doi.org/10.1002/9781119236788.ch25>

- Mitchell, C., & de Lange, N. (2011). Community based video and social action in rural South Africa. In E. Margolis & L. Pauwels (Eds.), *The SAGE handbook of visual research methods* (pp. 171–185). SAGE.
- Mitchell, C., & de Lange, N. (2013). What can a teacher do with a cellphone? Using participatory visual research to speak back in addressing HIV&AIDS. *South African Journal of Education*, 33, 1–13. <https://doi.org/DOI:%252010.15700/201412171336>
- Mitchell, C., de Lange, N., & Moletsane, R. (2016). Me and my cellphone: Constructing change from the inside through cellfilms and participatory video in a rural community. *Area*, 48(4), 435–441. <https://doi.org/10.1111/area.12142>
- Mitchell, C., Lamb, P., & Raissadat, H. (2018). Exploring the impact of youth-produced images on family, community, and policy. *International Journal of Qualitative Methods*, 17(1), 1609406918807609. <https://doi.org/10.1177/1609406918807609>
- Moen, B. (2025, April 4). *From smartphones to AI: The environmental costs of our tech addiction - Catalyst*. <https://catalystmcgill.com/from-smartphones-to-ai-the-environmental-costs-of-our-tech-addiction/>
- Moraes, S. E., & De Almeida Freire, L. (2016). The university curriculum and the Ecology of Knowledges towards building a planetary citizenship. *Transnational Curriculum Inquiry*, 13(1), 36–55.
- Mouffe, C. (2000). *The democratic paradox*. Verso.
- Muehlebach, A. (2012). *The moral neoliberal: Welfare and citizenship in Italy*. The University of Chicago Press.
- Munar-Palmer, M., Santamaría-Hernando, S., Liedtke, J., Ortega, D. R., López-Torrejón, G., Rodríguez-Herva, J. J., Briegel, A., & López-Solanilla, E. (2024). Chemosensory systems

interact to shape relevant traits for bacterial plant pathogenesis. *mBio*, 15(7), e00871-24.
<https://doi.org/10.1128/mbio.00871-24>

Murray Bookchin: *Anthropocentrism versus biocentrism – a false dichotomy*. (2012, February 15). *Climate & Capitalism*.
<https://climateandcapitalism.com/2012/02/15/anthropocentrism-versus-biocentrism-notes-on-a-false-dichotomy/>

Mustonen, T. (2013). Oral histories as a baseline of landscape restoration – Co-management and watershed knowledge in Jukajoki River. *Fennia – International Journal of Geography*, 76–91. <https://doi.org/10.11143/7637>

Næss, A. (2008). *The Ecology of wisdom: Writings by Arne Naess* (A. R. Drengson & B. Devall, Eds.). Counterpoint.

Næss, A., & Drengson, A. R. (2005). *The selected works of Arne Naess* (1 online resource (10 volumes) : portrait). Springer. WorldCat.
<https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=222206>

Nakagawa, Y. (2017). WWOOF ecopedagogy: Linking ‘doing’ to ‘learning.’ *Australian Journal of Environmental Education*, 33(1), 1–17. Cambridge Core.
<https://doi.org/10.1017/aee.2016.30>

Nancy, J.-L. (1997). *The sense of the world*. University of Minnesota Press.

Napitupulu, N. D., Munandar, A., Redjeki, S., & Tjahyono, B. (2019). Interaction of students motivation and ecological phenomena toward learning outcomes using problem-based ecopedagogy. *Journal of Physics: Conference Series*, 1157, 022045.
<https://doi.org/10.1088/1742-6596/1157/2/022045>

- Navigante, A. (2024, December). Transversal paths N°2 [Education]. *Fondation Alain Daniélou*.
<https://www.fondationalaindanielou.org/intellectual-dialogue/transversal-paths/transversal-paths-n-2-december-2024-1/>
- Neimanis, A. (2017). *Bodies of water: Posthuman feminist phenomenology*. Bloomsbury Academic.
- Nesterova, Y. (2020a). Rethinking environmental education with the help of Indigenous ways of knowing and traditional ecological knowledge. *Journal of Philosophy of Education*, 54(4), 1047–1052. <https://doi.org/10.1111/1467-9752.12471>
- Nesterova, Y. (2020b). Rethinking environmental education with the help of Indigenous ways of knowing and traditional ecological knowledge. *Journal of Philosophy of Education*, 54(4), 1047–1052. <https://doi.org/10.1111/1467-9752.12471>
- Nesterova, Y., & Jackson, L. (2019). Indigenous perspectives on ecopedagogical literacy: The case of Taiwan. In M. A. Peters & R. Heraud (Eds.), *Encyclopedia of educational innovation* (pp. 1–6). Springer Singapore. https://doi.org/10.1007/978-981-13-2262-4_72-1
- News@cbnews.es, B. S. K. (2023). Swallows nesting in Jávea rooftop draw crowds. *Costa Blanca News*, 6.
- Ngai, S. (2004). *Ugly feelings*. Harvard University Press.
- Ngai, S. (2012). *Our aesthetic categories: Zany, cute, interesting*. Harvard University Press.
- Nguyen, X. T., Gonick, M., & Bui, T. (2021). Engaging girls with disabilities through cellphilmaking: Reflections on participatory visual research as a means of countering violence in the Global South. *Childhood*, 28, 090756822110200.
<https://doi.org/10.1177/09075682211020067>

Nicenboim, I., Lindley, J., Zaga, C., Berger, A., Forlano, L., & Giaccardi, E. (2024, June 24).

More-Than-Human Design in Practice. DRS2024: Boston.

<https://doi.org/10.21606/drs.2024.114>

Nicol, R. (2013). Returning to the richness of experience: Is autoethnography a useful approach for outdoor educators in promoting pro-environmental behaviour? *Journal of Adventure Education and Outdoor Learning*, 13(1), 3–17.

<https://doi.org/10.1080/14729679.2012.679798>

Nikopoulos, D. J. (2019). Essay review: Why can't science be more like history: a response to Ruth Leys' the ascent of affect. genealogy and critique. *Studies in History and Philosophy of Science Part A*, 75, 57–61. <https://doi.org/10.1016/j.shpsa.2018.09.006>

Nisa-Waller, A., & Piercy, G. (2024). Autoethnography as a decolonising tool: Bringing identity into the classroom. *Higher Education Research & Development*, 43(5), 1142–1155.

<https://doi.org/10.1080/07294360.2024.2307924>

Njoh, A. J. (2022). French ecological imperialism: A postcolonial approach. *The American Journal of Economics and Sociology*, 81(3), 581–619. <https://doi.org/10.1111/ajes.12477>

Njoh, A. J., Esongo, N. M., Ayuk-Etang, E. N. M., Soh-Agwetang, F. C., Ngyah-Etchutambe, I. B., Asah, F. J., Fomukong, E. B., & Tabrey, H. T. (2024). Challenges to Indigenous knowledge incorporation in basic environmental education in anglophone Cameroon. *Journal of Asian and African Studies*, 59(5), 1387–1407.

<https://doi.org/10.1177/00219096221137645>

Nokelainen, O., Lauha, P., Andrejeff, S., Hänninen, J., Inkinen, J., Kallio, A., Lehto, H. J., Mutanen, M., Paavola, R., Schiestl-Aalto, P., Somervuo, P., Sundell, J., Talaskivi, J., Vallinmäki, M., Vancraeynest, A., Lehtiö, A., & Ovaskainen, O. (2024). A mobile

- application-based citizen science product to compile bird observations. *Citizen Science: Theory and Practice*, 9(1), 24. <https://doi.org/10.5334/cstp.710>
- Noreiga, A. (2022). Facilitating Black identity and advocacy: Creating cellfilms for reflecting on issues affecting Black students. *Visual Studies*, 37(1-2), 11-21. <https://doi.org/10.1080/1472586X.2022.2042371>
- Norenzayan, A., & Lee, A. (2010). It was meant to happen: Explaining cultural variations in fate attributions. *Journal of Personality and Social Psychology*, 98(5), 702-720. <https://doi.org/10.1037/a0019141>
- North, C., & Ratima, M. T. (2024). Protecting the nature within: Framing digital-downtime through Western and Indigenous approaches to preserving nature. *Journal of Adventure Education and Outdoor Learning*, 24(1), 79-92. <https://doi.org/10.1080/14729679.2023.2244092>
- Noury, C., & Paquin, L.-C. (2020). *(Re)visiting our previous contributions for research-creation [as practice]—A performative and polyvocal writing project*. www.lcpaquin.com
- Noury, C., & Paquin, L.-C. (2021). Récit de pratique d'une écriture performative polyvocale. *Journée d'étude : Art Performance, Manœuvre, Coefficients de Visibilité, Musée d'art Contemporain de Montréal*. https://www.academia.edu/42028375/R%C3%A9cit_de_pratique_d_une_%C3%A9criture_performative_polyvocale
- Novikova, E., Pic, A., & Han, M. (2024). Language use in indoor and outdoor settings among children in a nature-based preschool. *Environmental Education Research*, 30(1), 138-152. <https://doi.org/10.1080/13504622.2023.2246688>
- Oelschlaeger, M. (1991). *The idea of wilderness: From prehistory to the age of ecology*. Yale University Press.

- Okabe, D., Anderson, K., Ito, M., & Mainwaring, S. (2005). *Location-based moblogging as method: New views into the use and practice of personal, social, and mobile technologies*. Seeing, Understanding, Learning in the Mobile Age.
- Oliva, S. (2023). The circular insanity of philosophy: An aesthetic vision. *Lebenswelt. Aesthetics and Philosophy of Experience.*, (19). <https://doi.org/10.54103/2240-9599/20094>
- Olsen, D. (2024). *Media arts education: Transforming education through multimodal cognition, holistic learning, and techno-embodiment* (1st ed.). Routledge.
<https://doi.org/10.4324/9781003430834>
- O’Neal Irwin, S., & Ihde, D. (2016). *Digital media: Human-technology connection*. Lexington books.
- Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. State University of New York Press.
- Orr, D. W. (2011). *Hope is an imperative: The essential David Orr*. Island Press.
- Orr, D. W. (2016). *Dangerous years: Climate change, the long emergency, and the way forward*. Yale University Press.
- Osgood, J., & Mohandas, S. (2024). Childing an ecopedagogy of refusal. *Global Studies of Childhood*. <https://repository.mdx.ac.uk/item/1ww844>
- Oxley, L., & Morris, P. (2013). Global citizenship: A typology for distinguishing its multiple conceptions. *British Journal of Educational Studies*, 61(3), 301–325.
<https://doi.org/10.1080/00071005.2013.798393>
- Pacini-Ketchabaw, V., & Nxumalo, F. (2016). Unruly raccoons and troubled educators: Nature/culture divides in a childcare centre. *Environmental Humanities*, 7(1), 151–168.
<https://doi.org/10.1215/22011919-3616380>
- Paquin, L.-C. (2024). Une recherche-cr ation sp culative. *Lcpaquin.Com*, 28.

- Parrish, W. (2021, September 19). 'They screwed up our lake': Tar sands pipeline is sucking water from Minnesota watersheds. *The Guardian*.
<https://www.theguardian.com/environment/2021/sep/19/tar-sands-pipeline-minnesota-lakes>
- Parry, B. (2014). Popular culture, participation and progression in the literacy classroom. *Literacy*, 48(1), 14–22. <https://doi.org/10.1111/lit.12027>
- Paulson, S. D., & Klotz, J. (2016). The promise of predestination. *Lutheran Quarterly*, 30(3), 249–275. <https://doi.org/10.1353/lut.2016.0061>
- Pavel Prokopic. (2022). Affective atmosphere: A non-representational method of devising film performance and fiction. *Journal for Artistic Research*, (26).
<https://doi.org/10.22501/jar.989439>
- Payne, P. G. (1997). Embodiment and environmental education. *Environmental Education Research*, 3(2), 133–153. <https://doi.org/10.1080/1350462970030203>
- Payne, P. G. (2010). Remarkable-tracking, experiential education of the ecological imagination. *Environmental Education Research*, 16(3–4), 295–310.
<https://doi.org/10.1080/13504621003613160>
- Payne, P. G. (2014). Vagabonding slowly: Ecopedagogy, metaphors, figurations, and nomadic ethics. *Canadian Journal of Environmental Education*, 19, 47–69.
- Payne, P. G. (2015). Critical curriculum theory and slow ecopedagogical activism. *Australian Journal of Environmental Education*, 31(2), 165–193. <https://doi.org/10.1017/ae.2015.32>
- Payne, P. G. (2016). The politics of environmental education. Critical inquiry and education for sustainable development. *The Journal of Environmental Education*, 47(2), 69–76.
<https://doi.org/10.1080/00958964.2015.1127200>

- Payne, P. G. (2017). Ecopedagogy and radical pedagogy: Post-critical transgressions in environmental and geography education. *The Journal of Environmental Education*, 48(2), 130–138. <https://doi.org/10.1080/00958964.2016.1237462>
- Payne, P. G. (2018). The framing of ecopedagogy as/in scapes: Methodology of the issue. *The Journal of Environmental Education*, 49(2), 71–87. <https://doi.org/10.1080/00958964.2017.1417227>
- Payne, P. G. (2020). “Amnesia of the moment” in environmental education. *The Journal of Environmental Education*, 51(2), 113–143. <https://doi.org/10.1080/00958964.2020.1726263>
- Pekrun, R. (2008). The impact of emotions on learning and achievement: Towards a theory of cognitive/motivational mediators. *Applied Psychology*, 41, 359–376. <https://doi.org/10.1111/j.1464-0597.1992.tb00712.x>
- Peltier, C. (2018). An application of two-eyed seeing: Indigenous research methods with participatory action research. *International Journal of Qualitative Methods*, 17(1), 1609406918812346. <https://doi.org/10.1177/1609406918812346>
- Perry, L., Stoner, L., Schleser, M., Stoner, K. R., Wadsworth, D., Page, R., & Tarrant, M. A. (2015). Digital media as a reflective tool: Creating appropriate spaces for students to become introspective. *Compare: A Journal of Comparative and International Education*, 45(2), 323–330. <https://doi.org/10.1080/03057925.2014.993237>
- Persson, K., Andrée, M., & Caiman, C. (2024). Making kin in the forest: Explorations of ecological literacy through contemplative practices in a Swedish folk high school. *Environmental Education Research*, 1–16. <https://doi.org/10.1080/13504622.2024.2309587>

- Peterson, E. (2019). Ecopedagogy: Learning how to participate in ecological consciousness. *Consciousness: Ideas and Research for the Twenty-First Century*, 7(7).
<https://digitalcommons.ciis.edu/conscjournal/vol7/iss7/4>
- Pink, S., Horst, H. A., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (Eds.). (2016). *Digital ethnography: Principles and practice*. SAGE.
- Pitt, H. (2015). On showing and being shown plants - A guide to methods for more-than-human geography. *Area*, 47(1), 48–55. <https://doi.org/10.1111/area.12145>
- Plastic Pollution*. (2024, May). [Environmentalism]. IUCN.
<https://iucn.org/sites/default/files/2024-05/plastic-pollution-issues-brief-may-2024-update.pdf>
- Poddar, U., Lam, K., & Gurevitch, J. (2024). Trends in research approaches and gender in plant ecology dissertations over four decades. *Ecology and Evolution*, 14(6), e11554.
<https://doi.org/10.1002/ece3.11554>
- Pötzsch, H. (2019). Critical digital literacy: Technology in education beyond issues of user competence and labour-market qualifications. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, 17(2), 221–240. <https://doi.org/10.31269/triplec.v17i2.1093>
- Poulos, C. N. (2021). *Essentials of autoethnography*. American Psychological Association.
- Poulter, G. (2009). *Becoming native in a foreign land: Sport, visual culture and identity in Montreal, 1840-85*. UBC Press.
- Poyntz, S. (2015). Conceptual futures: Thinking and the role of key concept modes in media education. *Media Education Research Journal*, 6(2), 63–79.

- Pyry, N. (2016). Learning with the city via enchantment: Photo-walks as creative encounters. *Discourse: Studies in the Cultural Politics of Education*, 37(1), 102–115.
<https://doi.org/10.1080/01596306.2014.929841>
- Rahali, M., Kidron, B., & Livingstone, S. (2024). *Smartphone policies in schools: What does the evidence say?*
- Ramirez, F. J. (2024, July). *A new CSIC report calls for urgent measures to tackle spreading light pollution* | Institut de Ciències del Mar. ICM.CSI.Es.
<https://www.icm.csic.es/en/news/new-csic-report-calls-urgent-measures-tackle-spreading-light-pollution>
- Ramsey, J. L. (2015). On not defining sustainability. *Journal of Agricultural and Environmental Ethics*, 28(6), 1075–1087. <https://doi.org/10.1007/s10806-015-9578-3>
- Rancière, J. (1991). *The ignorant schoolmaster: Five lessons in intellectual emancipation*. Stanford University Press.
- Rao, G. B., & Babu, S. (2021). Roost-site selection and population assessment of gulls wintering along India's west coast reveals the importance of conserving coastal habitats. *Ornithological Science*, 20(2). <https://doi.org/10.2326/osj.20.161>
- Redvers, N., Celidwen, Y., Schultz, C., Horn, O., Githaiga, C., Vera, M., Perdrisat, M., Mad Plume, L., Kobei, D., Kain, M. C., Poelina, A., Rojas, J. N., & Blondin, B. (2022). The determinants of planetary health: An Indigenous consensus perspective. *The Lancet Planetary Health*, 6(2), e156–e163. [https://doi.org/10.1016/S2542-5196\(21\)00354-5](https://doi.org/10.1016/S2542-5196(21)00354-5)
- Reed, J. (2022). Postdigital outdoor and environmental education. *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-022-00323-2>

- Reed, J., & Dunn, C. (2024). Postdigital young people's rights: A critical perspective on the UK government's guidance to ban phones in England's schools. *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-024-00464-6>
- Reed, R., & Diver, S. (2023). Pathways to healing: Indigenous revitalization through family-based land management in the Klamath Basin. *Ecology and Society*, 28(1), art35. <https://doi.org/10.5751/ES-13861-280135>
- Reed-Danahay, D. (Ed.). (1997). *Auto/ethnography: Rewriting the self and the social* (1st ed.). Routledge.
- Reid, A. (2021, May 16). The flatness in flat ontology. *Prof Alex Reid - University of Buffalo*. <https://profalexreid.com/2021/05/16/the-flatness-in-flat-ontology/>
- Reis, G., & Roth, W.-M. (2009). A feeling for the environment: Emotion talk in/for the pedagogy of public environmental education. *The Journal of Environmental Education*, 41(2), 71–87. <https://doi.org/10.1080/00958960903295217>
- Renata, A., Guarese, R., Takac, M., & Zambetta, F. (2024). Assessment of embodied visuospatial perspective taking in augmented reality: Insights from a reaction time task. *Frontiers in Virtual Reality*, 5, 1422467. <https://doi.org/10.3389/frvir.2024.1422467>
- Re-visioning Cellphilm Methodologies Virtual Symposium*. (2022). McGill International Cellphilm Festival. <https://internationalcellphilmfestival.com/symposium2022/>
- Rexhepi, J. (2019). Reading Freire in the Middle East. In *The Wiley handbook of Paulo Freire* (pp. 199–219). <https://doi.org/10.1002/9781119236788.ch11>
- Reyes-García, V., Fernández-Llamazares, Á., McElwee, P., Molnár, Z., Öllerer, K., Wilson, S. J., & Brondizio, E. S. (2019). The contributions of Indigenous Peoples and local communities to ecological restoration. *Restoration Ecology*, 27(1), 3–8. <https://doi.org/10.1111/rec.12894>

- Richardson, L. (2000). Evaluating ethnography. *Qualitative Inquiry*, 6(2), 253–255.
<https://doi.org/10.1177/107780040000600207>
- Richardson, M., Hussain, Z., & Griffiths, M. D. (2018). Problematic smartphone use, nature connectedness, and anxiety. *Journal of Behavioral Addictions*, 7(1), 109–116.
<https://doi.org/10.1556/2006.7.2018.10>
- Richardson, M., Maspero, M., Golightly, D., Sheffield, D., Staples, V., & Lumber, R. (2017). Nature: A new paradigm for well-being and ergonomics. *Ergonomics*, 60(2), 292–305.
<https://doi.org/10.1080/00140139.2016.1157213>
- Roberts, B. (2009). Performative social science: A consideration of skills, purpose and context. *Historical Social Research*, 34(1), 307–353. <https://doi.org/10.12759/HSR.34.2009.1.307-353>
- Roberts, B. (2019). Media archaeology and critical theory of technology. In B. Roberts & M. Goodall (Eds.), *New media archaeologies* (pp. 155–174). Amsterdam University Press. JSTOR. <https://doi.org/10.2307/j.ctvcj303s.11>
- Roberts, C., Chin-Yee, S., Taylor, R., Maslin, M., Vanhala, L., Yaguma, P., McGlade, J., & Parikh, P. (2023). *Navigating the climate conferences: Comparing the carbon footprint of private jet travel and other modes of transport to cop28*.
<https://doi.org/10.14324/111.444/000218.v1>
- Roberts, J. T., & Parks, B. C. (2007). *A climate of injustice: Global inequality, North-South politics, and climate policy*. MIT Press.
- Roberts, T., & Muñiz, S. (2018). Fifty years of practice and innovation participatory video (PV). In J. Servaes (Ed.), *Handbook of communication for development and social change* (pp. 1–17). Springer Singapore. https://doi.org/10.1007/978-981-10-7035-8_39-1

- Robinson, K. (2021). Critical reflection: A student's perspective on a 'pedagogy of discomfort' and self-compassion to create more flexible selves. *Reflective Practice*, 22(5), 641–652. <https://doi.org/10.1080/14623943.2021.1948825>
- Rocha Silva, A., Matos, S., Gabriel, R., Moura Arroz, A., Sousa, D., Piasentin, F., & Amorim, I. R. (2023). The Field Guide audio series: Mobile learning using place-based and inquiry-led approaches to promote adolescents' interest in nature. *Environmental Education Research*, 1–23. <https://doi.org/10.1080/13504622.2023.2216406>
- Rock, M. J., & Degeling, C. (2015). Public health ethics and more-than-human solidarity. *Social Science & Medicine*, 129, 61–67. <https://doi.org/10.1016/j.socscimed.2014.05.050>
- Rodrigues, C. (2018). MovementScapes as ecomotricity in ecopedagogy. *The Journal of Environmental Education*, 49(2), 88–102. <https://doi.org/10.1080/00958964.2017.1417222>
- Rodrigues, C., Payne, P. G., Grange, L. L., Carvalho, I. C. M., Steil, C. A., Lotz-Sisitka, H., & Linde-Loubser, H. (2020). Introduction: “New” theory, “post” North-South representations, praxis. *The Journal of Environmental Education*, 51(2), 97–112. <https://doi.org/10.1080/00958964.2020.1726265>
- Rondeau, K. (2011). L'autoethnographie: Une quête de sens réflexive et conscientisée au coeur de la construction identitaire. *Recherches Qualitatives*, 30(2), 48. <https://doi.org/10.7202/1084830ar>
- Root, T. (2024, January 17). What happens when a school bans smartphones? A complete transformation. *The Guardian*. <https://www.theguardian.com/lifeandstyle/2024/jan/17/cellphone-smartphone-bans-schools>

- Rørvang, M. V., Nielsen, B. L., & McLean, A. N. (2020). Sensory Abilities of Horses and Their Importance for Equitation Science. *Frontiers in Veterinary Science*, 7, 633.
<https://doi.org/10.3389/fvets.2020.00633>
- Rosaline, S., & Johnson, S. (2020). Continued usage and dependency of smartphones. *International Journal of Cyber Behavior, Psychology and Learning*, 10(1), 41–53.
<https://doi.org/10.4018/IJCBPL.2020010104>
- Rose, E., & Cardinal, A. (2018). Participatory video methods in UX: sharing power with users to gain insights into everyday life. *Communication Design Quarterly Review*, 6(2), 9–20.
<https://doi.org/10.1145/3282665.3282667>
- Ross, N. (2020). Anthropocentric tendencies in environmental education: A critical discourse analysis of nature-based learning. *Ethics and Education*, 15(3), 355–370.
<https://doi.org/10.1080/17449642.2020.1780550>
- Roszak, T. (1992). *The voice of the earth*. Simon & Schuster.
- Rufo, R., & Weig, D. (2023). Ecologies of embodiment: Co-editing with the more-than-human. *Journal of Embodied Research*, 5(2), Article 2. <https://doi.org/10.16995/jer.10129>
- Russell, C. (1999). Experimental ethnography. In *The work of film in the age of video* (pp. 275–314). Duke University Press. <https://doi.org/10.1515/9780822396680-012>
- Russell, J. (2013). Whose better? (Re)orientating a queer Ecopedagogy. *Canadian Journal of Environmental Education*, 18, 11–26. Education Source.
- Russell, J. (Ed.). (2021). *Queer ecopedagogies: Explorations in nature, sexuality, and education*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-65368-2>
- Sadati, S. M. H. (2018). Cellphilmimg in four ATVET colleges: A mirror, reflecting gender issues in Ethiopia (dispatch). *Studies in Social Justice*, 12, 364–371.
<https://doi.org/10.26522/ssj.v12i2.1676>

- Sadati, S. M. H., & Mitchell, C. M. (2022). Me, myself, and my cellphone: Cellphilmimg as a reflexive eye. In D. E. Clover, K. Sanford, & W. S. Allen (Eds.), *Academic project designs and methods: From professional development to critical and creative practice*. (pp. 68–72). University of Victoria.
- Sadati, S. M. H., Mitchell, C., Roy, S., & Starr, L. (2024). *Re-visioning cellphilmimg methodology: An introduction* (pp. 1–15). https://doi.org/10.1007/978-981-97-3218-0_1
- Sage, F. (2017). *Indigenous knowledge system and decolonizing methodology interwoven into higher education experiences: Autoethnography* [University of North Dakota]. <https://commons.und.edu/theses/2141>
- Salonen, A. O., Isola, A.-M., Jakonen, J., & Foster, R. (2024). Who and what belongs to us? Towards a comprehensive concept of inclusion and planetary citizenship. *International Journal of Social Pedagogy*, 13(1). <https://doi.org/10.14324/111.444.ijsp.2024.v13.x.005>
- Sánchez, C. C. L., Álvaro. (2025, April 28). *Massive power blackout hits Spain and Portugal*. EL PAÍS English. <https://english.elpais.com/international/2025-04-28/massive-power-outages-cause-blackouts-in-spain-and-portugal.html>
- Sanera, M. (2008). The problem with environmental education today: Is the tail wagging the dog? *2008 Free Market Forum*. <https://www.hillsdale.edu/educational-outreach/free-market-forum/>
- Sans Pinillos, A. (2023). Silence as a cognitive tool to comprehend the environment. *Foundations of Science*. <https://doi.org/10.1007/s10699-023-09925-w>
- Santos, B. de S. (2016). *Epistemologies of the South: Justice against epistemicide*. Routledge.
- Santos, B. de S. (2018). *The end of the cognitive empire: The coming of age of epistemologies of the South*. Duke University Press.

- Sayes, E. (2014). Actor–network theory and methodology: Just what does it mean to say that nonhumans have agency? *Social Studies of Science*, 44(1), 134–149.
<https://doi.org/10.1177/0306312713511867>
- Schaal, S., & Lude, A. (2015). Using mobile devices in environmental education and education for sustainable development—Comparing theory and practice in a nation wide survey. *Sustainability*, 7(8), 10153–10170. <https://doi.org/10.3390/su70810153>
- Schafer, R. M. (1993). *The soundscape: Our sonic environment and the tuning of the world*. Destiny Books.
- Schaumberg, H. (2020). Aboriginal conceptions of the forest in the soy era: Frontiers of deforestation in the Argentine Chaco. *Current Opinion in Environmental Sustainability*, 43, 99–105. <https://doi.org/10.1016/j.cosust.2020.04.007>
- Schiller, G. (2015). Grasping gestures. Practice-based research. *Hermès, La Revue*, 72(2), 98–102. Cairn.info. <https://doi.org/10.3917/herm.072.0098>
- Schleser, M. (2013). Early mobile aesthetics as intervention to the industry dominated discourse. *Ubiquity: The Journal of Pervasive Media*, 2(1), 81–95. https://doi.org/10.1386/ubiq.2.1-2.81_7
- Schleser, M. (2014). Connecting through mobile autobiographies: Self-reflexive mobile filmmaking, self-representation, and selfies. In M. Berry & M. Schleser (Eds.), *Mobile media making in an age of smartphones* (pp. 148–158). Palgrave Macmillan US.
https://doi.org/10.1057/9781137469816_14
- Schleser, M. (2021). Mobile moving image culture & smartphone filmmaking past, present & future. *IMOVICCON Conference Proceeding*, 2(1), 7–14.
<https://doi.org/10.37312/imoviccon.v2i1.38>

- Schleser, M. (2022). Smart storytelling. *Studies in Documentary Film*, 16(2), 97–113.
<https://doi.org/10.1080/17503280.2022.2048230>
- Schleser, M., & Berry, M. (Eds.). (2018). *Mobile story making in an age of smartphones*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-76795-6>
- Schleser, M., & Xu, X. (Eds.). (2021). *Mobile storytelling in an age of smartphones*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-87247-2>
- Schmidt, A. (2024). *The mundane in the digital: A qualitative study of social work and vulnerable clients in danish job centres* [Ph.d., Copenhagen Business School].
<https://doi.org/10.22439/phd.14.2024>
- Schneider-Mayerson, M. (2015). *Peak oil: Apocalyptic environmentalism and libertarian political culture*. University of Chicago Press.
<https://doi.org/10.7208/chicago/9780226285573.001.0001>
- Schwab-Cartas, J. (2018). Keeping up with the sun: Revitalizing Isthmus Zapotec and ancestral practices through cellphilms. *The Canadian Modern Language Review*, 74(3), 363–387.
<https://doi.org/10.3138/cmlr.4056>
- Scott, J.-A. (2018). *Embodied performance as applied research, art and pedagogy*. Springer-Verlag GmbH.
- Scott, S., Gray, T., Charlton, J., & Millard, S. (2022). The impact of time spent in natural outdoor spaces on children’s language, communication and social skills: A systematic review protocol. *International Journal of Environmental Research and Public Health*, 19(19), 12038. <https://doi.org/10.3390/ijerph191912038>
- Secretary-General, U. N. (2016). *Armonía con la naturaleza* (Note A/71/266; p. 32). UN,.
<https://digitallibrary.un.org/record/839418>

- Sergi, V., & Hallin, A. (2011). Thick performances, not just thick descriptions: The processual nature of doing qualitative research. *Qualitative Research in Organizations and Management: An International Journal*, 6(2), 191–208.
<https://doi.org/10.1108/17465641111159152>
- Serres, M., & Burks, R. (2015). *Biogea*. University of Minnesota Press.
- Serres, M., & Feenberg-Dibon, A.-M. (2011). *Malfesance: Appropriation through pollution?* Stanford University Press. WorldCat.
- Serres, M., James, G., & Nielson, J. (1995). *Genesis*. The University of Michigan Press.
 WorldCat.
- Shapiro, L. (2022). Foreword. In S. L. Macrine & J. M. B. Fugate (Eds.), *Movement matters: How embodied cognition informs teaching and learning*. The MIT Press.
- Shapiro, L. A. (2014). *The Routledge handbook of embodied cognition*. Routledge, Taylor & Francis group.
- Shapiro, L., & Stolz, S. A. (2019). Embodied cognition and its significance for education. *Theory and Research in Education*, 17(1), 19–39. <https://doi.org/10.1177/1477878518822149>
- Share: (2025, October). *2025 NDCs Synthesis Report highlights momentum toward the climate transition and calls for accelerated global cooperation ahead of COP30*.
<https://cop30.br/en/news-about-cop30/2025-ndc-synthesis-report-highlights-momentum-toward-the-climate-transition-and-calls-for-accelerated-global-cooperation-ahead-of-cop30>
- Sharing research results with individual and community participants: Ethical & practical considerations. (2021, October 11). *Heather E. Lanthorn*.
<https://hlanthorn.com/2021/10/11/sharing-research-results-with-individual-and-community-participants-ethical-practical-considerations/>

- Sharma, R. K., Kumari, U., & Kumar, S. (2024). Impact of microplastics on pregnancy and fetal development: A systematic review. *Cureus*. <https://doi.org/10.7759/cureus.60712>
- Sheller, M. (2015). Vital methodologies: Live methods, mobile art, and research-creation. In P. Vannini (Ed.), *Non-representational methodologies* (pp. 130–145). Routledge.
- Sherif, A. (2025, March). *Global smartphone penetration 2016-2024*. Statista.
<https://www.statista.com/statistics/203734/global-smartphone-penetration-per-capita-since-2005/>
- Shim, J. Y. (2018). Problematic Autoethnographic Research: Researcher’s Failure in Positioning. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2018.2621>
- Shortall, O., & Brown, K. (2021). Enacting and resisting biosecurity citizenship: More-than-human geographies of enrolment in a disease eradication scheme in Scotland. *Environment and Planning E: Nature and Space*, *4*(2), 564–584.
<https://doi.org/10.1177/2514848620923590>
- Shugurova, O. (2021). Feminist dialogic pedagogical spaces in teacher education: Practical inclusivity, eye-opening and change. *Contemporary Education Dialogue*, *18*(1), 29–57.
<https://doi.org/10.1177/0973184920969338>
- Shugurova, O. (2023). Searching for a dialogic pedagogy with more-than-the-human beings in a teacher education classroom: “I make my way to the sun...” *I.e.: Inquiry in Education*, *15*(1). <https://digitalcommons.nl.edu/ie/vol15/iss1/3>
- Shvarts, A., Alberto, R., Bakker, A., Doorman, M., & Drijvers, P. (2021). Embodied instrumentation in learning mathematics as the genesis of a body-artifact functional system. *Educational Studies in Mathematics*, *107*(3), 447–469.
<https://doi.org/10.1007/s10649-021-10053-0>

- Silva da Silva, D. (2014). Toward a black feminist poethics: The quest(ion) of blackness toward the end of the world. *The Black Scholar*, 44(2), 81–97. JSTOR.
- Simmons, N., & Daley, S. (2013). The art of thinking: Using collage to stimulate scholarly work. *The Canadian Journal for the Scholarship of Teaching and Learning*, 4(1).
<https://doi.org/10.5206/cjsotl-rcacea.2013.1.2>
- Simonen, M. (2023). Dogs responding to human utterances in embodied ways. *Journal of Pragmatics*, 217, 69–84. <https://doi.org/10.1016/j.pragma.2023.09.004>
- Simpson, L. B. (2014). Land as pedagogy: Nishnaabeg intelligence and rebellious transformation. *Decolonization: Indigeneity, Education & Society*, 3(3).
- Simpson, L. B. 1971-. (2017). *As we have always done: Indigenous freedom through radical resistance* (1 online resource (312 pages)). University of Minnesota Press. WorldCat.org.
<https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=1506199>
- Skulmowski, A., & Rey, G. D. (2018). Embodied learning: Introducing a taxonomy based on bodily engagement and task integration. *Cognitive Research: Principles and Implications*, 3(1), 6. <https://doi.org/10.1186/s41235-018-0092-9>
- Smith, H. E., Cooper, C. B., Busch, K. C., Harper, S., Muslim, A., McKenna, K., & Cavalier, D. (2024). Facilitator organizations enhance learning and action through citizen science: A case study of Girl Scouts' Think Like a Citizen Scientist journey on SciStarter. *Environmental Education Research*, 30(2), 190–213.
<https://doi.org/10.1080/13504622.2023.2237705>
- Smith, L. T. (1999). *Decolonizing methodologies: Research and Indigenous peoples*. Zed Books ; University of Otago Press ; Distributed in the USA exclusively by St. Martin's Press.

- Smith, L. T. (2022). *Indigenous Women's Voices: 20 Years on from Linda Tuhiwai Smith's Decolonizing Methodologies* (E. Lee & J. Evans, Eds.; 1st ed.). Bloomsbury Publishing Plc. <https://doi.org/10.5040/9781350237506>
- Snaza, N. (2022). The literacy situation: Education and the dispersal of politics. In J. L. Beier & Jan Jagodzinski (Eds.), *Ahuman Pedagogy* (pp. 35–54). Springer International Publishing. https://doi.org/10.1007/978-3-030-94720-0_3
- Snowchange, C. (2017). Major new research report out on Linnunsuo wetland. *Snowchange Cooperative*. <http://www.snowchange.org/2017/10/major-new-research-report-out-on-linnunsuo-wetland/>
- Sobel, D. (2014). Learning to walk between the raindrops: The value of nature preschools and forest kindergartens. *Children, Youth and Environments*, 24(2), 228. <https://doi.org/10.7721/chilyoutenvi.24.2.0228>
- Sobel, D. (2020). School outdoors: The pursuit of happiness as an educational goal. *Journal of Philosophy of Education*, 54(4), Article 4. <https://doi.org/10.1111/1467-9752.12458>
- Somerville, M., & Williams, C. (2015). Sustainability education in early childhood: An updated review of research in the field. *Contemporary Issues in Early Childhood*, 16(2), 102–117. <https://doi.org/10.1177/1463949115585658>
- Southworth, J., Migliaccio, K., Glover, Joe, Glover, Ja'Net, Reed, D., McCarty, C., Brendemuhl, J., & Thomas, A. (2023). Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy. *Computers and Education: Artificial Intelligence*, 4, 100127. <https://doi.org/10.1016/j.caeai.2023.100127>

- Spain expects more tourists this year after record 94 mln visitors in 2024. (2025, January 15).
Reuters. <https://www.reuters.com/world/europe/spain-sees-further-tourism-growth-after-record-94-mln-visitors-2024-2025-01-15/>
- Spanning, R. (2017). Animals in environmental education research. *Environmental Education Research*, 23(1), 63–74. <https://doi.org/10.1080/13504622.2016.1188058>
- Sparkes, A. C. (2024). Autoethnography as an ethically contested terrain: Some thinking points for consideration. *Qualitative Research in Psychology*, 21(1), 107–139.
<https://doi.org/10.1080/14780887.2023.2293073>
- Spinney, J. (2015). Close encounters? Mobile methods, (post)phenomenology and affect. *Cultural Geographies*, 22(2), 231–246. <https://doi.org/10.1177/1474474014558988>
- Spinoza, B. de, & Kisner, M. J. (2018). *Ethics proved in geometrical order*. Cambridge University Press.
- Springer, S., Souza, M. L. de, & White, R. J. (Eds.). (2016). *The radicalization of pedagogy: Anarchism, geography, and the spirit of revolt*. Rowman & Littlefield International.
- Spry, T. (2022). The matter of performative autoethnography. In T. E. Adams, S. L. Holman Jones, & C. Ellis (Eds.), *Handbook of autoethnography* (Second edition). Routledge, Taylor & Francis Group.
- St. Pierre, E. A. (1997). Methodology in the fold and the irruption of transgressive data. *International Journal of Qualitative Studies in Education*, 10(2), 175–189.
<https://doi.org/10.1080/095183997237278>
- St. Pierre, E. A. (2004). Refusing alternatives: A science of contestation. *Qualitative Inquiry*, 10(1), Article 1. <https://doi.org/10.1177/1077800403259494>
- St. Pierre, E. A. (2018). Writing post qualitative inquiry. *Qualitative Inquiry*, 24(9), 603–608.
<https://doi.org/10.1177/1077800417734567>

- St. Pierre, E. A. (2021). Why post qualitative inquiry? *Qualitative Inquiry*, 27(2), 163–166.
<https://doi.org/10.1177/1077800420931142>
- St. Pierre, E. A., & Jackson, A. Y. (2014). Qualitative data analysis after coding. *Qualitative Inquiry*, 20(6), 715–719. <https://doi.org/10.1177/1077800414532435>
- St. Pierre, E. A., Jackson, A. Y., & Mazzei, L. A. (2016). New empiricisms and new materialisms: Conditions for new inquiry. *Cultural Studies ↔ Critical Methodologies*, 16(2), 99–110. <https://doi.org/10.1177/1532708616638694>
- Staff, I. C. T. (2017, September 25). Apocalypse Prophecies: Native End of the World Teachings. *ICT*. <https://ictnews.org/archive/apocalypse-prophecies-native-end-of-the-world-teachings/>
- Starr, L., & Mitchell, C. (2021). *Gender responsive pedagogy guide transforming girls' education project (TGEP) Sierra Leone*. CODE. https://code.ngo/wp-content/uploads/2021/09/CODE-GenderResponsive-FINAL-August-17_2021.pdf
- Stein, S. (2021). Reimagining global citizenship education for a volatile, uncertain, complex, and ambiguous (VUCA) world. *Globalisation, Societies and Education*, 19(4), 482–495.
<https://doi.org/10.1080/14767724.2021.1904212>
- Stein, S., Ahenakew, C., Valley, W., Sherpa, P. Y., Crowson, E., Robin, T., Mendes, W., & Evans, S. (2024). Toward more ethical engagements between Western and Indigenous sciences. *FACETS*, 9, 1–14. <https://doi.org/10.1139/facets-2023-0071>
- Stein, S., De Oliveira Andreotti, V., Susa, R., Amsler, S., Hunt, D., Ahenakew, C., Jimmy, E., Cajkova, T., Valley, W., Cardoso, C., Siwek, D., Pitaguary, B., D'Emilia, D., Pataxó, U., Calhoun, B., & Okano, H. (2020). Gesturing towards decolonial futures: Reflections on our learnings thus far. *Nordic Journal of Comparative and International Education (NJCIE)*, 4(1), 43–65. <https://doi.org/10.7577/njcie.3518>

- Stevens, M. (2021). A plethora of senses. In M. Stevens, *Secret Worlds* (pp. 1–24). Oxford University Press. <https://doi.org/10.1093/oso/9780198813675.003.0001>
- Stevenson, M. C. (1905). *The Zuñi Indians* (p. 910) [Ethnography].
- Stewart, A. J. (2018). A Murray Cod assemblage: Re/considering riverScape pedagogy. *The Journal of Environmental Education*, 49(2), 130–141.
<https://doi.org/10.1080/00958964.2017.1417224>
- Stewart, K. (2007). *Ordinary affects*. Duke University Press.
<https://doi.org/10.1215/9780822390404>
- Stewart, K. (2011). Atmospheric attunements. *Environment and Planning Development: Society and Space*, 29(3), 445–453. <https://doi.org/10.1068/d9109>
- Still, J. (2015). *Derrida and other animals: The boundaries of the human*. Edinburgh University Press.
- Stolz, S. A. (2023). The practice of phenomenology in educational research. *Educational Philosophy and Theory*, 55(7), 822–834. <https://doi.org/10.1080/00131857.2022.2138745>
- Strang, V. (2023). Living kindness: Re-imagining kinship for a more humane future. *Critique of Anthropology*, 43(4), 476–494. <https://doi.org/10.1177/0308275X231216256>
- Stymne, J. (2020). Outdoor learning with mobile technology: A systematic review. *IADIS International Journal on WWW/Internet*, 18(1). https://doi.org/10.33965/ijwi_202018106
- Suess, S. Q. (2024, May 24). *On autoethnographic filmmaking*. Futuress.
<https://futuress.org/learning/autoethnographic-filmmaking/>
- Tănăsescu, M. (2014). Rethinking representation: The challenge of non-humans. *Australian Journal of Political Science*, 49(1), 40–53.
<https://doi.org/10.1080/10361146.2013.874404>

- Tavella, E., & Spiegelhofer, E. (2025). In dialogue with more-than-human wor(l)ds: Collaborative kinship and relationality in digital publishing. *The Journal of Electronic Publishing*, 28(1), Article 1. <https://doi.org/10.3998/jep.6022>
- Teixeira, T. (2010, April 23). *Meet Marty Cooper who invented the mobile phone*. BBC News. http://news.bbc.co.uk/2/hi/programmes/click_online/8639590.stm
- Thomas, M. K. E., & Bellingham, R. (2020). *Post-qualitative research and innovative methodologies*. Bloomsbury Academic.
- Thompson, J., Macabena-Perez, R., Paquette, C., Levitt, B., & Holland, N. (2014). *Comment faire un cellphilm/How to make a cellphilm*. McGill International Cellphilm Festival. <https://internationalcellphilmfestival.com/2013/10/24/cellphilm-tips/>
- Thompson, J., Mitchell, C., & Starr, L. (2019). *Cellphilming: A tool for addressing gender equality—Facilitators' guide*. CODE. https://www.mcgill.ca/morethanwords/files/morethanwords/cellphilm_guidebook.final_.pdf
- Thornton, S., Burgh, G., & Graham, M. (2024). Place, empire, environmental education, and the Community of Inquiry. *Journal of Philosophy in Schools*, 11(1), 83–103. <https://doi.org/10.46707/jps.v11i1.218>
- Thorsnes, T., & Fredriksen, B. C. (2023). A heartbeat of an old oak: The emergence of embodied experiential metaphors as signs of human compassion with trees. In B. C. Fredriksen & P. I. Haukeland (Eds.), *Crafting relationships with nature through creative practices* (pp. 47–70). Scandinavian University Press. <https://doi.org/10.18261/9788215069197-23-03>
- Thrift, N. (2004). Intensities of feeling: Towards a spatial politics of affect. *Geografiska Annaler: Series B, Human Geography*, 86(1), Article 1. <https://doi.org/10.1111/j.0435-3684.2004.00154.x>

- Thrift, N. (2008). *Non-representational theory: Space, politics, affect*. Routledge.
- Thrift, N. (2009). The still point: Resistance, expressive embodiment and dance. In S. Pile & M. Keith (Eds.), *Geographies of resistance*. Routledge.
- Tierney, R. J., & Morgan, R. V. (2022). The Indigenous imaginary and tertiary institutions. In A. Abdi & G. W. Misiaszek (Eds.), *The Palgrave handbook on critical theories of education* (pp. 223–242). Springer International Publishing. https://doi.org/10.1007/978-3-030-86343-2_13
- Tilley, R. (2014). Promoting what we oppose—Part 2. *Solidarity: The Journal of Catholic Social Thought and Secular Ethics*, 4(1). <https://researchonline.nd.edu.au/solidarity/vol4/iss1/6>
- Todd, S. (2020). Creating aesthetic encounters of the world, or teaching in the presence of climate sorrow. *Journal of Philosophy of Education*, 54(4), Article 4. <https://doi.org/10.1111/1467-9752.12478>
- Todd, Z. (2016). An indigenous feminist's take on the ontological turn: 'Ontology' is just another word for colonialism: *Journal of Historical Sociology*, 29(1), 4–22. <https://doi.org/10.1111/johs.12124>
- Todd, Z. (2017). Fish, kin and hope: Tending to water violations in *Amiskwaciwâskahikan* and Treaty Six Territory. *Afterall: A Journal of Art, Context and Enquiry*, 43, 102–107. <https://doi.org/10.1086/692559>
- Tom, M. N., Sumida Huaman, E., & McCarty, T. L. (2019). Indigenous knowledges as vital contributions to sustainability. *International Review of Education*, 65(1), 1–18. <https://doi.org/10.1007/s11159-019-09770-9>
- Tomkins, S. S. (2008). *Affect imagery consciousness: The complete edition*. Springer publ.
- Torkos, H., & Egerau, A. M. (2020). The use of informational technologies in the outdoor educational activities in times of special educational situations. *Revista Romaneasca*

Pentru Educatie Multidimensionala, 12(3), 107–124.

<https://doi.org/10.18662/rrem/12.3/312>

- Torrance, S. (2011). Machine ethics and the idea of a more-than-human moral world. In M. Anderson & S. L. Anderson (Eds.), *Machine Ethics* (pp. 115–137). Cambridge University Press. Cambridge Core. <https://doi.org/10.1017/CBO9780511978036.011>
- Torres, C. A. (2019). Introduction. In *The Wiley handbook of Paulo Freire* (pp. 1–29). <https://doi.org/10.1002/9781119236788.ch0>
- Trnka, S. (Ed.). (2013). *Senses and citizenships: Embodying political life*. Routledge.
- Truong, J., Labhart, F., Santani, D., Gatica-Perez, D., Kuntsche, E., & Landolt, S. (2020). The emotional entanglements of smartphones in the field: On emotional discomfort, power relations, and research ethics. *Area*, 52(1), 81–88. <https://doi.org/10.1111/area.12548>
- Tsing, A. L. (2011). *Friction: An ethnography of global connection*. Princeton University Press. <https://doi.org/10.1515/9781400830596>
- Tsing, A. L. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton University press.
- Tsochev, G., Trifonov, R., & Naydenov, G. (2015). *Agent communication languages comparison: FIPA-ACL and KQML*. International Scientific Conference Computer Science.
- Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society*, (1), 41.
- Tudor, S. L. (2017). The transdisciplinarity – A model of experiential learning. *The European Proceedings of Social & Behavioural Sciences*, 856–861. <https://doi.org/10.15405/epsbs.2017.05.02.104>

- Tullis, J. A. (2022). Ethics in autoethnography research. In T. E. Adams, S. L. Holman Jones, & C. Ellis (Eds.), *Handbook of Autoethnography* (Second edition, 1 ressource en ligne (xxiv, 539 pages) : illustrations, p. 539). Routledge.
- Turina, R. (2019). Autoethnography and postmemory: A methodology for the use of film forms as research. *Alphaville: Journal of Film and Screen Media*, (17), 64–79.
<https://doi.org/10.33178/alpha.17.04>
- Turner, A. (2024, January 29). How many smartphones are in the world? [Technology]. *Bankmycell*. <https://www.bankmycell.com/blog/how-many-phones-are-in-the-world>
- Tym, C. (2024). Indigenous knowledge and ontological difference? Ontological pluralism, secular public reason, and knowledge between Indigenous Amazonia and the west. *Comparative Studies in Society and History*, 66(2), 267–293.
<https://doi.org/10.1017/S0010417523000440>
- Tynan, L. (2020). Thesis as kin: Living relationality with research. *AlterNative: An International Journal of Indigenous Peoples*, 16(3), 163–170.
<https://doi.org/10.1177/1177180120948270>
- UN Climate Change Conference—Belém, November 2025 | UNFCCC*. (2025, November).
<https://unfccc.int/cop30>
- Underhill, J. W. (2009). *Humboldt, worldview and language*. Edinburgh university press.
- UNESCO. (2020). *Education for sustainable development: A roadmap*. UNESCO.
<https://doi.org/10.54675/YFRE1448>
- UNESCO Report (2021): Getting every school climate ready – How countries are integrating climate change issues in education. | UNESCO Chair on Water-related Disaster Risk Reduction*. (2021). <https://www.unesco-floods.eu/unesco-report-2021-getting-every-school-climate-ready-how-countries-are-integrating-climate-change-issues-in-education/>

United Nations decade of education for sustainable development (2005-2014) (p. 31). (2005).

[Section for Education for Sustainable Development (ED/PEQ/ESD)].

<https://www.unesco.org/en/education>

United Nations Department of Economic and Social Affairs. (2023). *The sustainable development goals report 2023: Special edition*. United Nations.

<https://doi.org/10.18356/9789210024914>

Uzunboylu, H., Cavus, N., & Ercag, E. (2009). Using mobile learning to increase environmental awareness. *Computers & Education*, 52(2), 381–389.

<https://doi.org/10.1016/j.compedu.2008.09.008>

Vadell, E., de-Miguel, S., & Pemán, J. (2016). Large-scale reforestation and afforestation policy in Spain: A historical review of its underlying ecological, socioeconomic and political dynamics. *Land Use Policy*, 55, 37–48. <https://doi.org/10.1016/j.landusepol.2016.03.017>

Vagg, J. (2022). Experiencing-with data: Exploring posthuman creativity through rhizomatic empathy. *Qualitative Inquiry*, 28(5), 541–551.

<https://doi.org/10.1177/10778004211069696>

Vagle, M. D. (2010). Re-framing Schön's call for a phenomenology of practice: A post-intentional approach. *Reflective Practice*, 11(3), 393–407.

<https://doi.org/10.1080/14623943.2010.487375>

Van Borek, S., & Abrams, A. L. (2023). Respecting local knowledge keepers through cellphilms featuring local water bodies: Towards decolonizing water management. *AQUA — Water Infrastructure, Ecosystems and Society*, 72(5), 663–672.

<https://doi.org/10.2166/aqua.2023.169>

Van Dooren, T., & Chrulew, M. (Eds.). (2022). *Kin: Thinking with Deborah Bird Rose*. Duke University Press.

- Van Kraalingen, I. (2023). Theorizing technological mediation in the outdoor classroom. *Postdigital Science and Education*, 5(3), 754–776. <https://doi.org/10.1007/s42438-022-00315-2>
- Van Manen, M. (2016). *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing*. Routledge. <https://doi.org/10.4324/9781315422657>
- Van Poeck, K., & Vandenabeele, J. (2014). Education as a response to sustainability issues. *European Journal for Research on the Education and Learning of Adults*, 5(2), 221–236. <https://doi.org/10.3384/rela.2000-7426.rela0111>
- Vannini, P. (Ed.). (2015). *Non-representational methodologies: Re-envisioning research*. Routledge.
- Vásquez-Fernández, A. M., & Ahenakew pii tai poo taa, C. (2020). Resurgence of relationality: Reflections on decolonizing and indigenizing ‘sustainable development.’ *Indigenous Conceptualizations of ‘Sustainability,’* 43, 65–70. <https://doi.org/10.1016/j.cosust.2020.03.005>
- Vaujany, F.-X. de, Gherardi, S., & Silva, P. (2024). *Organization studies and posthumanism towards a more-than-human world*. ROUTLEDGE. WorldCat. <https://doi.org/10.4324/9781032617169>
- Veltmeyer, H., & Lau, E. Z. (Eds.). (2020). *Buen vivir and the challenges to capitalism in Latin America* (1st ed.). Routledge. <https://doi.org/10.4324/9781003091516>
- Vickers, R. (2013). Mobile media, participation culture and the digital vernacular: 24-hours in and the democratization of documentary. *Ubiquity: The Journal of Pervasive Media*, 2(1), 132–145. https://doi.org/10.1386/ubiq.2.1-2.132_1

- Villarrubia-Gómez, P., Carney Almroth, B., Eriksen, M., Ryberg, M., & Cornell., S. E. (2024). Plastics pollution exacerbates the impacts of all planetary boundaries. *One Earth*, 7(12), 2119–2138. <https://doi.org/10.1016/j.oneear.2024.10.017>
- Vinjamuri, M., Warde, B., & Kolb, P. (2017). The reflective diary: An experiential tool for enhancing social work students' research learning. *Social Work Education*, 36(8), 933–945. <https://doi.org/10.1080/02615479.2017.1362379>
- Vos, R. O. (2007). Defining sustainability: A conceptual orientation. *Journal of Chemical Technology & Biotechnology*, 82(4), 334–339. <https://doi.org/10.1002/jctb.1675>
- Wacks, Y., & Weinstein, A. M. (2021). Excessive smartphone use is associated with health problems in adolescents and young adults. *Frontiers in Psychiatry*, 12, 669042. <https://doi.org/10.3389/fpsy.2021.669042>
- Waite, S., & Goodenough, A. (2018). What is different about Forest School? Creating a space for an alternative pedagogy in England. *Journal of Outdoor and Environmental Education*, 21(1), 25–44. <https://doi.org/10.1007/s42322-017-0005-2>
- Wali, A. Z., & Omaid, M. (2020). The use of smartphones as an educational tool in the classroom: Lecturers' perceptions. *International Journal of Emerging Technologies in Learning (iJET)*, 15, 238. <https://doi.org/10.3991/ijet.v15i16.14179>
- Walker, A., O'Mahony, K., & Boyer, K. (2023). Recollecting the everyday: Emotion, memory and spaces of mundane practice. *Emotion, Space and Society*, 48, 100961. <https://doi.org/10.1016/j.emospa.2023.100961>
- Walkington, C. (2014). *Being mathematical relations: Dynamic gestures support mathematical reasoning*.
- Walsh, S. (2016). Critiquing the politics of participatory video and the dangerous romance of liberalism. *Area*, 48(4), 405–411. <https://doi.org/10.1111/area.12104>

- Waltz, S. B. (2006). Actor-network theory and the reconsideration of “things” in educational foundations. *Educational Foundations*, 20(3), 51–67.
- Wan, H. (2012). *Evolution of the Cameraphone: From Sharp J-SH04 to Nokia 808 Pureview*. Digistrat. <https://www.hoista.net/post/18437919296/evolution-of-the-cameraphone-from-sharp-j-sh04-to>
- Wang, V. (Ed.). (2026). *AI applications and pedagogical innovation*. IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-5092-9>
- Ward, A., Duke, K., Gneezy, A., & Bos, M. (2017). Brain drain: The mere presence of one’s own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research*, 2, 000–000. <https://doi.org/10.1086/691462>
- Wardani, R. A. K., Karyanto, P., & Ramli, M. (2018). Analysis of high school students’ environmental literacy. *Journal of Physics: Conference Series*, 1022, 012057. <https://doi.org/10.1088/1742-6596/1022/1/012057>
- Warfield, K. (2019). Becoming Method(ologist): A feminist posthuman autoethnography of the becoming of a posthuman methodology. *Reconceptualizing Educational Research Methodology*, 10(2–3), 147–172. <https://doi.org/10.7577/term.3674>
- Warner, R. P., Meerts-Brandsma, L., & Rose, J. (2020). Neoliberal ideologies in outdoor adventure education: Barriers to social justice and strategies for change. *The Journal of Park and Recreation Administration*. <https://doi.org/10.18666/JPRA-2019-9609>
- Wassef, K., Bonardi, O., Aston, M., Ferlatte, O., & Joy, P. (2024). Virtual cellphilmimg with LGBTQ pups: Towards participant-driven research as activism. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2024.6661>

- Webb, A., & Welsh, A. J. (2019). Phenomenology as a methodology for scholarship of teaching and learning research. *Teaching & Learning Inquiry: The ISSOTL Journal*, 7(1), 168–181. <https://doi.org/10.20343/teachlearninqu.7.1.11>
- Webb, T., Pearson, C., Summerfield, P., & Riley, M. (2020). More-than-human emotional communities: British soldiers and mules in Second World war Burma. *Cultural and Social History*, 17(2), 245–262. <https://doi.org/10.1080/14780038.2020.1744879>
- Weber, R. (2020). Taking the ontological and materialist turns: Agential realism, representation theory, and accounting information systems. *International Journal of Accounting Information Systems*, 39, 100485. <https://doi.org/10.1016/j.accinf.2020.100485>
- Weik von Mossner, A. (2014). *Moving environments: Affect, emotion, ecology, and film*. Wilfrid Laurier university press.
- Whitehouse, H. (2018). Questions of ecopedagogy in tropical oceanScapes in the age of coral ecocide: An autoethnographic description. *The Journal of Environmental Education*, 49(2), 142–151. <https://doi.org/10.1080/00958964.2017.1417226>
- Whiting, K., Konstantakos, L., Misiaszek, G. W., Simpson, E., & Carmona, L. G. (2018). Education for the sustainable global citizen: What can we learn from stoic philosophy and Freirean environmental pedagogies? *Education Sciences*, 8(4). <https://doi.org/10.3390/educsci8040204>
- Whitmarsh, L., Capstick, S., Moore, I., Köhler, J., & Le Quéré, C. (2020). Use of aviation by climate change researchers: Structural influences, personal attitudes, and information provision. *Global Environmental Change*, 65, 102184. <https://doi.org/10.1016/j.gloenvcha.2020.102184>

- Whyte, K. P. (2018). Indigenous science (fiction) for the Anthropocene: Ancestral dystopias and fantasies of climate change crises. *Environment and Planning E: Nature and Space*, 1(1–2), 224–242. <https://doi.org/10.1177/2514848618777621>
- Whyte, K. P. (2020). Too late for indigenous climate justice: Ecological and relational tipping points. *WIREs Climate Change*, 11(1), 1–7. <https://doi.org/10.1002/wcc.603>
- Wickham, S. B., Augustine, S., Forney, A., Mathews, D. L., Shackelford, N., Walkus, J., & Trant, A. J. (2022). Incorporating place-based values into ecological restoration. *Ecology and Society*, 27(3). <https://doi.org/10.5751/ES-13370-270332>
- Widmer, K., Marnane, I., & Vounatsou, P. (2022). Review and assessment of available information on light pollution in Europe. *ETC-HE Report 2022/8*.
- Wildcat, M., McDonald, M., Irlbacher-Fox, S., & Coulthard, G. (2014). Learning from the land: Indigenous land based pedagogy and decolonization. *Decolonization: Indigeneity, Education & Society*, 3(3), Article 3. <https://jps.library.utoronto.ca/index.php/des/article/view/22248>
- Willms, I., & Leahy, S. (2019). This is the World's most destructive oil operation: And its growing. *National Geographics*. <https://www.nationalgeographic.com/environment/article/alberta-canadas-tar-sands-is-growing-but-indigenous-people-fight-back>
- Wilson, E. A., & Frank, A. J. (2020). *A Silvan Tomkins handbook: Foundations for affect theory*. University of Minnesota Press.
- Wilson, E. O. (1984). *Biophilia*. Harvard University Press.
- Wilson, N. J., & Inkster, J. (2018). Respecting water: Indigenous water governance, ontologies, and the politics of kinship on the ground. *Environment and Planning E: Nature and Space*, 1(4), 516–538. <https://doi.org/10.1177/2514848618789378>

- Windhorst, E. (2016). Re-membering ecological self: A personal narrative autoethnography. *Ecopsychology*, 8(4), 264–270. <https://doi.org/10.1089/eco.2016.0014>
- Witkin, S. (2022). Autoethnography and social work: Strange bedfellows or complementary partners? *Social Work and Social Sciences Review*, 23(2), 19–35. <https://doi.org/10.1921/swssr.v23i2.2030>
- Woodley, R. (2022). *Indigenous theology and the western worldview: A decolonized approach to Christian doctrine*. Baker Academic, a division of Baker Publishing Group.
- World's first "smartphone" celebrates 20 years*. (2014, August 15). BBC News. <https://www.bbc.com/news/technology-28802053>
- Yamada, K. (2022). On more-than-human labor: Revisiting Japan's ecological modernity and the politics and ethics of interspecies entanglements. *Japan Forum*, 34(5), 624–648. <https://doi.org/10.1080/09555803.2020.1857817>
- Yates, A. M. (2021). Transforming geographies: Performing Indigenous-Maori ontologies and ethics of more-than-human care in an era of ecological emergency. *New Zealand Geographer*, 77(2), 101–113. <https://doi.org/10.1111/nzg.12302>
- Young, M. J., Morris, M. W., Burrus, J., Krishnan, L., & Regmi, M. P. (2011). Deity and Destiny: Patterns of Fatalistic Thinking in Christian and Hindu Cultures. *Journal of Cross-Cultural Psychology*, 42(6), 1030–1053. <https://doi.org/10.1177/0022022110381123>
- Young, T. C., & Malone, K. (2023). Reconfiguring environmental sustainability education by exploring past/present/future pedagogical openings with preservice teachers. *Teaching in Higher Education*, 28(5), 1077–1094. <https://doi.org/10.1080/13562517.2023.2197112>

- Yu, C. (2024). *Alberta oil sand pollution impacts on local Indigenous communities and cooperation with Indigenous peoples* [Education]. https://lfs-mlws-2020.sites.olt.ubc.ca/files/2024/09/yucorrine_125061_34320602_report-3.pdf
- Zembylas, M. (2018). Political emotions in the classroom: How affective citizenship education illuminates the debate between agonists and deliberators. *Democracy & Education*, 26(1), article 6.
- Zhang, R. (2022). The year's work in ecolinguistics 2021. *Journal of World Languages*, 8(1), 141–163. <https://doi.org/10.1515/jwl-2022-0009>
- Žižek, S. (2000). Melancholy and the act. *Critical Inquiry*, 26(4), 657–681. <https://doi.org/10.1086/448987>
- Zocher, J. L., & Hougham, R. J. (2020). Implementing ecopedagogy as an experiential approach to decolonizing science education. *Journal of Experiential Education*, 43(3), 232–247. <https://doi.org/10.1177/1053825920908615>
- Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30(1), Article 1. <https://doi.org/10.1057/jit.2015.5>

APPENDIX 1

List of 50 Cellphilms

Link: https://www.youtube.com/playlist?list=PLf9EH7EAN1JLOPLnV5Q7bhgTn8y_bogq1

1. SOLAR ECLIPSE NDG MONTREAL - Edited down two shots – 2:42 min
2. DEER WALKING THROUGH TOWN ASHLAND OREGON - One shot – 2:05 min
3. OIL RESERVOIRS AT SAULT - ST - MARIE ONTARIO - One shot – 1:50 min
4. ANTS WORKING IN JAVEA/XÁBIA GARDEN - One shot no edit – 2:20 min
5. BIRD CALLS OUT THROUGH BEDROOM WINDOW - One shot – 1:59 min
6. MATING EGYPTIAN GRASSHOPERS ON FRANGIPANI - One shot – 2:21 min
7. JAVEA/XÁBIA ARENAL SWALLOWS FEEDING FRENZY - One shot – 2:20 min
8. RARE SUMMER RAIN ON DISTORTED WINDOW - One shot – 1:52 min
9. FESTIVITIES FIRECRACKERS FOR FUOCO WEEKEND JAVEA/XÁBIA - One shot – 2:18 min
10. PUBLIC BULL RUN JAVEA/XÁBIA - One shot – 2:18 min
11. FISH IN MARINA AT MOREIRA - One shot – 1:28 min
12. FUOCO FIRE DANCE JAVEA/XÁBIA - One shot – 2:23 min
13. PREPARING FOR SAGO PALM SEED PLANTING - One shot edited down – 3:29 min
14. WALK THROUGH OUR GARDEN/JAVEA/XÁBIA - One shot – 3:22 min
15. NIGHT VISIT TO THE QUEEN OF THE NIGHT - One shot – 2:39 min
16. BIRDS FEEDING ON SUNFLOWER - One shot – 2:49 min
17. RESTING UNDER THE FIG AND POMMEGRANITE TREES - One shot – 2:49 min
18. PERROQUETS HIDING FROM HELICOPTER SOUND - Two shot edit – 1:56 min
19. GECKO ESCAPING FLOOR VARNISHING - Two shot edit – 2:18 min
20. RIVER MEETS MEDITERANNEAN BATHERS - Four shot edit – 2:12 min
21. FILMING CAMERA FILMING GRAPE PICKING - One shot – 4:25 min
22. PERFORMING EXTREME MOSQUITO SPRAYING - One shot – 2:32 min
23. WATER FROM RAIN CISTERN FEEDS CITRUS TREES - One shot edited down – 2:20 min
24. HOOPER THE DOG FETCHES BALL UPON REQUEST - One shot – 2:31 min
25. OLDEST MILLENIAL OLIVE TREE IN TOWN - Two shot – 2:50 min
26. WATER TREATMENT PLANT AT DENIA HOSPITAL - One shot – 2:30
27. HOLDING SEDATED FATHER'S HAND IN HOSPITAL - One shot – 4:21
28. FOURTH FIRE THIS YEAR IN NEARBY MONGO - Two shot edit – 2:27 min
29. NEW COMMUTER TRAIN BETWEEN DENIA AND ALICANTE - One shot – 1:46 min
30. YEARS OF TOSCA STONE EXTRACTION AND OVERHEATED SEAGULLS - One shot – 2:02 min
31. STANSTEAD GARDEN HARVEST AT BIO FARM - One shot – 2:12 min
32. BEEFALO FEEDING GARDEN PLANTS - One shot – 2:33 min
33. CATERPILLAR DAMAGED PLUM TREE - One shot – 2:25 min
34. BACK YARD GARDEN AUTUMN VISIT - Two shot edit – 2:16 min
35. VISIT TO THE LOCAL RIVER PARK - One shot – 2:03 min
36. STANHENGE - Two shot edit – 1:59 min

37. TRACKING A CATERPILLAR WALK - One shot – 2:41 min
38. SOUND FROM PLAYING CRYSTAL BOWLS - One shot – 3:00 min
39. LOCAL AIRPORT BBQ MEET FOR SMALL PLANES - Three shot edit – 2:23 min
40. NEST MADE PARTIALLY OF PLASTIC FOUND WHILE TRIMMING BUSH - One shot – 2:09 min
41. WATCHING SUNSET AT MOUNT ROYAL LOOKOUT - One shot – 2:26 min
42. LEAVING MOUNT ROYAL PARK AT NIGHT - One shot – 2:33 min
43. SPIDER ON ELEVENTH FLOOR BUILDING WEB - One shot – 2:25
44. NEW SUBURBAN TRAIN FROM BROSSARD - One shot – 3:30 min
45. CHILDREN LED OUT OF A PLASTIC PARK - One shot – 2:22 min
46. PUTTING BACK A RETAINING WALL ON TOMIFOBIA IN ROCK ISLAND - One shot – 2:20 min
47. YEARS OF GRANITE EXTRACTION IN OGDEN - One shot – 2:24 min
48. CROSSING THE ATLANTIC FROM MONTREAL TO BARCELONA - Four shot edit – 2:30 min
49. EXCAVATION OF ELECTRICAL WIRING IN BARCELONA - One shot – 2:23 min
50. REGROWTH AFTER LAST YEAR'S FIRE IN PEGO HILLS ALICANTE PROVINCE - Film and photo edit – 2:20 min

APPENDIX 2 Cellphilm Descriptions and Link to YouTube Video

1. SOLAR ECLIPSE NDG MONTREAL

A full solar eclipse happened in the middle of the day, April 8th, 2024. Smartphone camera was left on automatic exposure.

https://www.youtube.com/watch?v=25n-P4GG0hc&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=1

2. DEER WALKING THROUGH TOWN ASHLAND OREGON

Fearless deer family do not react to my approach. The fawns were very attentive to their mother's movements. The doe had no qualms about me being close and philmimg.

https://www.youtube.com/watch?v=IUKlqmuLSyw&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=2

3. OIL RESERVOIRS AT SAULT-ST-MARIE ONTARIO

On my way back from Oregon, I booked a motel room in Sault-Saint-Marie, a border town on the Ontario and Michigan international border. Nearby a refinery is humming away with low volume industrial noises.

https://www.youtube.com/watch?v=wpryAgHdxGM&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=3

4. ANTS WORKING IN JAVEA GARDEN

I cellphilmmed a colony of ants move food and materials to their nest in our Spanish garden,

https://www.youtube.com/watch?v=dxvT_JO420A&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=4

5. BIRD CALLS OUT THROUGH BEDROOM WINDOW

I am woken up every morning at the break of dawn by the calls of the Eurasian Blackbird. I cellphilm through the window its calls.

https://www.youtube.com/watch?v=sNlyEhubqKY&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=5

6. MATING EGYPTIAN GRASSHOPERS ON FRANGIPANI

A couple of grasshoppers mating on the stem of the frangipani tree.

https://www.youtube.com/watch?v=w8qMX2UknWk&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=6

7. JAVEA ARENAL SWALLOWS FEEDING FRENZY

In a Javea park hundreds of swallows are dancing in a frenzy of feeding.

https://www.youtube.com/watch?v=_n3Od7kUIV0&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=7

8. RARE SUMMER RAIN ON DISTORTED WINDOW
A short cellphilm out the window of a dry summer's sudden rainfall.

https://www.youtube.com/watch?v=8ExK65NaJ0c&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=8

9. FESTIVITIES FIRECRACKERS FOR FUOCO WEEKEND JAVEA XABIA
Went at night into Javea because the festivities. I take a shot of sunset in a park. School children are chattering in a school yard dinner under the trees next to the park. There are firecrackers constantly crackling.

https://www.youtube.com/watch?v=ClfznsBd61w&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=9

10. PUBLIC BULL RUN JAVEA XABIA
Bull running in a large community arena surrounded by onlookers and prospective amateur toreadors.

https://www.youtube.com/watch?v=f3UbmuVpiaE&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=10

11. FISH IN MARINA AT MOREIRA
Hundreds of recreational boats and yachts waiting to be used for a few days each summer. The water looks murky, and the bottom of the seabed is full of fish.

https://www.youtube.com/watch?v=zOtWoJJEIlo&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=11

12. FUOCO FIRE DANCE JAVEA/XABIA
A cellphilm depicting the cheerfulness and dancing and singing, around a bonfire while fire-fighters shower the merrymakers with water.

https://www.youtube.com/watch?v=_tOzIu_YjMs&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=12

13. PREPARING FOR SAGO PALM SEED PLANTING
The preparation of the earth and the planting of new Sago palm seedlings.

https://www.youtube.com/watch?v=di2Cw3UtYII&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=13

14. WALK THROUGH THE GARDEN IN JAVEA/XABIA

Woke up early with the sound of a dove and decided to walk through the garden and see how the fruit trees were doing.

https://www.youtube.com/watch?v=DSEymlKrkUM&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=14

15. NIGHT VISIT TO THE QUEEN OF THE NIGHT

Walk at night in garden reveals flowering queen of the night, a displaced non-native species.

https://www.youtube.com/watch?v=ORi2V4eRyZ0&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=15

16. BIRDS FEEDING ON SUNFLOWER

Hidden smartphone cellphilmg finches eating from our sunflower garden.

https://www.youtube.com/watch?v=Afr8XQYp9-Q&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=16

17. RESTING UNDER THE FIG AND POMEGRANATE TREES

I lie under the fig tree and cellphilm the fruit remembering childhood.

https://www.youtube.com/watch?v=Gc9a0bs-E7w&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=17

18. PERROQUETS HIDING FROM HELICOPTER SOUND

Edit of several shots of Monk parakeets nesting and hiding from local helicopter takeoff.

https://www.youtube.com/watch?v=Csl4kIi0cQg&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=18

19. GECKO ESCAPING FLOOR VARNISHING

This particular day many Geckos were on the run from the fumes that I created when I painted varnish. Two shot edit.

https://www.youtube.com/watch?v=35rRYKOHQV4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=19

20. RIVER MEETS MEDITERRANEAN BATHERS

This is a montage cellphilm of a few shots taken on the intersection of the local small river, the rio Gorgos, the man-made saltwater canal and the Mediterranean Sea - Plastic everywhere.

https://www.youtube.com/watch?v=fr-P7f8N6Fg&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=20

21. FILMING CAMERA FILMING GRAPE PICKING

This was an attempt at putting my more-than-human smartphone as the star of the show in gratitude for a couple of months of excellent filming performance.

https://www.youtube.com/watch?v=UDgL_NS5L0U&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=21

22. PERFORMING EXTREME MOSQUITO SPRAYING

Spraying mosquitoes in the patio as a performative act.

https://www.youtube.com/watch?v=LNWvpgs6OiI&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=22

23. WATER FROM RAIN CISTERN FEEDS CITRUS TREES

Once a week the citrus trees need deep irrigation water from our cistern water reserve.

https://www.youtube.com/watch?v=I0JUffdOaRE&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=23

24. HOOPER THE DOG FETCHES BALL UPON REQUEST

Playing with hooper, the neighbour's sheep dog was always a pleasure.

https://www.youtube.com/watch?v=jfqcxpZcg3k&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=24

25. OLDEST MILLENIAL OLIVE TREE IN TOWN

This millennial olive tree has been cared for by many families. This year, the tree survived a recent bushfire in the nearby valley that destroyed many orange orchards and vineyards.

https://www.youtube.com/watch?v=d-S9Va2Z7_E&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=25

26. WATER TREATMENT PLANT AT DENIA HOSPITAL

This water filtration plant uses osmosis and is situated next to the hospital in a nearby town.

https://www.youtube.com/watch?v=7N_XVnT5K5Y&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=26

27. HOLDING SEDATED FATHER'S HAND IN HOSPITAL

In the last month of my Father's life, he spent two weeks in hospital sedated.

https://www.youtube.com/watch?v=jUZ98w_hOyk&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=27

28. FOURTH FIRE THIS YEAR IN NEARBY MONGO PARK

I hear the helicopters and fire trucks arriving. Second fire in the Mongo Park within two months.

https://www.youtube.com/watch?v=VDf2QaqK-Jc&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=28

29. NEW COMMUTER TRAIN BETWEEN DENIA AND ALICANTE
Watching the train go by at the intersection. This new public transportation line is aiming to reduce traffic on the coast.

https://www.youtube.com/watch?v=n-DhbAC8BM4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=29

30. YEARS OF TOSCA STONE EXTRACTION AND OVERHEATED SEAGULLS
chisel marks in this old Tosca mine (seashore excavation site). The heat and the beaches overpopulation in this midsummer day pushes the seagulls to huddle on the Tosca shore struggling away from the crowds.

https://www.youtube.com/watch?v=20c5--uKcro&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=30

31. STANSTEAD GARDEN HARVEST AT BIO FARM
The abundance of fruit at this time of year just before the first frost made the visit and harvest an adventure in cellphilmimg a bio farmer's garden work.

https://www.youtube.com/watch?v=KbiqGdDm7L0&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=3

32. BEEFALO FEEDING ON GARDEN PLANTS
Every year I feed the apples and cabbage from the garden to the local family of beefalo.

https://www.youtube.com/watch?v=IKrjayCHsdU&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=32

33. CATERPILLAR DAMAGED PLUM TREE
Caterpillars had eaten all the leaves on my wild plum tree but not any other neighbouring plant.

https://www.youtube.com/watch?v=me4IUto6gtM&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=33

34. BACK YARD GARDEN AUTUMN VISIT
A visit through the backyard garden brings me to the sumac tree. grows fast and spreads, invasively. I reach out to the seed pods. Flowers and bumblebees are still active.

https://www.youtube.com/watch?v=_y3Kh4skjcs&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=34

35. VISIT TO THE LOCAL RIVER PARK
For the past twenty years I have taken this path for evening walks along the Tomifobia river.

https://www.youtube.com/watch?v=aHk7eCVvVeA&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=35

36. STANHENGE

The rays emanating in the garden surrounding the Stanhenge were to be planted with local wild plants, flowers and medicinal roots such as milkweed. This is a two shot edit.

https://www.youtube.com/watch?v=k7ID2TO14P8&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=36

37. TRACKING A CATERPILLAR WALK

A caterpillar takes a walk in the garden. I follow it with my camera as it heads to hide in the horseradish bush.

https://www.youtube.com/watch?v=UsKTpDVf-MA&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=37

38. SOUND FROM PLAYING CRYSTAL BOWLS

The sound of crystal bowls played by a friend at a local sound bath holistic center in Rock Island.

https://www.youtube.com/watch?v=i3fbH5XT2s4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=38

39. LOCAL AIRPORT BBQ MEET FOR SMALL PLANES

This cellphilm shows the landing and taking off of airplanes at a gathering of small airplane enthusiasts for the local yearly bio-beefalo hamburger BBQ – Stanstead airport Quebec. A two shot edit.

https://www.youtube.com/watch?v=7fdJw3j4t8c&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=39

40. NEST MADE PARTIALLY OF PLASTIC FOUND WHILE TRIMMING BUSH

As I was trimming the Forsythia bush when I found what looks like a robin's nest or maybe a blackbird's nest full of plastic weaved into the structure.

https://www.youtube.com/watch?v=177ACbgQQx4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=40

41. WATCHING SUNSET AT MOUNT ROYAL LOOKOUT

I look out at Montreal during sunset through the window of the mountain lodge. We hear the people inside visiting the lodge.

https://www.youtube.com/watch?v=1-TgWGe_Kz4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=41

42. LEAVING MOUNT ROYAL PARK AT NIGHT

A path emerging from the 'forest' that I often took during my university years at McGill heading home at night from my classes towards Park extension.

https://www.youtube.com/watch?v=8IXd4rCgDA4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=42

43. SPIDER ON ELEVENTH FLOOR BUILDING WEB

On the eleventh floor in a nun's island loft apartment, an out of focus spider manages to build its web outside the glass windowpanes.

https://www.youtube.com/watch?v=BngjJ9zJVfA&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=43

44. NEW SUBURBAN TRAIN FROM BROSSARD

Return trip from Nun's Island on the suburban metro line REM into downtown Montreal at night.

https://www.youtube.com/watch?v=gIx4jZXDjV8&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=44

45. CHILDREN LED OUT OF A PLASTIC PARK

Children led like cattle out of a playground made entirely of petrochemical products in a borough of Montreal.

https://www.youtube.com/watch?v=RLbWXZ_CDo&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=45

46. PUTTING BACK A RETAINING WALL ON TOMIFOBIA RIVER IN ROCK ISLAND
Stones are being placed and cement poured near the bank. The amount of water this summer due to global warming has caused the river to tear down support walls in the downtown area of Stanstead.

https://www.youtube.com/watch?v=LCcu7upIs1g&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=46

47. YEARS OF GRANITE EXTRACTION IN OGDEN - ANNÉES D'EXTRACTION DE GRANIT À OGDEN

Extraction in one of the largest granite mines in Canada. The mine produces a grey stone called Stanstead grey.

https://www.youtube.com/watch?v=vKoYRqxGElI&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=47

48. CROSSING THE ATLANTIC FROM MONTREAL TO BARCELONA

Flying over *la ville lumière* Montréal heading to Spain and landing in Barcelona. Three shot edit.

https://www.youtube.com/watch?v=oCjs0k-E-aU&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=48

49. EXCAVATION OF ELECTRICAL WIRING IN BARCELONA

A complex array of cables uncovered during repairs in the main square of Barcelona.

https://www.youtube.com/watch?v=dPIYOSyqgHc&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=49

50. REGROWTH AFTER LAST YEAR'S FIRE IN PEGO HILLS IN ALICANTE PROVINCE

Many plants regenerating after a vast forest fire decimated the vegetation in the windy mountain tops west of Pego, Spain. Montage of photos and a pan.

https://www.youtube.com/watch?v=_K8I23lN6o4&list=PLf9EH7EAN1JLQPLnV5Q7bhgTn8y_bogq1&index=50

APPENDIX 3

Diary Table of Contents



Table of Contents

Thesis Diary and Research Data	9
PHD CLASSES DIARY and PREP NOTES - September 26th 2022 – December 30th 2022	9
September 4 th 2022 – Proposed Thesis	9
September 16 th 2022 – Theorizing and creating with research.....	9
September 26 th 2022 – Diary Introduction	10
October 27 th 2022 – original proposal.....	11
October 28 th 2022 – How and what to write in my diary	12
October 29 th 2022 – Performativity.....	14
October 30 th 2022 – Bringing into the research the senses.....	16
October 31 st 2022 – Using my cellphone	16
November 3 rd 2022 – More senses.....	17
November 4 th 2022 – A class project filming performance and the sensorial.....	17
November 7 th 2022 – Ethics and the failure to convince one participant.....	17
November 9 th 2022 – Recognizing the pace of research	18

November 11 th 2022 – Reflections on first class cellphilm project	18
November 14 th 2022 – Viewing the cellphilm	19
November 15 th 2022 – Viewing the cellphilm again.....	19
November 16 th 2022 – Anxiety after viewing the cellphilm again	20
November 20 th 2022 – How to take notes from the cellphilm	20
November 21 st 2022 – Contacting the participants for feedback.....	21
November 23 rd 2022 – Afterthoughts end of semester	21
December 23 rd 2022 – Last comments on the Seminar.....	21
PRE-PROPOSAL DIARY NOTES - January 23rd 2023 – December 30th 2023 21	
January 26 th 2023 – Who, when, what, why and where am I.....	21
February 4 th 2023 – Reflection on the last entry.....	25
February 15 th 2023 – Autoethnography a confirmation!.....	27
February 28 th 2023 - Civics for Early Schooling.....	27
March 8 th 2023 – Kinship as holistic pedagogy inclusive of the more-than-human	28
March 19 th 2023 – Teaching kin with:to:for Children	30
March 29 th 2023 – A mount of doubt.....	31
April 11 th 2023 – Final entry for this term	32
April 12 th 2023 – Description of research for the university.....	32
May 24 th 2023 – Examen doctoral started this week	33
August 7 th 2023 – Examen doctoral handed in.....	36
NOTES DURING SEMINARS - September 3rd 2023 – December 27th 2023 38	
September 12 th 2024 – First course Thèse 2 – the influencers give feedback.....	38
PROPOSAL DIARY NOTES - January 23rd 2024 – April 27th 2024 38	
January 19 th 2024 – First course Thèse 2 – the influencers give feedback	38
February 24 th 2024 – The thesis question version	39
April 7 th 2024 – The thesis question final version at the end of these 2	42
PRE-RESEARCH CELLPHILMING DIARY NOTES - April 8th 2024 – May 22th 2024 45	
April 8 th 2024 – Eclipse	47
First pre-research cellphilm shoot - Eclipse Glenn yards Montreal.....	47
April 8 th 2024 – Hospital examination.....	48
April 14 th 2024 – Wind solar farms.....	48
April 14 th 2024 – Sunset on Interstate	49

April 15 th 2024 – Rain on windshield.....	49
April 18 th 2024 – Sage fields in crater.....	50
April 19 th 2024 – Various Flowers on Trees.....	50
April 19 th 2024 – Deer in Park.....	51
Eighth pre-research cellphilm shoot - Deer in park, Ashland, Oregon.....	51
April 20 th 2024 – Night blooming tree.....	52
April 21 st 2024 – Walking in green zone pollinator habitat.....	53
April 22 nd 2024 – Trees and peak in snow.....	53
April 23 rd 2024 – Sunset in the American prairies.....	53
April 24 th 2024 – Play with light.....	54
April 24 th 2024 – Lake Superior.....	54
April 24 th 2024 – Crossing border.....	55
April 24 th 2024 – Oil Refinery.....	55
Sixteenth pre-research cellphilm shoot - Oil refinery by night.....	55
April 25 th 2024 – Frosty motel.....	56
April 25 th 2024 – Gas station.....	56
May 1 st 2024 – Planting tree.....	57
Eighteenth pre-research cellphilm shoot - City plants tree in Rue Cartier.....	57
May 22 nd 2024 – Lightning on the twenty – EUREKA!.....	57
PRE-RESEARCH DIARY NOTES - April 27th 2024 – May 30th 2024 59	
April 27 th 2024 – Holistic conference Oregon USA.....	59
May 11 th 2024 – table of contents thesis proposal oral presentation.....	59
May 27 th 2024 – Thesis proposal oral defense presentation notes.....	60
Problematics.....	61
Conceptual and Theoretical Framework.....	62
Methodology.....	62
Conclusion.....	64
May 28 th 2024 – Thesis proposal oral defense after-thoughts and jury response.....	65
RESEARCH DIARY DATA ENTRIES and NOTES - June 1st 2024 – September 30th 2024 66	
May 30 th 2024 – WEEK 1 - DAY 1 – Where to begin.....	66
June 1 st 2024 – WEEK 1 - DAY 2 – First cellphilms list.....	66
A first draft list of the 30 (later changed to 50) cellphilms to be attempted.....	66
June 2 nd 2024 – WEEK 1 - DAY 3 – preparing for cellphilms Praxis.....	67

June 3 rd	2024 – WEEK 1 - DAY 4 – Ecopedagogy themes	68
June 4 th	2024 – WEEK 1 - DAY 5 – Choosing first ecopedagogic theme to first cellphilms... ..	69
June 5 th	2024 – WEEK 1 - DAY 6 – one shot	69
	First cellphilms shoot - Fires on the mongo. Canada water plane extinguish fire.	70
June 6 th	2024 – WEEK 1 - DAY 7 – One shot	70
June 7 th	2024 – WEEK 2 - DAY 1 – One shot	71
	Second cellphilms shoot – ant march	72
June 8 th	2024 – WEEK 2 - DAY 2 – One shot	73
	Third cellphilms shoot – bird sounds through bedroom widow	74
June 9 th	2024 – WEEK 2 - DAY 3 – One shot	77
	Fourth cellphilms shoot – Mating grasshoppers.	78
June 10 th	2024 – WEEK 2 - DAY 4 – No shot	79
June 11 th	2024 – WEEK 2 - DAY 5 – Two shots	80
	Sixth cellphilms shoot – shot of flock of swallows before rain eating insects.	81
June 12 th	2024 – WEEK 2 - DAY 6 – One shot	82
	seventh cellphilms shoot – heavy rain through window.	83
June 13 th	2024 – WEEK 2 - DAY 7 – No shot	84
June 14 th	2024 – WEEK 3 - DAY 1 – One shot	85
June 15 th	2024 – WEEK 3 - DAY 2 – One shot	86
	Ninth cellphilms shoot – driving out of Javea by Mongo.....	86
June 16 th	2024 – WEEK 3 - DAY 3 – No shot	87
June 17 th	2024 – WEEK 3 - DAY 4 – One shot	87
	Tenth cellphilms shoot – watermain into house	88
June 18 th	2024 – WEEK 3 - DAY 5 – Four shots	89
	Eleventh cellphilms shoot – Park shot	89
	Twelfth cellphilms shoot – start of festivities in park	90
	Thirteenth cellphilms shoot – Bull run.	90
June 19 th	2024 – WEEK 3 - DAY 6 – One shot	92
June 20 th	2024 – WEEK 3 - DAY 7 – One shot	93
June 21 st	2024 – WEEK 4 - DAY 1 – One shot.....	94
	Seventeenth cellphilms shoot – Moreira marina and fish	95
June 22 nd	2024 – WEEK 4 - DAY 2 – No shot.....	96
June 23 rd	2024 – WEEK 4 - DAY 3 – Two shots	96

Comment: Also started using a second camera with better resolution	96
Nineteenth cellphilms shoot – Fuoco fires	97
June 24 th 2024 – WEEK 4 - DAY 4 – One shot	98
June 25 th 2024 – WEEK 4 - DAY 5 – One shot	99
Twenty-first cellphilms shoot – PREPARING FOR SAGO SEED PLANTING Hand working the humus	100
June 26 th 2024 – WEEK 4 - DAY 6 – No shot	101
June 27 th 2024 – WEEK 4 - DAY 7 – No shot	101
June 28 th 2024 – WEEK 5 - DAY 1 – One shot	102
Twenty-second cellphilms shoot – WALK THROUGH OUR GARDEN/JAVEA – long take ..	103
June 29 th 2024 – WEEK 5 - DAY 2 – No shot	104
June 30 th 2024 – WEEK 5 - DAY 3 – No shot	104
July 1 st 2024 – WEEK 5 - DAY 4 – No shot	105
Beginning of second month of research.	105
July 2 nd 2024 – WEEK 5 - DAY 5 – Single shoot	105
July 3 rd 2024 – WEEK 5 - DAY 6 – One shot	107
July 4 th 2024 – WEEK 5 - DAY 7 – One shot	109
July 5 th 2024 – WEEK 6 - DAY 1 – Double shot	111
July 6 th 2024 – WEEK 6 - DAY 2 – One shot	113
July 7 th 2024 – WEEK 6 - DAY 3 – Double shot	115
Thirtieth cellphilm shoot - Queen of the night first attempt	116
July 8 th 2024 – WEEK 6 - DAY 4 – Triple shot	117
July 9 th 2024 – WEEK 6 - DAY 5 – One shot	122
Thirty fourth cellphilm shoot - second attempt at bird in sunflower bush successful	123
July 10 th 2024 – WEEK 6 - DAY 6 – One shot	124
July 11 th 2024 – WEEK 6 - DAY 7 – Double shot	127
July 12 th 2024 – WEEK 7 - DAY 1 – One shot	129
July 13 th 2024 – WEEK 7 - DAY 2 – No shot	130
July 14 th 2024 – WEEK 7 - DAY 3 – No shot	132
July 15 th 2024 – WEEK 7 - DAY 4 – Double shot	132
Thirty ninth cellphilm shoot - Lying under a fig tree	134
July 16 th 2024 – WEEK 7 - DAY 5 – One shot	136
Forty first cellphilm shoot - Palm tree leaves and trunk Beetle	136

July 17 th	2024 – WEEK 7 - DAY 6 – One shot.....	138
Forty second cellphilm shoot - PERROQUETS HIDING FROM HELICOPTER SOUND....		138
July 18 th	2024 – WEEK 7 - DAY 7 – No shot.....	140
July 19 th	2024 – WEEK 8 - DAY 1 – single shot.....	141
July 20 th	2024 – WEEK 8 - DAY 2 – One shot.....	142
Forty fourth cellphilm shoot - Javea marina boats.....		143
July 21 st	2024 – WEEK 8 - DAY 3 – No shot.....	143
July 22 nd	2024 – WEEK 8 - DAY 4 – No shot.....	143
July 23 rd	2024 – WEEK 8 - DAY 5 – single shot.....	143
July 24 th	2024 – WEEK 8 - DAY 6 – No shot.....	146
July 25 th	2024 – WEEK 8 - DAY 7 – single shot.....	147
Forty seventh cellphilm shoot - Gecko.....		148
July 26 th	2024 – WEEK 9 - DAY 1 – No shot.....	149
July 27 th	2024 – WEEK 9 - DAY 2 – Triple shot.....	149
Forty eighth cellphilm shoot - Javea beach bathers.....		150
Forty ninth cellphilm shoot - River meets sea.....		151
July 28 th	2024 – WEEK 9 - DAY 3 – No shot.....	153
July 29 th	2024 – WEEK 9 - DAY 4 – Triple shot.....	153
Fifty first cellphilm shoot - smartphone shooting smartphone shooting grapes.....		157
Fifty second cellphilm shoot - spraying mosquitos.....		160
Fifty third cellphilm shoot - Closeup Olympic coverage on TV.....		162
July 30 th	2024 – WEEK 9 - DAY 5 – No shot.....	162
July 31 st	2024 – WEEK 9 - DAY 6 – No shot.....	163
August 1 st	2024 – WEEK 9 - DAY 7 – One shot.....	164
Beginning of third month of research.....		164
August 2 nd	2024 – WEEK 10 - DAY 1 – No shot.....	165
August 3 rd	2024 – WEEK 10 - DAY 2 – No shot.....	165
August 4 th	2024 – WEEK 10 - DAY 3 – One shot.....	166
Fifty fifth cellphilm shoot - Orange grove irrigation.....		166
August 5 th	2024 – WEEK 10 - DAY 4 – No shot.....	167
August 6 th	2024 – WEEK 10 - DAY 5 – Double shot.....	168
Fifty seventh cellphilm shoot - Dining room pendulum clock.....		170
August 7 th	2024 – WEEK 10 - DAY 6 – No shot.....	171

August 8 th	2024 – WEEK 10 - DAY 7 – Two shots.....	171
August 9 th	2024 – WEEK 11 - DAY 1 – One shot.....	173
August 10 th	2024 – WEEK 11 - DAY 2 – Six shots.....	174
	Sixty fourth cellphilm shoot - Hooper fetches ball.....	180
	Sixty fifth cellphilm shoot - Banana tree flowers.....	181
	Sixty sixth cellphilm shoot - Fig and papyrus.....	182
August 11 th	2024 – WEEK 11 - DAY 3 – Single shot.....	182
August 12 th	2024 – WEEK 11 - DAY 4 – No shot.....	186
August 13 th	2024 – WEEK 11 - DAY 5 – One shot.....	186
August 14 th	2024 – WEEK 11 - DAY 6 – Four shot.....	187
	Seventieth cellphilm shoot - Rain in deck.....	188
August 15 th	2024 – WEEK 11 - DAY 7 – Two shots.....	189
August 16 th	2024 – WEEK 12 - DAY 1 – Five shots.....	193
	Seventy seventh cellphilm shoot - Thousand year old olive tree.....	196
	Seventy ninth cellphilm shoot - Water recycling plant at hospital in la Xara.....	201
August 17 th	2024 – WEEK 12 - DAY 2 – One shot.....	201
	Eightieth cellphilm shoot - Holding father’s hand in hospital.....	202
August 18 th	2024 – WEEK 12 - DAY 3 – One shot.....	203
August 19 th	2024 – WEEK 12 - DAY 4 – Double shots.....	204
	Eighty second cellphilm shoot - Fire on mongo.....	205
	Eighty third cellphilm shoot - Commuter train passes through intersection and drive away....	206
August 20 th	2024 – WEEK 12 - DAY 5 – triple shot.....	208
August 21 st	2024 – WEEK 12 - DAY 6 – No shot.....	210
August 22 nd	2024 – WEEK 12 - DAY 7 – One shot.....	210
August 23 rd	2024 – WEEK 13 - DAY 1 – No shot.....	211
August 24 th	2024 – WEEK 13 - DAY 2 – Triple shot.....	211
	Eighty ninth cellphilm shoot - Walking through Tosca extraction mining site.....	213
	Ninetieth cellphilm shoot - Seagulls isolated away from people open mouths 37C.....	214
August 25 th	2024 – WEEK 13 - DAY 3 – One shot.....	215
August 26 th	2024 – WEEK 13 - DAY 4– No shot.....	215
August 27 th	2024 – WEEK 13 - DAY 5 – Three shots.....	216
August 28 th	2024 – WEEK 13 - DAY 6 – One shot.....	218
	Ninety fifth cellphilm shoot - Taxi stands and editing on computer Valencia airport.....	220

August 29 th	2024 – WEEK 13 - DAY 7 – Four shot.....	220
August 30 th	2024 – WEEK 14 - DAY 1 – No shot	224
August 31 st	2024 – WEEK 14 - DAY 2 – One shot	224
September 1 st	2024 – WEEK 14 - DAY 3 – No shot	227
Beginning of fourth month of research.		227
September 2 nd	2024 – WEEK 14 - DAY 4 – No shot	227
September 3 rd	2024 – WEEK 14 - DAY 5 – No shot.....	227
September 4 th	2024 – WEEK 14 - DAY 6 – Three shot.....	227
September 5 th	2024 – WEEK 14 - DAY 7 – Three shot.....	231
One hundredth and fifth cellphilm shoot - Picking carrots, apples and cantaloup		234
One hundredth and sixth cellphilm shoot - moment after feeding cattle over fence		237
September 6 th	2024 – WEEK 15 - DAY 1 – Two shot.....	238
One hundred and seventh cellphilm shoot - Moth damaged wild plum tree		240
comment:		241
September 7 th	2024 – WEEK 15 - DAY 2 – Two shot	241
One hundred and nineth cellphilm shoot - Sumak and flowers		244
September 8 th	2024 – WEEK 15 - DAY 3 – No shot.....	245
September 9 th	2024 – WEEK 15 - DAY 4 – Five shot.....	245
One hundred and tenth cellphilm shoot - Walk to river in fall vegetation		250
One hundred and eleventh cellphilm shoot - Stanhenge		251
One hundred and fourteenth cellphilm shoot - border crossing		259
September 10 th	2024 – WEEK 15 - DAY 5 – One shot.....	259
September 11 th	2024 – WEEK 15 - DAY 6 – No shot.....	260
September 12 th	2024 – WEEK 15 - DAY 7 – Two shots.....	260
One hundred and sixteenth cellphilm shoot - Caterpillar walk		261
One hundred and seventeenth cellphilm shoot - Crystal bowl sounds		262
September 13 th	2024 – WEEK 16 - DAY 1 – No shot.....	262
September 14 th	2024 – WEEK 16 - DAY 2 – Four shots.....	262
One hundred and twenty first shoot - Airplanes landing and taking off at local airport BBQ gathering		264
September 15 th	2024 – WEEK 16 - DAY 3 – No shot.....	265
September 16 th	2024 – WEEK 16 - DAY 4 – No shots	265
September 17 th	2024 – WEEK 16 - DAY 5 – No shot.....	265

September 18 th	2024 – WEEK 16 - DAY 6 – No shot.....	265
September 19 th	2024 – WEEK 16 - DAY 7 – One shot.....	265
	One hundred and twenty second cellphilm shoot - Finding nest as I am cutting a Forsythia hedge 266	
September 20 th	2024 – WEEK 17 - DAY 1 – No shots	267
September 21 st	2024 – WEEK 17 - DAY 2 – Six shots	267
	One hundred and twenty sixth cellphilm shoot - WATCHING SUNSET AT MOUNT ROYAL LOOKOUT	269
	One hundred and twenty eighth cellphilm shoot - walking out of mount Royal park at night ..	270
September 22 nd	2024 – WEEK 17 - DAY 3 – No shot	271
September 23 rd	2024 – WEEK 17 - DAY 4 – No shot.....	271
September 24 th	2024 – WEEK 17 - DAY 5 – No shot.....	271
September 25 th	2024 – WEEK 17 - DAY 6 – No shots	271
September 26 th	2024 – WEEK 17 - DAY 7 – One shot.....	271
September 27 th	2024 – WEEK 18 - DAY 1 – Three shots.....	272
	One hundred and thirty first cellphilm shoot - Spider building web outside 11th floor Highrise	272
	One hundred and thirty second cellphilm shoot - - REM at night. cityscape	273
	Comment:	274
September 28 th	2024 – WEEK 18 - DAY 2 – One shot.....	274
September 29 th	2024 – WEEK 18 - DAY 3 – One shot.....	275
September 30 th	2024 – WEEK 18 - DAY 4 – No shot.....	276
	Beginning of fifth month of research.	276
October 1 st	2024 – WEEK 18 - DAY 5 – One shot	276
	One hundred and thirty fifth cellphilm shoot - Children led out of plastic playground	276
October 2 nd	2024 – WEEK 18 - DAY 6 – One shot	277
	One hundred and thirty sixth cellphilm shoot - River wall bank construction Rock Island	277
October 3 rd	2024 – WEEK 18 - DAY 7 – One shot.....	278
	One hundred and thirty seventh cellphilm shoot - Granite Mine	278
October 4 th	2024 – WEEK 19 - DAY 1 – Two shot	279
	One hundred and thirty eighth cellphilm shoot - Take off from YUL at night	279
	Comment:	280
October 5 th	2024 – WEEK 19 - DAY 2 – Two shot	280
	One hundred and fortieth cellphilm shoot - clouds cover over mid Atlantic early daybreak	280

October 6 th 2024 – WEEK 19 - DAY 3 – Five shots.....	282
One hundred and forty second cellphilm shoot - Barcelona Abandoned prison	282
One hundred and forty third cellphilm shoot - Barcelona network of electrical and media cables 282	
October 7 th 2024 – WEEK 19 - DAY 4 – Three shots.....	285
One hundred and forty seventh cellphilm shoot - The Airport -Mimicking the cattle walk for scanning.....	285
October 8 th 2024 – WEEK 19 - DAY 5 – No shot.....	286
October 9 th 2024 – WEEK 19 - DAY 6 – One shots.....	287
One hundred and fiftieth cellphilm shoot - Mountain forest fire Pego	287
October 10 th 2024 – WEEK 19 - DAY 7 – One shot.....	287
October 31 st 2024 - The final list.....	288
CELLPHILM FINAL SELECTION	288

THESIS WRITING FIRST DRAFT - November 1st 2024 – February 15th 2025 290

November 1st 2024 – Viewing the final selection of cellphilmimg again Today	290
November 3rd 2024 – Setting up website and compressions for final 50 cellphilms.....	290
November 4th 2024 – Invitation sent to 75 participants for feedback deadline	290
November 18th 2024 – Reminder sent midway for feedback deadline	290
November 19th 2024 – Conversation with Librarian regarding formatting thesis APA7	290
December 2 nd 2024 – Chapter 1	290
December 10 th 2024 – Chapter 2	290
December 23 rd 2024 – Chapter 3	290
January 16 th 2025 – First Three Chapters sent to Advisor Prof. Stewart.....	290
January 25 th 2025 – Chapter 4	290
February 4 th 2025 – Chapter 5	290
February 15 th 2025 – Chapter 6	290
February 29 th 2025 – Chapter 7	290
March 9 th 2025 – Chapter 8.....	290
May 19 th 2025 – First draft sent in to advisor.....	290

APPENDIX 4

Sample Diary Entry

One example of post screening reflexive notes that were made in my diary for one cellphilm:

1. SOLAR ECLIPSE NDG MONTREAL - Edited down two shots – 2:42 min

April 8th 2024 – Eclipse

First pre-research cellphilm shoot - Eclipse Glenn yards Montreal

REFLECTIONS

1. after the shoot:

A full solar eclipse happened in the middle of the day. Most people went out and looked at it. Cheers were heard throughout the city when the eclipse was in full mode. The temperature decreased and the sky was dusk like, but more diffused and eerie. The birds did stop singing and so did the crowds. The light change was fast. Crowds headed back to work soon after. The atmosphere is about the feelings and vibes that come before we even try to describe a place or moment.

2. after my first re-viewing:

I left the camera on automatic mode and had it participate according to its own operational settings. So, the exposure kept on changing. It was a pleasure to see the camera react erratically as the sky darkened and came back to a normal afternoon sunny day. The atmosphere is about the feelings and vibes that come before we even try to describe a place or moment. The way bodies move and interact with their surroundings created powerful moods .

3. while assessing a final selection:

This should be included in the final selection as it has many facets that can be discussed in the final dissertation including, agency, use of technology, aesthetics qualities, the effects of the more-than-

human sun upon the planet (temperature and light change) , the viewers response of awe, my thrilled reaction. These all can tie in with ecopedagogy and autoethnographic philmimg.

4. upon choosing final Fifty:

This is a definite choice as it has potential for describing the cellphilmimg process as a MTH interactant and its ramifications on being an entity under the sun's glare. When someone adjusts the light, focus, and shutter speed on a camera, they're not just making technical tweaks - they're shaping the mood and feeling of the moment. These choices help create an "atmosphere" that connects what's happening in front of the camera with people who see the photo or video later, even if they're far away.

5. after screening or posting online:

Reactions were full of awe. People watching the eclipse experienced a mix of emotions and sensations. Many felt awe, wonder, and a sense of magic at witnessing such a rare event. There was nostalgia and excitement, but also unease and vulnerability, as the unusual light and silence created a mysterious, almost eerie atmosphere. Some felt deeply connected to their surroundings and the people with them, sharing intense emotional moments, while others felt a bit disconnected or puzzled by how others reacted - like cheering or applauding something so vast and uncontrollable. Overall, people loved the beauty and uniqueness of the experience, the sense of being part of something bigger, and the powerful feelings it stirred - ranging from joy and amazement to humility and even a little fear in the face of nature's grandeur.

Comment for selection:

Select: Engaging with the multiple layers of more than humans such as the sun, the ear's shadow, the camera's exposure changes, the silence of the birds and the awe of the onlookers provides a clear perspective on the multi-relationality between beings and other entities.

ENDNOTES

ⁱ Indigenous in this inquiry is defined in the manner it is described by the UNICEF publication on Indigenous rights, see (Martínez Cobo, 1987, p. 29). A strict definition is seen as unnecessary and undesirable by many Indigenous peoples.

ⁱⁱ The Anthropocene is a geological epoch that marks a period in the planet's history shaped primarily by human activity. Eugene F. Stroemer is credited for coining the term Anthropocene in the late 70's. I use the term sparingly because I view it as anthropocentric. <https://www.scientificamerican.com/article/anthropocene-blue-influenza-panel-votes-to-recognize-earths-new-epoch/>

ⁱⁱⁱ Kyle Whyte's work on Indigenous climate justice (2020) examines how ongoing colonial violence exacerbates climate risks for Indigenous peoples, advocating for self-determination as central to equitable environmental futures. Bruno Latour's *Facing Gaia* (2017) reimagines Earth as an active, unstable entity that disrupts modern politics, urging entangled human and more-than-human responses to terrestrial crises. Denise Ferreira da Silva's *Toward a Black Feminist Poethics* (2014) dismantles Eurocentric logics of separation and disposability, fostering ethical practices that address racial violence through relational, non-linear thought. The *Dark Mountain Manifesto* (Kingsnorth et al., 2009) confronts Earth's ecological fate by rejecting progress narratives, promoting "uncivilised" art and stories to navigate collapse and loss. Lovelock's *Gaia Hypothesis* (1988) envisions Earth as a self-regulating system where life and environment co-evolve, challenging mechanistic views of planetary habitability.

^{iv} I use the term (un)sustainability with reservation at this time of the inquiry, notwithstanding the problematic discourses around the term sustainability that propagate economic value to Nature, and maintain re-colonizing discourses, to endure the species and to continue the impact of our human progress vis-à-vis the deterioration of the more-than-human. This has been addressed by several researchers in the last 30 years (Vos, 2007; Ciegis et al., 2009; Ramsey, 2015) and more recently regarding the Anthropocene (Keys et al., 2019; McPhearson et al., 2021). Using the bracketed term (un)sustainable reinforces that the issue is not binary but interdependent, and the practice is in constant dialectic engagement, with no single answer instilled with varying potentials, outcomes and complexities. Thus, the term must encompass environmental sustainability and (un)sustainable environmentalism, while both rooted in ecological concerns, represent distinct approaches to addressing environmental issues.

^v Kahn adds that "Frijtof Capra noted in the opening of his own founding ecological manifesto, *The turning point* (1984), that the Chinese ideogram for 'crisis' - *wei-ji* - is composed of the characters for 'danger' and 'opportunity'" (Kahn, 2010, p. 4)

^{vi} I refer to all environmental education in this dissertation under the umbrella term 'education of the environment' (EoE) as described by Misiaszek (2018), "to signify pedagogies about the environment either with or without the goal of environmentalism, as opposed to environmental pedagogies which have the expressed goal of environmentalism... Education of the environment is an umbrella term that includes environmental pedagogies. The overall goal of the education is an essential first goal, which can also be stated as deconstructing the politics of the education given in both learning spaces and in research" (p. 25).

^{vii} Misiaszek (2018) adds, "many environmental pedagogies in the Global North would benefit from contextually borrowing these ecopedagogies within more critical, contextual comparative education methods largely from the Global South... The critical question is what are the im/possibilities of true sustainability from local to global perspectives, as well as planetary" (pp. 24-26).

^{viii} The overarching term 'more-than-human' includes all entities that are not human, including living and non-living entities such as animals, plants, fungi, microorganisms, machines, digital interfaces, atoms, geological structures, water, air, planets, chaos, poems, keyboards, dreams, weather patterns, urban infrastructures and even thoughts. Sayes (2014) who defines the term nonhuman used by Latour in his publications on ANT, states: "What is excluded from the circumference of the term are humans, entities that are entirely symbolic in nature (Latour, 1993: 101), entities that are supernatural (Latour, 1992), and entities that exist at such a scale that they are literally composed of humans and nonhumans (Latour, 1993: 121, 1998)" (p. 136). In my definitions I agree with his list of exclusions and apply it to my definition of MTHs.

^{ix} I rely on the definition of kinship as presented by Haraway through Paszkiewicz et al., (2021): “kinship is both about ethical obligation (the praxis of care and response) and ontological interrelatedness: ‘Kin are those who can make claim on you and to whom you must respond’ (Haraway in Haraway and Segarra, 2019, p. 80)... proponents of which advocate that we have to learn to live and make kin—understood here as an entanglement of positive and negative affects—with all the dark aspects of our already irretrievably damaged planet, with all that we relegate to the margins or to no-man’s-land spaces, such as landfills or industrial, polluted zones, and the critters who inhabit these spaces” (Paszkiewicz et al., 2021).

^x Dockney and Tomaselli (2009) coined the term cellphilm by combining two words—cellphone and film—to describe the combination of multiple communication technologies in one device. (MacEntee et al., 2016a, p. 1) Cellphilm is short videos created entirely using mobile devices such as cellphones or tablets. Typically lasting between 1 to 4 minutes, these videos are designed to convey a specific message or respond to a prompt, often without extensive editing.

^{xi} Jickling and Wals (2008) have maintained that the term sustainability is inherently problematic since it suggests a persistent growth, which, in itself, is not sustainable (p. 2).^{xi}

^{xii} Humboldt’s *Weltansicht* is the precursor to the term worldview and is defined as “worldview as the fundamental and necessary processing of the world by the mind through the faculty of language” (Underhill, 2009, p. 16). Underhill adds: “A *Weltansicht* constitutes the individual form or nature of the language (but also, in a deeper sense, its meaning too). A worldview-as-*Weltansicht* is the capacity which language bestows upon us to form the concepts with which we think and which we need in order to communicate” (p. 56).

^{xiii} I refer to citizenship/belonging as a Lacanian point de capiton (an anchoring point) emerging as a unifying signifier produced by the human member of the human-MTH family of kin (Lacan & Miller, 1973, pp. 303–304). In addition, I maintain for this inquiry that citizenship is a subgenre of belonging and can easily be brought into the conversation when addressing human to human national, social and communitarian relationships of belonging. However, my perspective is new-materialist and posthumanist, and therefore must also include the relationship with the MTH and the intra-relationships that evolve from such a diffracted dynamic of affection.

^{xiv} Positive academic moods experienced by learners are capable of promoting valued learning (Boler, 1999; Knatz & Caomhánach, 2020; Pekrun, 2008).

^{xv} Affect has been shown to engage the human with MTH entities (Lorimer, 2013, p. 200; McCormack, 2013).

^{xvi} Humans are said to have five senses: sight, hearing, smell, taste, and touch. However, modern science recognizes many more. Depending on the definition, humans may have anywhere from 9 to over 20 senses, and some estimates go as high as 33 or even 53 if broader physiological and psychological experiences are included. For MTH animals, the number and types of senses can be even greater. Many animals possess senses that humans do not, such as the ability to detect magnetic fields, electrical fields, polarized light, or infrared radiation. Some animals have highly specialized versions of senses humans share, like tetrachromatic vision in certain birds, which allows them to see more colors than humans (Keeley & Matthen, 2014; Rørvang et al., 2020; Stevens, 2021; Brandt et al., 2024; Brebner et al., 2024). Non-human animals (the “more-than-humans”) possess all the basic senses found in humans, but many species have evolved additional, specialized senses that humans lack. Examples include: Electroreception (detection of electric fields, found in fish, sharks, and the platypus); Magnetoreception (detection of Earth’s magnetic field, found in birds, sea turtles, and some insects); Infrared detection (found in some snakes and insects); Echolocation (biological sonar, found in bats and cetaceans); Ultraviolet vision (found in many birds, insects, and some fish. The total number of senses in the animal, plant and microbial kingdom is therefore much larger than in humans, and the exact count depends on how modalities are defined and subdivided (Keeley & Matthen, 2014; Stevens, 2021; Munar-Palmer et al., 2024; Brandt et al., 2024; “Fundamentals of Biology I (Lumen),” 2025).

^{xvii} Jorgensen (2014) describes Dewey’s contribution: “Dewey’s theory of experience and nature can help educate a new generation of ecological thinkers—students who feel deeply, are committed to particular places and communities, and resist the abstractions of modern life”. (Jorgenson, 2016, p. 66)

^{xviii} I distinguish between world or earth as anthropocentric and World or Earth as inclusive of the MTH and intrinsically biocentric. This distinction from Deep ecologists (Naess, Carson, Brower) goes against the social Marxist ecologist critique of a false binary between the biocentrism and anthropocentrism, but is sufficient for my purposes (see Murray Bookchin, 2012). In environmental theory, the distinction between ‘world’ and ‘World’ often serves to differentiate between anthropocentric and ecocentric perspectives on humanity's relationship with the environment. The capitalized ‘World’ typically denotes a holistic, interconnected ecological system that emphasizes the intrinsic value of Nature independent of human-centered frameworks. This conceptualization challenges anthropocentrism and advocates for an ecological worldview that recognizes the complexity and inherent worth of the natural environment. Scholars such as Naess, Abrams and Merchant have contributed significantly to this discourse by advancing theories that foreground the interdependence of all living systems (Merchant, 2003; Naess & Drengson, 2005; Abram, 2010). Merchant who distinguishes the capitalized versions proposes a broader ecofeminist critique of patriarchal systems that have historically subordinated both women and Nature, advocated instead for a transformative ethic that integrates social justice with environmental sustainability.

^{xix} De-re-colonized refers to the active, reflexive dismantling of ongoing colonial structures and narratives, extending beyond decolonization through dynamic integration of Indigenous knowledges and relational practices to restore land sovereignty and cultural autonomy (Smith, 2022; Tuck & Yang, 2012). In ecopedagogy, this process challenges settler-colonial educational frameworks, fostering reciprocal place-based relationships with more-than-human kin that enact ethical transformation.

^{xx} The Nakba (Arabic for "catastrophe") refers to the 1948 violent displacement, dispossession, and destruction of Palestinian society, in which roughly 700,000 Palestinians were expelled or fled from their homes during the Arab-Israeli War, becoming refugees.

^{xxi} <https://theanarchistlibrary.org/library/anonymous-anarchafeminist-manifesto>

^{xxii} Published at Bishop's University May 2025.

^{xxiii} CREP, I define as an educational practice of consciously engaging with the radical, deeper meaning and practices of mundane everyday life by learning about shared sensory and affective belonging through ecopedagogies and critical thinking, collective emotions, empathy, the senses and self-reflexivities.

^{xxiv} I will be using MTH entities or MTHs in my inquiry as the distinctions between different usages in academic papers are not yet clear. Ducros explains, “Non-human, more-than-human, other-than-human, posthuman, transhuman, anti-human, multispecies, transspecies—all are terms that have been circulating in the humanities and social sciences, but have lacked clarity in their definitions, interpretations, purposes, uses, and range of application” (2021, p. 1).

^{xxv} Catala (2025) defines the term: “epistemic injustice occurs when an epistemic agent (i.e., a person who produces, uses, or transmits knowledge) is either not adequately believed or not adequately understood, that is, when they receive unduly diminished levels of credibility or intelligibility because they belong to a non-dominant group— and more precisely, because of biases stemming from power relations that adversely affect the epistemic agency of members of non-dominant groups. Due to the spread of English as a lingua franca in academia, a significant proportion of academic migrants are non-native English users” (p. 210).

^{xxvi} This inquiry acknowledged the important shift in environmental and ecological education that challenges world-Earth distancing by embracing integrated, technologically mediated, and ethically nuanced approaches to understanding human, more-than-human, and natural relationships as inseparable aspects of the planetary whole.

^{xxvii} Jukes (2023) nevertheless acknowledges the limitations in fully escaping anthropocentric framings and supports: “...Affifi's (2020) arguments that anthropocentrism (and nonanthropocentrism) comes in varying degrees, in what he calls a fluid binary: ‘What is considered nonanthropocentric in one way is always anthropocentric in another, and vice versa’ (p. 1437). In short, the fluidity of (non)anthropocentrism can fall into what Gough (2016) describes as an irreducible anthropocentrism, despite the extension of both thought and biophysical limitations. We (humans/researchers) choose what to deanthropocentrise, which is where Affifi (2020) notes the grounding is still partially humanistic” (p. 89).

^{xxviii} Specific terminologies for more-than-human entities include Manidoog (spirits) or Asemaa (tobacco as relational kin) and animals like Makwa (bear) as teachers among Anishinaabe (Great Lakes region); sheris or mahein for animal masters/spirits and kini for forest beings among Amazonian Indigenous (e.g., Matsigenka, Shipibo); ajayus (spirit essences in mountains, rivers) and Pachamama (Earth Mother as sentient) among Andean Quechua/Aymara; buruguu (Dreaming beings) and totemic ancestors like wunggu (culture heroes as non-humans) among Australian Aboriginal peoples; mauri (life force in all entities) and taniwha (water guardians as kin) among Maori (Aotearoa); and tuumgait (helping spirits in animals/land) and sila (atmosphere/weather as conscious) among Inuit (Wikipedia accessed August, 2025)

^{xxix} The original 2010 definition of research-creation from the *Social Sciences and Humanities Research-creation Council of Canada (SSHRC)* is: Research-creation refers to any research-creation activity or approach to research-creation that forms an essential part of a creative process or artistic discipline and that directly fosters the creation of literary/artistic works. The research-creation must address clear research-creation questions, offer theoretical contextualization within the relevant field or fields of literary/artistic inquiry, and present a well-considered methodological approach. Both the research-creation and the resulting literary/artistic works must meet peer standards of excellence and be suitable for publication, public performance or viewing. (Meda, 2010)

^{xxx} Noury and Paquin (2020) state the SSHRC position: research-creation “cannot be limited to the interpretation or analysis of a creator's work” (p. 9), thus encouraging an approach in which creation is an integral part of the research-creation process.

^{xxxi} Theory is defined by Jackson and Mazzei (2011) as: “philosophical questions about what counts as knowledge, what counts as “real” in educational settings, and who has the authority to determine this” (Denzin & Lincoln, 2011, p. 270).

^{xxxii} Translation by deepl.com: Pour être performative, une théorie doit revêtir une forme lui permettant d’être utilisée aussi bien comme un objet descriptif que comme un guide pour l’action.

^{xxxiii} In early formal education, since the mid-1800s, Rousseau, Froebel, Dewey, Montessori, and Steiner introduced various forms of ‘environmental ecology’ into Nature related pedagogies. In addition, Dewey, Freire and Winnicott were the most prominent education theorists of the twentieth century and had a significant influence on early versions of EoE.

^{xxxiv} I will use the proposed underlining and small case use as Misiaszek proposes throughout this thesis. Misiaszek (2018) explains the small case underlining: “Throughout this book, I capitalize the first letter of some key words needing to be problematized in ecopedagogies to signify their hegemony within societies, along with the capitalized letter *in italics and underlined*. Without this text formatting of the first letter, the word does not indicate hegemony or, alternatively, empowerment with a lower-case letter. Defining and describing the effects of *hegemony* will be detailed more later in the book, but here it can be thought of as the dominant of an ideology that is falsely portrayed as positivistic, static, and unquestionable. In the example of “development”, Development would signify a single framing that it is told, authoritatively, to the subaltern in a top-down, non-democratic fashion, as compared to ddevelopment which is defined locally, in a bottom-up fashion, with the recognition of context as essential in its construction” (Misiaszek, 2018, p. 10).

^{xxxv} The United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992 and in force since 1994, is the main global treaty, with 198 parties committed to stabilizing greenhouse gas concentrations to avoid dangerous human impacts on the climate system. It provides the overarching framework for subsequent agreements such as the Kyoto Protocol (1997) and the Paris Agreement (2015), and underpins the annual Conferences of the Parties (COP), where states negotiate and advance collective responses to climate change.

^{xxxvi} In addition, UNESCO has conflicting definitions lacking clarity for sustainability and sustainable goals allowing for a variety of practices when applied by organization that would generate progressive and harmful results for Earth (Good Practices in Education for Sustainable Development: Using the Earth Charter - UNESCO Digital Library, n.d.; United Nations Decade of Education for Sustainable Development (2005-2014), 2005; UNESCO, 2020). Most of the United Nations’ proposals regarding the health of Earth since the mid 20th century have failed miserably, this includes

binding tenets by UNESCO and the collaborating institutions like the IMF, World Bank and the interconnected NGOs. I would predict continuing failure for any new proposals to come from the ‘global’ institutions that profit and serve the five UN veto wielding nations. This is a reality since the Yalta and Atlantic accords set the era’s geopolitical stage.

xxxvii Action for Climate Empowerment (ACE) is a UNFCCC framework under Article 6 of the original Convention (1992) and Article 12 of the Paris Agreement, designed to empower all societal members for climate action through six interconnected areas: education, training, public awareness, public participation, public access to information, and international cooperation. Adopted as a user-friendly term at COP20 in Lima (2014).

xxxviii Braidotti in Grusin (2017) states: “I have argued for an activist embrace of zoe: MTH life. Becoming- earth (geocentered) or becoming-imperceptible (zoe-centered) entails a radical break from established patterns of thought (naturalization) and introduces a radically immanent relational dimension. This break, however, is emotionally demanding at the level of identity, and it can involve a sense of loss and pain. Moreover, disidentification from century-old anthropocentric habits and new relationships to MTH others is likely to test the flexibility of the humanities as an established disciplinary field” (Grusin, 2017, p. 30).

xxxix Ecopedagogy since 1992, rooted in post-Rio Earth Summit dialogues, during the *First International Symposium on the Earth Charter in the Perspective of Education*, framed planetary citizenship and biophilia as core principles, advocating for ethical relationships extending beyond humans. The Ecopedagogy Charter explicitly challenged anthropocentrism by emphasizing "interdependence with all life systems"(Blaze Corcoran et al., 2005)

^{xi} This includes labour abuse, pollution, ecologically non-acceptable exploitation of other MTH entities - such as energy use, and furthermore extraction such as mining for rare metals, to name but a few.

^{xii} Recent research highlights the importance of embodied experiences (Whitehouse, 2018; Blades, 2024). Others explore innovative approaches to ecopedagogy that embrace uncertainty and creativity (Shugurova, 2023; Osgood & Mohandas, 2024). Some integrate ecopedagogy with walking and exploration (Rodrigues, 2018; Russell, 2021).

^{xiii} Ecopedagogical literacy proposed by Misiaszek (2023) furthers Kahn (2010) and Gadotti (2010) who align with Freire and propose a more radical and complex form of praxis oriented eco-literacy to re-educate misinterpretations of basic environmental ideas by re-reading and re-inventing, engaging locally and learning through multiple epistemologies.

^{xiiii} For more information on cellphilm practices, there are many videos on the Thompson et al. (2014) linked site and on many other YouTube pages published since 2013 that show potential *cellphilm* makers how to produce a short *cellphilm* with low cost and maximum efficiency, without sacrificing the intended message of their story (*Re-Visioning Cellphilm Methodologies Virtual Symposium*, 2022). <https://www.youtube.com/watch?v=ij3UBNOTSjY>

^{xliv} Misiaszek's "world-Earth distancing" critiques the conceptual separation in environmental education between the human-centered "world" and the more-than-human "Earth," which perpetuates anthropocentrism and blocks holistic socio-environmental justice.

^{xlv} Postphenomenology is chiefly concerned with how singular entities are shaped and orientated by and toward technologies. Postphenomenology emphasizes the social and cultural aspects of human experience with technology but relies heavily on the relationship between the tool and the user to overcome the limitations of subjectivism. Postphenomenologists often base their analyses on texts from science journals and magazines or from their own personal life stories. In this research-creation we take into consideration what Ihde cautions: “Perhaps postphenomenology’s reliance on auto-ethnographical examples has shaped (and restricted) its framework? Perhaps experiences from the *empirical field* may improve the *analytical field* of postphenomenology” (Aagaard et al., 2018, p. xvii). I follow up on that in Chapter Two.

^{xlvi} The selection of the most relevant, recent and comprehensive texts related to my specific topic was made from 6,239 accessed peer reviewed articles and reduced to 890 items in a pre-selection, before narrowing again to the selected articles for inclusion in this thesis. Keywords and search terms were entered that reflect the essence of my inquiry and research themes including but not limited to: MTH, education research, Anthropocene, ecopedagogy, *cellphilms*, ecology, PAR, sustainability, posthuman, environmental pedagogy, forest schools, green education, post-

qualitative methodology, feminist ecology, Deleuzoguattarean methodology, visual research, critical pedagogy, postphenomenology, non-representational theory, autoethnography, Freire, Rancière, St. Pierre, Misiaszek, postdigital, Haraway, Barad, Giroux, hook, McLaren, Burkholder, Mitchell, and many more. I also searched academic databases in other institutions, including theses and dissertation archives, NGO websites, bibliographies, libraries and personal networks. I pursued this method of research for the remainder of my inquiry until it was in final the edit stage and deposited. Much of the research is referenced in the diary as it was accessed and read.

^{xlvii} The McGill International Cellphilm Festival ([Meda, 2010](https://www.mcgill.ca/education/channels/event/10th-annual-cellphilm-festival-339475)) included a two day conference followed by an annual international competition of cellphilms produced by various learners: <https://www.mcgill.ca/education/channels/event/10th-annual-cellphilm-festival-339475>

^{xlviii} The McGill University Education Department (Re-Imaginings, 2022) website states: The virtual symposium aims to advance critical dialogue and re-imagine the co-production of knowledge through cellphilm. Key re-imaginings include the ways we can decolonize cellphilm methodology to support participatory work in new ways (especially in relation to Covid-19 and beyond) and with underrepresented groups (youth with disabilities, refugee youth, and older adults) for whom finding new ways for engagement is key. The presentations and roundtable discussions will strengthen ties between the body of interdisciplinary researchers, practitioners, collectives and NGOs interested in participatory visual methods in social research. <https://internationalcellphilmfestival.com/symposium2022/>

^{lix} Haeckel (1866) describes his term ‘ecology’ in the following manner: “By ecology we understand the entire science of the relations of the organism to the surrounding external world, to which we can include in a broader sense all ‘conditions of existence’.” (p. 286)

^l Wild nature in the nineteenth century referred to landscapes and ecosystems that were largely untouched, unmanaged, and unaltered by human activity. Wild nature was often depicted as pristine, pure, sublime, and a source of moral and spiritual inspiration.

^{li} The Sierra Club has had to explain and deal with Muir’s racist legacy and the colonizing oppression towards aboriginals and their land now delineated as parks in the continent. <https://www.smithsonianmag.com/smart-news/sierra-club-grapples-founder-john-muir-racism-180975404/>

^{lii} Louv (2018) states: “Today, kids are aware of the global threats to the environment - but their physical contact, their intimacy with nature, is fading” (p. 17).

^{liii} This public conscientization developed earlier on by the literary romanticizing of the American forest by Thoreau, Emerson, Whitman, Olmsted, Muir et al. Aldo Leopold, Rachel Carson, Fritjof Capra, David Orr and Murray Bookchin ignited the U.S. ecology movement in the mid twentieth century which led to “powerful legislative environmental reforms” (Kahn, 2010, p. 5).

^{liv} Somerville and Williams (2015) in their meta-analysis of publication on EoE add, “There remains a level of ambiguity about the relationship of environmental education and education for sustainability, however, with the terms used interchangeably in many articles” (Somerville & Williams, 2015, p. 107). Jackson (2017) adds that (e/ESD) is based on undertheorized set of pedagogies and “all contemporary approaches to ESD are, at minimum, interdisciplinary, issues based, and topical. But beyond this sort of general and thin conceptualization, best practices and approaches remain contested” (p. 475).

^{lv} It is important to take into consideration Misiaszek’s (2021) warning within these debates: “Teaching to successfully reach planetary ‘sustainable development’ goals, aligning and not with the UN’s SDGs, must be through centering de-Development for hegemony – or, in other words, teaching through and for development” (p. 6).

^{lvi} The term Radical Pedagogy is said to be contested, as Fedotova and Nikolaeva (2015) clearly show. Fedotova et Nikolaeva (2015) distinguish two broad branches of the term Radical Pedagogy: “In understanding the subject of radical pedagogy there is no unity: some theorists link it with deeply politicized aspects of educational institutions, politics and practices. They believe that education can and should be oriented to radical social change (Freire, 1970, 1997; Giroux, 1997; McLaren, 1998; Shor, 1992). For others radical pedagogy refers to cutting-edge developments in the field of education: the latest theories, techniques and methods that promise to re-invent significantly the

processes of teaching and learning. There are attempts to consider the phenomenon of pedagogical projection of radicalism through the prism of the problems of feminism (Gustavsson & Nyberg, 2013) and psychoanalysis (Bracher, 2006)” (p. 787).

^{lvii} In *Pedagogy of the oppressed*, Freire (2000) describes the ‘banking model’ of educational practice: “Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiques and makes deposits which the students patiently receive, memorize, and repeat. This is the ‘banking’ concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and storing the deposits. They do, it is true, have the opportunity to become collectors or cataloguers of the things they store. But in the last analysis, it is the people themselves who are filed away through the lack of creativity, transformation, and knowledge in this (at best) misguided system” (Freire, 2000, p. 72).

^{lviii} Giroux (2010), inspired by Paulo Freire has described critical pedagogy as an, “educational movement, guided by passion and principle, to help learners develop a consciousness of freedom, recognize authoritarian tendencies, and connect knowledge to power and the ability to take constructive action” (p. 2).

^{lix} Other offshoots of critical pedagogy (CP) that deal with EoE includes: Biophilia which is based on love of all life and an instinctive tendency to seek relations with ‘nature’ can be added to this list of critical ecology movements that engage with education (Fromm, 1973; Wilson, 1984; Kellert & Wilson, 1993); Kopnina (2020) who identifies several categories of critical pedagogy informed ecology, “deep ecology and ecocentrism (Naess, 1973; Sitka-Sage et al, 2017), animal rights and welfare movements (Singer, 1975; Regan, 1984), and inclusive (multispecies) pluralism (Kopnina & Cherniak, 2016)” (p. 2). She adds, “Another example of eco-pedagogy is Critical Animal Pedagogy, predicated on the challenge of the examination and eradication of speciesist pedagogies (Grubbs & Loadenthal, 2014)” (p. 3).

^{lx} Kahn (2010) tells us that, Gronemeyer, (in Leirman & Kulich, 1987), used the term ecopedagogy seeking to merge environmentalist politics with adult education (p. 30). He adds, “Ironically, at the same time it was coined by Freire’s friend-cum-critic Ivan Illich (1988) to describe an educational process in which educators and educands become inscribed in abstract pedagogical systems ... that seek the total administration of life through mandatory pedagogical experiences of systemization” (p. 30). It should be noted that ecopedagogy which follows in those Freirean (2000) footsteps of critical pedagogy is also influenced by Freire’s close friend Illich (1971) who promoted a holistic pedagogical experience.

^{lxi} Kahn calls it “cognitive praxis”. Fassbinder explains: ‘Cognitive praxis,’ then, “is an expansion of the realm of knowledge and action, to put humanity as a whole in service of the goals of environmentalism. (p. 27)” (p. 31).

^{lxii} Ecoliteracy as part of a critical EoE does not address social justice, global citizenship, deep critical thinking and/or learning through liberatory praxis, in the same foundational way as contemporary ecopedagogies. Ecoliteracy thus distinguishes itself from a more intra-active ecopedagogy. Ecopedagogical literacy builds on ecoliteracy and critical pedagogy by integrating Freirean critical problematization with ecological understanding. Ecoliteracy provides foundational knowledge of ecological interconnections, whereas ecopedagogical literacy extends this by fostering critical consciousness and collective action. Misiaszek (2020) highlights its Freirean roots, emphasizing the active critique of oppressive systems. Ecopedagogical literacy embeds this ecological awareness within a transformative educational praxis, linking it to social justice and empowering learners to challenge systemic inequalities. Horsthemke (2020) explains that, “Kahn is confident that a ‘critical ecoliteracy as deployed by ecopedagogy would ultimately attempt to mobilise diverse people to engage with culturally appropriate forms of ecological politics and to engage in movement building on these issues through critical dialogue and constructive alliances”” (p. 912).

^{lxiii} Jickling (2017) states: “We do not create transformative moments, but can create spaces for them to arise (e.g. Gutiérrez, 2016; Jickling, 2016, 2015; Kaza, 2002). (Jickling, 2017, p. 27)

^{lxiv} For better understanding of the relationship see a pictogram depicting the relationship between the World and Earth in Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development. (Misiaszek, 2020a, p. 20)

^{lxv} Kinyota (2021) explains, “For instance, Melosi (1995) has demonstrated how the voices of the people of colour and the poor have been missing in environmental literature and movements. According to Melosi (1995). With regard to environmental conservation in Africa, DeGregori (2002) has noted oppressive actions and discourses such as conservation strategies that benefit the rich at the expense of local populations” (p. 159)

^{lxvi} Freire (2004) states: “One of the most significant abilities we men and women have developed throughout our long history, which while created by us, makes and remakes us, is the possibility of reinventing the world and not simply repeating or reproducing it” (p. 107).

^{lxvii} A ‘deepened and widened’ understanding can be generated using the ecopedagogical lens. Misiaszek (2023) tells us: “For example, reading through theoretical lenses of globalizations, ecofeminism, and ecoracism lenses helps to better understand how marginalized populations will be overwhelmingly affected more by global warming with an estimated 25 million to one billion environmental migrants by 2050 (International Organization for Migration (IOM), 2014)” (Misiaszek, 2023, p. 607).

^{lxviii} Nakagawa (2017) states “Freirian ecopedagogy ‘starts from a planetary consciousness’ or ‘planetary citizenship’ that recognises ‘the earth as a single community’ (Gadotti, 2011, pp. 20–21), including non-humans. However, some authors (e.g., Bowers, 2004; Hung, 2014) expressed their concerns with the globally and perhaps anthropocentrically centralised singularity over the plurality of local authenticity. In that context, Kahn (2010) attempted to synthesise the global/singular and the local/plural in his ecopoliticised version of ecopedagogy” (p. 3).

^{lxix} Cortesão (2019) lists the thinkers that Freire relied on in the Marxist tradition, “Marx, Lukács, Fromm, Gramsci, Fanon, Memmi, Sartre, Kosik, Agnes Heller, M. Ponty, Simone Weill, Arendt, Marcuse. (Freire, 2000, pp. 19–20) (Cortesão, 2019, p. 143)

^{lxx} “Among those cited are Hegel, Edmund Husserl, Jean-Paul Sartre, Simone de Beauvoir, Martin Buber, Lucien Goldman, Frantz Fanon, Albert Memmi, Marx, Lenin, Ernesto “Che” Guevara, Georg Lukács, Karel Kosik, and Herbert Marcuse. There are also Brazilian authors like Álvaro Vieira Pinto, Guimarães Rosa, and Cândido Mendes. Thus, we can say that one of the trademarks of *Pedagogy of the Oppressed* is its polyphony” (Gadotti, 2019, p. 37).

^{lxxi} Gajardo (2019) tells us that Freire was also influenced by the work of “Karl Mannheim (1893–1947), György Lukács (1885–1971), Karl Jaspers (1883–1969), Ferdinand de Saussure (1857–1913); Erich Fromm (1900–1980), whom he met personally years later; and Frantz Fanon (1925–1961)” (p. 103).

^{lxxii} Gramsci’s who emphasises the importance of cultural aspect of revolutionary practice also marked Freire. Mayo (2019) states: “It is fair to say that Gramsci and Freire saw history as possibility... Praxis is the central notion in the thinking of both Gramsci and Freire. The ‘philosophy of Praxis’ was the kernel of Gramsci’s political thought, contrasted with ‘common sense.’ (Mayo, 2019, p. 313)

^{lxxiii} Freire was without doubt one of the precursors not only of the theology of liberation but also of the philosophy of liberation, though originally filtered through the developmentalist lenses of the Instituto Superior de Estudos Brasileiros (ISEB)—see Gadotti, Chapter 1 in *The Wiley handbook of Paulo Freire*, 2019 (Torres, 2019, p. 14).

^{lxxiv} As European powers expanded their colonial reach, they applied their ecological concepts globally, often disregarding or devaluing local and Indigenous knowledge systems (Njoh, 2022). The Western scientific method, with its emphasis on reductionism and empirical observation, dominated ecological research, potentially overlooking holistic or spiritual understandings of ecosystems held by non-Western cultures (Lalujan & Pranjol, 2024, p. 18). The language and terminology used in ecological discourse was predominantly rooted in European languages, particularly English, which may have limited the expression of ecological concepts from other cultural perspectives (Lecocq & Keukeleire, 2018, p. 346). The globalization of this Eurocentric approach to ecology through colonization further entrenched its perceived legitimacy.

^{lxxv} Misiaszek discusses the need for ecopedagogy that can center democratic dialogue to critically problematize how “citizenship”, “development”, and “sustainable development” are taught through these ideologies to justify socio-environmental oppression and violence systematically (2018). He points out how Ecopedagogues inherently counter

these ideologies that tout such terms as ahistorical, apolitical, and singular in definition and scope, as well as environmental pedagogies grounded by these ideologies (Misiaszek, 2020c).

^{lxxvi} Russell's Queer Ecopedagogy for example proposes a pluriversal eco-pedagogic project defined as, "framing of queer ecopedagogy as a radical invitation for change through 'queer feeling and being' accompanied by 'personal and political commitments' resisting domination and silencing of a wide range of beings – and as Michelson would expand, those who fall outside of the inside category/the norm" (in McGarry et al., 2021, p. 194).

^{lxxvii} Notably, there has been an effort to decentralize the ecopedagogic meanings and theories allowing for a local:global perspective to flourish (e.g., Bowers, 2004; Kahn, 2010; Hung, 2014).

^{lxxviii} A curriculum that teaches climate change solely in terms of recycling, carbon markets or technological fixes, rather than fostering emotional, ethical, justice-based connections with Earth, is an example of world:Earth distancing.

^{lxxix} Ahmad (2004) argues that emotions function by aligning individuals with collectives, meaning bodily space together with social space, "through the very intensity of their attachments. Rather than seeing emotions as psychological dispositions, we need to consider how they work, in concrete and particular ways, to mediate the relationship between the psychic and the social, and between the individual and collective" (p. 26).

^{lxxx} The BBC (2010) states: "Handheld phones were originally produced to help doctors and hospital staff improve their communications. He hoped the devices would help bring safety and freedom to people, but the eventual social implications were beyond his understanding almost four decades ago" (Teixeira, 2010).

^{lxxxi} This first commercial smartphone was produced by IBM and manufactured by Mitsubishi Electric (*World's First "smartphone" Celebrates 20 Years*, 2014).

^{lxxxii} A Japanese company has unveiled what it says is the world's first mobile videophone. The VisualPhone VP-210 is the brainchild of Kyocera Corporation. (*CNN - First Mobile Videophone Introduced*, 1999)

^{lxxxiii} Digistrat (2012) states: "In 2000 Sharp produced the J-SH04 for J-Phone (now softbank) in Japan. It cost \$500 and produced 110,000 pixel images (0.1MP). It was followed by J-SH05 which used a 65,536-color semi-transmissive TFT LCD on a flip phone. By 2002, Sharp had sold 5 million camera phones covering 40% of J-Phones users" (Wan, 2012).

^{lxxxiv} See Statista data: (Sherif, 2025)

^{lxxxv} Both ITU and ICT state: "The Income Divide – the level of Internet use in low-income countries (22%) remains far below that of high-income countries, which are approaching universal use (91%). The Urban-Rural Divide – the share of Internet users is twice as high in urban areas as in rural areas. The Gender Divide – globally, 62% of men are using the Internet, compared with 57% of women. The Generation Divide – in all regions, young people 15-24 year are more avid Internet users (72% online) than the rest of the population (57%). The Education Divide – In nearly all countries where data are available, rates of Internet use are higher for those with more education – in many cases, far higher. The report notes that the biggest challenges in connecting the unconnected are no longer related to network coverage, but rather to uptake and use" (*Global Potential of Internet Remains Largely Untapped, Says UN Agency for Digital Technology (Press Release)*, 2022).

^{lxxxvi} While smartphones have expanded creative possibilities, allowing for innovative approaches in fields such as music production, writing, and visual arts, they also operate within a framework of market forces and technological limitations (Angé & Berliner, 2021; Boden, 1998; Mammadova, 2018).

^{lxxxvii} The smartphone ecosystem, dominated by a few major platforms and app stores, shapes both the creation and distribution of digital content, potentially constraining artistic freedom and audience engagement.

^{lxxxviii} As the *Cultures Lab at McGill University* website states: "Since its beginnings in 2013, ...the Participatory Cultures Lab has focused on research and training related to the use of participatory visual and arts-based methodologies in social research. One of the innovations has been in the area of participatory and community video, especially the use of mobile technologies in work with young people, teachers, health workers, and instructors in agricultural colleges" (*Cellphilm Tips*, 2013).

^{lxxxix} A more detailed analysis of the use of cellfilms can be read in my Bishop's University Master's thesis in Education on cellfilm practices in PAR informed by ecopedagogy (Chbib, 2023).

^{xc} In referencing the need for new conceptual frameworks as proposed by Poyntz et al. (2015, p. 68) they reveal that there is a lot still to be done to teach “complex concepts to be understood, operationalized and questioned by children” (Connolly & Parry, 2018, p. 71). They determine that much of research needs to still be done in the way media generates learning, “we were struck by how much was going on, pedagogically in this class of seven-year-olds, and how little analysis or theorisation of this activity has gone on” (p. 73). They blame the slump on research-creation that is focused on theories claiming knowledge was being contested, contingent, and constructed in the mind when viewing audio-visual material.

^{xc}_i Hussain, Griffiths, and Sheffield in 2017 developed the Problematic Smartphone Use Scale (PSUS). It is a questionnaire that measures unhealthy patterns of smartphone use. It asks people to rate how often they experience issues like being preoccupied with their phone or struggling to cut back on use. Scores are totaled, with higher numbers indicating more problematic use (Hussain et al., 2017).

^{xc}_{ii} This worldview aligns with ecopedagogies' commitments to development teaching through inclusivity, recognizing the voices and agency of MTH actors (Lloro-Bidart, 2017; Misiaszek, 2025).

^{xc}_{iii} The teachers had to provide, completed detailed reaction papers about their experiences. Photographic and videotaped images were also captured throughout the nature trips, workshops, and seminars. Semi-structured and open-ended interviews were conducted to let the participants reflect on their experience in developing an environmental consciousness and ecologically friendly practices. (Eryaman et al., 2010, p. 29) Although not specifically describing their 'eco-pedagogy' PAR practice as autoethnography their methodology entailed a very close match to what is generally considered autoethnographic research-creation practices. (Eryaman et al., 2010, p. 34)

^{xc}_{iv} Her research is also driven by a UNESCO initiative which declared 2005–2014 to be the *Decade of education for sustainable development*, Nicol complied with a directive proposing that all learning programmes be reviewed and re-oriented to address the causes and consequences of climate change.

^{xc}_v This requires empathy, acceptance, commitment and dialogue. Peterson (2019) explains that his practice of self brings about empathy as a deep experience and that : “this expanded identification leads me to asking deeply critical questions (Harding, 2006) about: How is it we can continue to educate ourselves in a manner that perpetuates the illusions of separation—Cartesian consciousness—from one another and from the Earth?” (p. 12). This perspective, rooted in Harding's (2006) work, challenges the Cartesian dualism embedded in Northern/Western 'traditional' education systems and fosters profound empathic experiences with the natural world. This approach seeks to dismantle the illusion of separation between humans, MTH entities and Nature, prompting a re-evaluation of curriculum and pedagogy that often implicitly devalue more-than-human entities. Ultimately, ecopedagogy strives to reintegrate humans into the ecological web of life through educational practices that nurture a planetary consciousness, fostering a deeper understanding of our interdependence with all MTH entities and challenging the educational norms that reinforce disconnection from the environment.

^{xc}_{vi} Appadurai's anthropocentric concept of “scapes” describes the complex, overlapping flows of people, technology, media, money, and ideas that shape global cultural interactions. Instead of fixed borders, these dynamic and interconnected movements create a fluid, ever-changing cultural landscape that reflects the realities of globalization (Appadurai, 1990)

^{xc}_{vii} This coincides with movementscapes in Rodrigues (2018). He describes the dialogic interaction between humans and MTH entities. He states: “As for intentionality, understood as ‘corporealmundane and existential behavior in which the signified world is constituted and reconstituted’ (Fiori, 1986, p.4—my translation)...Trees, for example, are stressed in prolonged dry conditions where the absence of rain destabilizes and, potentially, destroys both intra and interactions of/in nature” (p. 92)

^{xc}_{viii} Autophenomenography merges autophenomenology - reflecting on one's own lived, embodied experiences - with phenomenography, which explores how people understand phenomena. In Blades' work, this method uses sound

recordings to capture and analyze her sensory and embodied experiences while walking through natural environments or ‘scapes,’ emphasizing both personal perception and the surrounding context.

^{xcix} Shugurova (2023) states, “According to Bakhtin (1984), a dialogic position takes place in the present, not in or for some distant and nonexistent future, but in the living encounter with people as the equal authors of their life” (p. 4).

^c This perspective, rooted in Harding’s (2006) work, challenges the Cartesian dualism embedded in Northern/Western ‘traditional’ education systems and fosters profound empathic experiences with the natural world. This approach seeks to dismantle the illusion of separation between humans, MTH entities and Nature, prompting a re-evaluation of curriculum and pedagogy that often implicitly devalue more-than-human entities.

^{ci} Rodrigues (2018) clarifies: “In this sense, the numerous material and geographic scapes of ecomotricity share common grounds with other (human decentered) ecopedagogies: a nature (human-and-other-than-human) driven design and affordance of movement that ontologically, epistemologically and methodologically “moves” a different practical way into the creation of meaning in/for critical and environmentally just education” (p. 89).

^{cii} Rodrigues (2018) states, “Conceptually, ecomotricity calls for a paradigm shift of ‘thought’ aligned with that which is implicit to a ‘phenomenology of perception’ (Merleau-Ponty, 1996), a ‘phenomenology of the body’” (Ingold, 2000; 2011), an ‘eco-phenomenology’ (Brown & Toadvine; 2003), or what now in contemporary theory is referred to as the ‘corporeal turn’ (Maxine Sheets-Johnstone, 2009) or ‘intercorporeality’ (Gallagher, 2016), reinterpreted in environmental education theory and practice (Payne and Hickey, 1997) and methodological inquiry (P. G. Payne, 2013)” (p. 88).

^{ciii} Rodrigues (2018) adds, “the ‘corporeal dissonance’ of phenomenological deconstructions in situ (P. G. Payne, 2014) afforded by the material reconstruction of different interactions/incursions where ecomotricity is potentialized carries a prospective for action in a first ‘step’ to responding ecopedagogically to the limits to change” (p. 96).

^{civ} Affect has many definitions. Informed by Spinoza, it is mostly argued in context with emotions. For now, I align myself with historian Ruth Leys’ (2017) proposal that contemporary affect theory has stalled, or as she puts it, reached an impasse “without consensus. Leys states that “these fundamental differences concern the question of meaning, that is, whether we should understand emotions as intentional states or as unintentional processes” (interview in: Knatz & Caomhánach, 2020, p. 3). Ahmed (2010), describes more succinctly for the purposes of this research-creation the affect phenomenon being distinct from emotions as follows: “I do not begin by assuming there is something called happiness that stands apart or has autonomy, as if it corresponds to an object in the world. I begin instead with the messiness of the experiential, the unfolding of bodies into worlds, and what I call “the drama of contingency”, how we are touched by what comes near” (p. 22). However, she also notes that “the subjective nature of emotional experiences poses challenges in quantifying and generalizing these effects across diverse populations” (p. 129). Affect in this dissertation remains intangible and in flux but allows for flexibility when applied to research. I argue that emotions are intended for someone or something.

^{cv} Agonistic pluralism is a democratic theory that accepts political conflict as essential, valuing respectful contest between adversaries rather than seeking full consensus (see Mouffe, 2000).

^{cvi} Additionally, the work of Ahmed (2023) offers a cultural perspective on the emotional-sensory dynamics, arguing that “cultural norms and beliefs significantly shape our emotional responses to non-human entities, which in turn affect our sensory experiences of them” (p. 312). However, the diversity of cultural contexts limits the generalizability of findings across different societies (Bastian, 2017; Rufo & Weig, 2023). I delve more explicitly into the aspect of intentionality in affect:emotion interaction in chapter two.

^{cvi} I nevertheless will not choose between “Team Ekman or Team Fridlund” as Nikopoulos states (2019, p. 58). Fridlund who was Ekman’s student diverged from the cognitivist perspective and followers of each who have since drawn battle lines between the cognivists and the behavioural ecologists. Nikopoulos explains that phenomenology has been defending these kinds of (un)-intentionality arguments for years and that Leys should not conflate biological causation and cultural correlation as has been often done in experimental science and also in Leys’ arguments.

^{cviii} Spinoza can help us take this affect discourse to the (non)representational, he states, “the term we will use for affections of the human body whose ideas represent external bodies as present to us is images of things, even though they do not reproduce the shapes of the things. And when the mind regards bodies in this manner, we will say that it imagines them” (Spinoza & Kisner, 2018, p. 63).

^{cix} Being can also be de-refined therein from a posthumanist, Anthropocenic perspective as any flora, fauna, human, geological and/or element, sharing existence on the planet. This definition does not prohibit that citizenship embodies personhood for MTH entities but remains a possible discourse ‘to come.’ Belonging is often conflated with citizenship in neo-liberal discourses,

^{cx} This does not exclude the pre-sentient development of AI that propose functional personhood for AI based on social impact rather than interiority.

^{cxii} In many of his works, Derrida binds *appartenance* (belonging) to identity, language, and the impossibility of a stable, unified presence (see Derrida, 1993, 1998) . Language lacking clear boundaries (metissage, appropriation etc.) problematizes the notion of belonging to a single language or culture. *Appartenance* is always marked by tension and estrangement: the subject is shaped by the space it inhabits but is never fully at home, always negotiating between making a place its own and confronting what cannot be assimilated.

^{cxiii} Peers ties belonging to language as a means of redefining approaches in early childhood education. He clarifies this position: “I propose that ‘belonging’ can signify an ethical responsibility to the Other, by way of language, or by way of a recognition that the context to which each subject belongs is intersubjective in nature. The sign must mediate every relation that subjects hold to, with each other, in a sense of the response-to-the-other, or as Levinas (1991: 7) describes the sign, as ‘one-for-the-other’, that is, of the respons-ible. As a thinking of our context, belonging would therefore direct us to ethical respons-ibility, a place of intermediation where we respect alterity; we do not impose ourselves, dominate, reduce the other to the same, but ensure the element of respect, as a desire that does not seek to consume or destroy” .

^{cxiiii} The UNESCO definition of GCE unfortunately does not include MTH entities. They state: ‘Global citizenship’ refers to a sense of belonging to a broader community and common humanity. It emphasises political, economic, social and cultural interdependency and interconnectedness between the local, the national and the global.

^{cxv} Haraway (2016) states: “After I used the term *sympoiesis* in a grasp for something other than the lures of *autopoiesis*, Katie King told me about M. Beth Dempster’s Master of Environmental Studies thesis written in 1998, in which she suggested the term *sympoiesis* for “collectively-producing systems that do not have self-defined spatial or temporal boundaries. Information and control are distributed among components. The systems are evolutionary and have the potential for surprising change” By contrast, *autopoietic* systems are “self-producing” autonomous units “with self-defined spatial or temporal boundaries that tend to be centrally controlled, homeostatic, and predictable” (p. 33).

^{cxvi} Further, individual animals, human and MTH, are themselves entangled assemblages of relations knotted at many scales and times with other assemblages, organic and not. Individuated critters matter; they are mortal and fleshly knottings, not ultimate units of being. Kinds matter; they are also mortal and fleshly knottings, not typological units of being. Individuals and kinds at whatever scale of time and space are not *autopoietic* wholes; they are sticky dynamic openings and closures in finite, mortal, world-making, ontological play” (Haraway, 2008, p. 88)

^{cxvii} This perspective can be understood through flat ontologies as proposed by DeLanda (2013) which erase hierarchical power relations. From a neo-Marxist standpoint, claiming to erase hierarchical power relations undermines the core Marxist focus on analyzing societal power structures and class dynamics. The decentering of human agency and the inclusion of MTH actors risk diminishing the emphasis on human-centric class struggle and social transformation. Moreover, the relativism implied by flat ontologies could weaken the critical stance essential to neo-Marxist thought, potentially depoliticizing issues considered fundamentally political. However, these critiques rely heavily on an anthropocentric view of the ‘world’ we live in, which is contrary to what new developments we seek to encourage MTH inclusivity through *ecopedagogy*.

^{cxvii} The recent battles over the last decades engaged by eco-humanists imbued in Cartesian-Newtonian discourse of wilderness and preservation, as Oelschlaeger (1991) noted, are still ‘entangled with that cultural project that is the West’ and their war is not about to be won if they maintain discourses of international action of greenhouse emissions and global warming (p. 93).

^{cxviii} Braidotti (2018) describes her project in this manner: “I have proposed philosophical neo-materialism and nomadic becoming (Braidotti, 2011a; 2011b), inspired by neo-Spinozist vital ontologies (Deleuze, 1988; 1990) and feminist theory, as the ontological grounding for the posthuman predicament. This materialist posthuman approach, does not restrict subjectivity to bound individuals, but rather repositions it as the effect of a cooperative trans-species effort (Margulis and Sagan, 1995). Subject-formation takes place transversally, in between nature/technology; male/female; black/white; local/global; present/ past – in assemblages that flow across and displace binary oppositions. Neo-materialism emphasises immanence and marks the rejection of transcendental universalism and mind–body dualism”. (Bozalek et al., 2018, p. xv)

^{cxix} Anthropocene challenges such as global warming, and species extinctions will require us to engage and share with kin of all sorts, human and MTH, and a love of everything that coexists. Engaging with the Anthropocene also means a deconstruction and reconfiguration of our ideas of living, engaging with a deep thought of decolonial discourses, avoiding ethnocentric and anthropocentric re-inscription, re-colonization, and considering the end of life as we see it. Along with the standard science curriculum, ecopedagogies can immerse learners into the ethico-onto-epistemological context of the relationship between the human and the MTH living in: on: with: for Gaïa. Learners thus can expand their experiences with: in Nature as an intergenerational socializing by embodying their environment and transcending their subjectivity into a more holistic existence with their human and MTH kin.

^{cxx} Ngai tells us: “The affect/emotion split originated in psychoanalysis for the practical purpose of distinguishing third-person from first-person representations of feeling, with ‘affect’ designating feeling de-scribed from an observer’s (analyst’s) perspective, and ‘emotion’ designating feeling that ‘belongs’ to the speaker or analysand’s ‘I.’ Yet Massumi and Grossberg have made claims for a stronger distinction, arguing not just that emotion requires a subject while affect does not, but that the former designates feeling given ‘function and meaning’ while the latter remains ‘unformed and unstructured’ (Massumi, PV, 260, note 3)” (2004, p. 25)

^{cxixi} Boler and Davis describe their argument in how affect theory reinscribes old ghosts: “We describe the need to re-think the Cartesian dualism of the rational, autonomous, liberal subject, and the limitations of the widespread adoption of Brian Massumi’s understanding of affect, which poses a binary opposition of affect and emotion that reinscribes the traditional binary of cognition and corporeality” (Boler & Davis, 2018, p. 76). They also rely on Hochschild’s (1979) concept of ‘feeling rules’ which are socially shared norms that dictate what emotions are appropriate to feel and express in different social contexts.

^{cxixii} Boler et al. state: “Before addressing affect and media, we examine Massumi’s invocation of affect following Spinoza, as well as Deleuze and Guattari (Massumi in Deleuze and Guattari, 1987, xvi), an account which has been taken as semi-foundational in the burgeoning field of affect studies. While affect generally refers to the force and potential of the various intensities of embodiment, other scholars do hold differing conceptualizations of affect and its relationship to emotion, feeling, cognition, sensation and subjectivity. For Lawrence Grossberg, only ‘affective investments’ explain the successful uptake of ideologies (Grossberg, 1992); on Sara Ahmed’s account, ‘affective economies’ illustrate how some affects circulate, and ‘stick’ to some bodies, yet slide off of others (Ahmed, 2004). Melissa Gregg and Gregory Seigworth introduce the *Affect Theory Reader* (2010) noting, ‘the capacity of a body is never defined by a body alone but is always aided and abetted by, and dovetails with, the field or context of its force-relations’ (2010, p. 3)”. (2018, p. 79)

^{cxixiii} Buen Vivir, or Good Living, is an Indigenous worldview originating from the Andean and Amazonian regions that centers well-being on the collective harmony among people, Nature, and ancestral spirits. Drawing from Quechua (Sumak Kawsay) and Aymara (Suma Qamaña) philosophies, it offers an alternative to Western models of development by emphasizing ecological balance and communal relationships over the pursuit of economic growth. It intersects with Ubuntu and Nordic Sami philosophies.

^{cxxiv} Latour describes Gaia as having a thousand names that are “multiple, contradictory, hopelessly confused” and “what is certain is that she is not a figure of harmony. There is nothing maternal about her”, Gaia is a “muddle” (p. 82, 100, 103). Gaia is not just a scientific concept, but a “political lever” and a call to reconnect materially with our place in the World. This approach emphasizes the importance of recognizing our embeddedness in Earth's systems.

^{cxxv} Latour's capitalization of “Earth” signifies a shift from viewing the planet as a mere backdrop for human activity to recognizing it as an active, responsive entity. This aligns with many Indigenous cosmologies that see Earth as a living, interconnected system. The distinction between “Earth” and “Gaia” in Latour's work is crucial. While “Earth” represents the physical planet, “Gaia” embodies the complex, self-regulating system of feedback loops resulting from the interactions of countless organisms and processes. This concept resonates with Indigenous understandings of the World as a web of relationships, where humans are not separate from nature but integral parts of it.

^{cxxvi} The slash “/” between “world/Earth” acts as a de-distancing or bridging marker, signaling the intention to challenge or collapse the usual separation between human-centered ‘world’ and planetary ‘Earth,’ emphasizing a unified perspective in this research-creation. This reflects Misiaszek's approach to overcoming world-Earth distancing by integrating human and MTH relationships in environmental education and scholarship (Misiaszek, 2021).

^{cxxvi} One can look at cellphilmimg in this performative context bringing in notions of affect similarly to what Ahmed

^{cxxvii} One can look at cellphilmimg in this performative context bringing in notions of affect similarly to what Ahmed (2004b) argues for: “emotions do things, and work to align individuals with collectives – or bodily space with social space – through the very intensity of their attachments. Rather than seeing emotions as dispositions, we need to consider how they work, in concrete and particular ways, to mediate the relationship between the psychic and the social, and between the individual and collective” (p. 26). This has allowed in my research for a more practitioner inclusive shift in research-creation towards an emotion-based generative autoethnography that is reflexive of notions of belonging.

^{cxxviii} Invoking Kristeva, Miller, Nietzsche and Hobbes into her argument, Ngai informs us that, “moreover, like envy, paranoia, and other feelings that are more likely to be objects of moral disapprobation rather than ways of expressing it, disgust is neither of the left or of the right and has the capacity to be summoned in either direction” (p. 339). Ngai prefers to link affect and emotions more closely to action (p. 26) than to Massumi’s binary differentiation. She defends the possibility of action by these lesser feelings such as irritability and anxiety, stating that unlike anger and fear they are disempowered, yet strangely, “the unsuitability of these weakly intentional feelings for forceful or unambiguous action is precisely what amplifies their power to diagnose situations, and situations marked by blocked or thwarted action in particular” (p.27). She concludes her argument by stating : “At the end of the day, the difference between emotion and affect is still intended to solve the same basic and fundamentally descriptive problem it was coined in psychoanalytic practice to solve: that of distinguishing first-person from third-person feeling, and, by ex-tension, feeling that is contained by an identity from feeling that is not” (Ngai, 2012, p. 26) The arguments against the binary application by early affect theorists on the emotion and affect dynamic is noted.

^{cxxix} Knatz and Caomhánach, 2020 state, “believing that the role of reason and belief has been overvalued in politics, ethics, and aesthetics, the affect theorists emphasize instead the corporeality of human existence and especially the importance of putative subliminal, bodily-affective intensities they regard as decisively influencing and indeed causing our political and other beliefs. They treat those affective intensities as prior to and independent of ideas and cognition– which is to say, as prior to intentions –because they are held to be nonsignifying forces that act in and on bodies below the threshold of consciousness and meaning. You can see right away the overlap between such ideas about affect and the non-intentionalism of the Basic Emotion theorists, and indeed several of the new affect theorists make use of Tomkins’ and Ekman’s scientific claims to support their views” (p. 25).

^{cxxx} Bachmann-Medick (2016) state: “the performative turn has called attention to the expressive dimension of both actions and action-based events, including staged social culture. It focuses not on the cultural contexts of meaning or the idea of “culture as text” but on the practical dimension of the generation of cultural meanings and experiences. It seeks to understand the generative and transformative aspects of culture on the basis of events, practices, material embodiments and media forms” (p. 74).

^{cxxx} These methodologies align with broader trends in PQI, which reject the notion of human superiority and separation from the material World (MacLure, 2013; St. Pierre, 2018, p. 202; Thomas & Bellingham, 2020).

^{cxxxii} This aligns with ‘thinking with theory’ as Jackson and Mazzei (2013) advocate: “We read the same data across multiple theorists by plugging the theory and the data into one another. The result of “thinking with theory” across the data illustrates how knowledge is opened up and proliferated rather than foreclosed and simplified. (p. 261)

^{cxxxiii} Aagaard and Ihde (2018) explain that: Post-phenomenology has been long conceived of itself as a move from studying ‘Technology’ to analyzing specific technologies—the so-called empirical turn. To this credo, Hasse argues that postphenomenologists must also begin to look at other people’s technological mediated practices and advocates participant observation for this purpose (p. xxiii).

^{cxxxiv} Aagaard and Rosenberger (2024) explain that there are significant tensions between postphenomenology and PQI (Aagaard & Rosenberger, 2024, p. 1). Postphenomenology and PQI represent divergent approaches in contemporary research, each challenging traditional paradigms but in distinct ways. PQI critics argue postphenomenology’s emphasis on technological mediation can obscure human agency and downplay the role of social forces in shaping technologies.

^{cxxxv} In the APA handbook, *Essentials of autoethnography* (2021), Poulos states that the term ‘autoethnography’ is derived from the words: self (*auto*), writing (*graphy*), and culture (*ethnos*). He adds:…in the 1980s, authors of ethnographic texts began experimenting with these more confessional and impressionist textual forms by crafting more evocative tales of research in the field, texts that soon came to be known as ‘autoethnography’ (Behar, 1996; Ellis, 1995; Ellis & Bochner, 1991; Goodall, 1989, 1991, 1996)” (p. 8).

^{cxxxvi} Reed-Danahay (1997) clarifies that the concept of autoethnography: “reflects a changing conception of both the self and society in the late twentieth century (Cohen 1994; Giddens 1991)…The term has a double sense - referring either to the ethnography of one’s own group or to autobiographical writing that has ethnographic interest. Thus, either a self (auto) ethnography or an autobiographical (auto) ethnography can be signaled by ‘autoethnography’ (p. 2).

^{cxxxvii} See also St Pierre’s critique of quantitative methodology practices being applied on qualitative research-creation methods in several of her early publications (St. Pierre, 1997, 2004, 2004)

^{cxxxviii} Inspired by Baruch Spinoza and Giordano Bruno, Deleuze, Negri and other mostly Continental philosopher proposed the idea that divinity existed in the material world.

^{cxxxix} Ingold (2015) for example, offers a move away from representational forms of research. He states: “In truth, it is articulation that has silenced the word, by drawing it out and fixing its coordinates of reference, independently of the vocal-gestural currents of its production. Let’s not be afraid, then, to meet the world with words. Other creatures do it differently, but verbal intercourse has always been our human way, and our entitlement. But let these be words of greeting, not of confrontation, of questioning, not of interrogation or interview, of response, not of representation, of anticipation, not of prediction” (p. x).

^{cxl} Vannini (2015) clarifies “Such emphasis on relational materialism, immanence, and the sociality of ‘things’ prompts non-representational researchers to study associations, mutual formations, ecologies, constellations, and cofabrications that highlight how the conjunction ‘AND’ matters more than the verb ‘IS’ (ibid., p. 15 after Deleuze, 2001, p. 38)” (*Evolution of the Cameraphone*, n.d.).

^{cxli} For example, Boler (1999) introduces a relevant educational prospect that disturbs the normalization of emotion in pedagogy. She calls it a ‘pedagogy of discomfort’ and describes it as “both an invitation to inquiry as well as a call to action. As inquiry, a pedagogy of discomfort emphasizes ‘collective witnessing’ as opposed to individualized self-reflection” (p. 176).

^{cxlii} Freire (2000) explains, “Problem-posing education affirms men and women as beings in the process of becoming – as unfinished, uncompleted beings in and with a likewise unfinished reality” (p. 84). Education should challenge learners to confront their incompleteness and the unfinished nature of reality, which can be an uncomfortable process. On the transformative potential of embracing challenges Freire adds, “a deepened consciousness of their situation

leads people to apprehend that situation as an historical reality susceptible of transformation” (p.84). Engaging with the discomfort of critical consciousness, learners can recognize their potential to transform their reality by addressing the necessity of discomfort for personal growth and social change: “Authentic thinking, thinking that is concerned about reality, does not take place in ivory tower isolation, but only in communication” (p.41). This emphasizes that genuine (in)formal education requires engaging with others and real-world challenges, which can be uncomfortable but necessary for growth. It requires an effort that is transformative and liberating embracing challenges to deeply rooted understandings, identifications and practices. Freire argues that learners can thus develop critical consciousness and become empowered to engage with and transform their ‘world’. This approach to education, while often uncomfortable, can foster personal growth and promote social change.

cxliii Translation by deepl.com: La spéculation ici consiste à explorer des potentialités du présent pour produire des perturbations, des disruptions dans un avenir qui sinon serait la reconduction du présent. (Paquin, 2024)

cxliv In the month of April 2024, I attended the 4th International Holistic Teaching & Learning Conference (HTLC). I presented a workshop where teachers practiced autoethnography using cellphilm as an ecopedagogic practice. To my surprise it was entirely successful, and attendees were very engaged and pleased with the workshop. They shared their thoughts reflexively after cellphilm. They also discussed the emotional, kinship and identity formation as they engaged with the more-than-human of their choice.

cxlv The idea that postphenomenology enables attention to individual experience while recognizing its production through human–MTH–Nature relations is consistent with the framework described by Vagle. This incorporates what recent affect theory has been debating concerning intentionality.

cxlvi Researchers into the relationships between technology, emotions and MTH entities cover many differing fields: work space (Ash, 2020), mobile technology (Spinney, 2015), wearable simulation clothes (Kullman, 2016), music and sound (Cluett, 2006), and scientific instruments (de Boer, 2021). This research-creation on cellphilm use contributes and provides valuable insights into how digital recording devices shape our experiences and understanding of the body, while also highlighting the complex interplay between human–MTH–Nature and technology in the digital age. These practices informed the manner that I proceeded with my research-creation.

cxlvii Digital autoethnography has become more commonplace since the 2010s with the ubiquity of digital recording devices (Apostolidou, 2022; Gabriele, 2016; Spry, 2022).

cxlviii The South/North/Indigenous epistemological divide is a crucial consideration in ecopedagogical research (Misiaszek, 2014; Iftekhar et al., 2022).

cxlix Marcus and Fischer (1999) state that the development of new forms of ethnography (including modern, performative and realist forms) is guided by early ethnographic writing that includes “the descriptive power of Malinowski, the structural analysis of Evans-Pritchard, and the dramatic frame of Victor Turner” (p. 45). It “is a way of getting to the level at which cultural differences are most deeply rooted: in feelings and in complex Indigenous reflections about the nature of persons and social relationships” (p. 40).

cl Russell (1999) warns that, “the video-film dialogue that informs so much contemporary filmmaking inscribes the ‘accelerated pace of technology’ into the text itself, setting up allegories of cultural conflict, tension, and transition within the sphere of memory and its representation” (p. 313).

cli Tănăsescu (2014) relies on Badiou’s *Irreducible multiplicity* which is the idea that being is fundamentally multiple and cannot be unified or reduced to a single essence or “One.” It consists of many distinct elements coexisting without a unifying principle, a concept Badiou explains using set theory (Badiou & Feltham, 2007).

clii Dey (2022) describes the use of hyphenization of the term in the following manner: “I use ‘epistemology’ (and its grammatical variants) and ‘ontology’ (and its grammatical variants) together with a hyphen because my understanding and usage of these terms in this essay is based on the interrelatedness of these two terms as argued by Boaventura de Sousa Santos, Catherine Walsh, and Walter Dignolo.

^{cliii} Barad (2014) notes that “an important reminder that reflection and diffraction are not opposites, not mutually exclusive, but rather different optical intra-actions highlighting different patterns, optics, geometries that often overlap in practice” (p. 185).

^{cliv} Martusevicz (2005) states that one can identify neoliberalism’s “effects in specific attitudes and behaviors, including, for example, excessive individualism, an anthropocentric understanding of the natural world that leads to hyperseparation of humans from nature, a reliance on science and technology, and a linear view of change as progressive” (p. 216).

^{clv} Spinoza reminds us “this state of mind that arises from two contrary emotions is called wavering of spirit. Accordingly it is related to emotion as doubt is related to imagination (see 2p44s); and wavering of spirit and doubt differ from each other only in degree” (Spinoza & Kisner, 2018, p. 108).

^{clvi} NRT studies social life by focusing on process, relationality and heterogenous assemblages, developed in dialogue with the philosophy of Gilles Deleuze and Actor-Network Theory (ANT) (Thrift, 2008).

^{clvii} Both Jackson and St. Pierre (2021) argue that PQI demands that we think differently about analysis of data, especially from a posthumanist perspective, by moving beyond the constraints of conventional qualitative methodology.

^{clviii} For a more detailed insight on how the internet can assist in ecopedagogies see (Jandrić & Ford, 2022a; Kahn, 2010; Kahn & Kellner, 2005)

^{clix} Dang et al. (2021) state: “Our modern high - technology society and economy are increasingly dependent on so - called technology - critical elements (TCEs). These elements are becoming vital to manufacture components for a wide array of advanced and innovative technologies (e.g., electronics, renewable energy, transport, agriculture, health, military). A raw material is defined as “critical” as per the risk of supply shortages, which has subsequent impacts on the economy and security of nations. According to the most updated classifications, thirty elements and minerals fall into the definition of TCEs by the European Commission, while 35 minerals are deemed critical by the U.S. Department of the Interior” (Dang et al., 2021, p. 517).

^{clx} In addition, Socratic, an AI-based educational app, can be repurposed to assist in learning about MTH subjects by providing resources on biology, ecology, and environmental science. FaceApp, while primarily designed for human facial recognition and manipulation, could potentially be adapted to analyze and identify animal faces or plant species, offering a unique way to engage with MTH entities through visual recognition.

^{clxi} Many of these experimentation in cellphilmimg that I tried during my practice could be furthered by cellphilmimg enthusiasts to expand and enhance the practices capabilities.

^{clxii} McCormack aligns with Massey’s (2005) conceptualized space as a dynamic, relational construct that is continuously produced through social interactions (p. 9). Massey’s work challenges traditional notions of space as static, instead proposing that space-time is an ongoing, creative process generating diverse and interconnected realities. Massey’s perspective emphasizes the multiplicity and contemporaneous heterogeneity of space, rejecting linear narratives of spatial development in favor of a more complex, generative understanding of how space and time interweave to create unique places and experiences.

^{clxiii} This is also exposed by Agamben’s *zone of indeterminacy* and Lacan’s *symbolic order* of human MTH relationships (Lacan, 1991; Agamben, 2004) .

^{clxiv} *Thinking with theory* involves using philosophical frameworks (e.g., Derrida, Foucault, Butler, Barad) not as external lenses but as active partners in inquiry, and *plugging into theory* is a process inspired by Deleuze and Guattari’s concept of assemblage, where texts (data, theory, researchers) are “plugged into” one another like machines (Jackson & Mazzei, 2008, 2018; Mazzei, 2021).

^{clxv} Phenomenology, particularly as discussed by Merleau-Ponty (1976), emphasizes the embodied nature of human experience. In the context of cellphilmimg, the body becomes a primary instrument for engaging with and experiencing Earth, while the smartphone acts as a mediating technological extension. This aligns with Ihde’s postphenomenology

(1979, 1990) where technology mediates human-Earth relationships and transforms perception and interaction. Autoethnography further grounds the analysis in lived experiences.

clxvi Experiments have shown that allowing young learners to manipulate toys for example, simulates story elements and improves comprehension (Glenberg et al., 2011).

clxvii Research shows that gestures and physical manipulation can enhance memory and comprehension by reducing cognitive load and engaging the motor system (Walkington, 2014; Schiller, 2015).

clxviii The body is an imperative player in learning (Skulmowski & Rey, 2018; Duijzer et al., 2019; Flood et al., 2020; Shvarts et al., 2021).

clxix This seed planting has obviously no real impact on the plant's survival, for *Cycas revolute* native of southern Japan has survived on the planet over 300 million years.

clxx However, it's important to note that Serres' concept of 'soft pollution' primarily focuses on the invasion of public and natural spaces by advertising, logos, branding, muzak, loudspeaker announcements, and invasive media. While pets may contribute to noise and occupy emotional space, they don't align perfectly with Serres' emphasis on the economic and cultural drivers of soft pollution.

clxxi McCormack (2013) reminds us: "such has been the proliferation of techniques and technologies for working upon experience that it is no longer possible to think of it as something singular, homogeneous, or easily translatable from one context to another... William Connolly, Isabelle Stengers, and Nigel Thrift, have argued, one of the key questions facing us today is how to develop an affirmative critique of experience: a critique that seeks to reclaim the category of experience as an occasion for thinking, without, at the same time, reinstalling it as an essential phenomenological category, or an existential ground for thinking" (p. 22).

clxxiii Informal learning environments, such as museums, nature centers, and community organizations, play a crucial role in complementing formal education by offering hands-on experiences that reinforce sustainability concepts. However, access to these opportunities may be unevenly distributed, potentially exacerbating existing educational inequalities. Effective climate change education must incorporate strategies to help learners cope with eco-anxiety and channel their concerns into constructive action. However, educators often lack the training and resources to adequately address the emotional aspects of climate change education. Youth-led climate activism has emerged as a powerful force in shaping public discourse and policy around sustainability and climate change. However, the impact of youth climate activism may be constrained by existing power structures and the tendency to tokenize young voices in decision-making processes.

clxxiii In our small town of Javea/Xàbia these fire burning festivities are called "Fogueres de Sant Joan" (Bonfires of Saint John). These celebrations take place in June, culminating on June 24th, which is the feast day of Saint John the Baptist. A highlight of the festival is the "Nit dels Focs" (Night of Fires) on June 23rd, which is recognized as a Festival of Tourist Interest by the Valencian Community. A common tradition in Spain is lighting firecrackers and fireworks for every possible occasion throughout the day and night.

clxxiv The *peñas* play a significant role in the *Fogueres de Sant Joan* festivities in Javea/Xàbia, acting as the soul of the fiesta. They are comprised of groups of friends, ranging from small circles to entire streets of neighbors, who come together annually with the primary goal of enjoying the celebrations.

clxxv As Kopnina suggest, ecological education promotes environmental stewardship, while also advocating for the protection of human rights and social justice at the expense of MTH entities (Kopnina, 2012, 2020).

clxxvi <https://www.sherbrookerecord.com/10th-anniversary-of-the-stanstead-stone-circle/>

clxxvii The ontological turn in Indigenous studies is a shift in scholarship that treats Indigenous worldviews as fundamentally different realities - not just alternative perspectives on the same World. It recognizes Indigenous ways of relating to land, beings, and spirits as unique modes of existence, rather than just knowledge systems. This approach challenges colonial thinking but is debated for potentially reinforcing divides or being misused by academics without true engagement with Indigenous communities (Kelly, 2014; Cipolla & Hayes, 2015; Todd, 2016; Tym, 2024). In

essence, it's about valuing Indigenous realities on their own terms and recognizing multiple legitimate ways of being in the World.

clxxviii Some of the tribes include: The Sámi (Europe), Khoe and San (Africa), various Indigenous African peoples affected by colonialism, Indigenous Australians and Torres Strait Islanders (Australia), Karen people (Myanmar, Asia), Masyarakat Adat (Indonesia), First Nations, Métis, Inuit (Canada), Mashpee Wampanoag, Ponca, Wabanaki, Karuk, Haudenosaunee, Mi'kmaq, Zuni, Taos Pueblo, Havasupai, Cow Creek Band of Umpqua Tribe, Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians, Leech Lake Band of Ojibwe, Confederated Salish and Kootenai Tribes, Passamaquoddis, Penobscots, and Ohlone peoples (United States).

clxxix Various 'turns' in research, such as the 'corporeal turn' (Sheets-Johnstone, 2009) and the 'mobility turn' (Creswell, 2003), have made significant inroads into research related to embodiment, movement, and walking.

clxxx For example, a popular German children's folksong titled "Hänschen klein" (Little Hans) written by Franz Wiedemann (1821–1882). Link to a contemporary example: <https://www.youtube.com/watch?v=estWuexvkqs>

clxxxi A peripatetic walk through the forest blends the act of walking with the historical and philosophical idea of movement aiding thought. Peripatetic comes from the Greek *peripatein*, meaning to walk around, and is linked to Aristotle, who taught while walking. (Merriam - Webster, n.d.) Combining this with a forest walk suggests a journey that encourages reflection and learning through physical movement in nature.

clxxxii An expanded definition should include biking and skiing.

clxxxiii My adventures also align with the 'Flaneur' concept introduced by Benjamin in his *Illuminations* (Benjamin et al., 1986).

clxxxiv *Gathering moss* is a lyrical blend of science and Indigenous wisdom, exploring the ecological importance and cultural lessons of mosses, and inviting us to see these tiny MTHs as vital, interconnected members of our shared Nature.

clxxxv Kennedy (2006) argues that society has abandoned the child to the state, that is: "if 'state' is understood in the broader sense to include the corporate, media, and civic/legal worlds - schools, day-care centers, afterschool programs, and organized programs that act to ghettoize children within an architectural environment relentlessly designed in the image of low-level corporate office buildings - stripped-down boxes filled with ugly furniture, set in increasingly dehumanized urban and suburban landscapes bereft of the sorts of play zones and spaces traditionally associated with childhood" (p. 134). Based on the studies of Piaget, Montessori, Vygotskiĭ, Freire, Rogers, Maslow, and Bruner he proposes a *school of the third way*.

clxxxvi The integration of new lights deeper and deeper into the park over the years reflects the increased use by city folk and the encroachment into natural and preserved lands. The city lights have become invasive and are harming sleep habits of wildlife and plants (Leahy, 2016; Widmer et al., 2022; Bará & Falchi, 2023; Ramirez, 2024).

clxxxvii Naess (2008) explains: "According to Spinoza, the power of an individual is infinitely small compared with that of the entire universe, so we must not expect to save the whole world. The main point - which is built into the basic conceptual framework of Spinoza's philosophy - is that of activeness" (p. 125). And: "Activeness - a better term than activity - makes for joy, according to Spinoza. It expresses the nature of the active being, the being as far as it is in itself (in se), and the more directly it expresses its unique nature, the greater the joy. Sorrow is due to passivity, a lack of active expressions" (p. 243).

clxxxviii Lingis's in *The imperative* expands on Kant's concept of the categorical imperative, arguing that imperatives govern not only our thoughts but also our sensory, affective and emotional experiences. Lingis proposes that imperative forces exist in things (MTH entities), other people, and ourselves, positioning the imperative as fundamental to how we perceive and interact with reality (Lingis, 1998).

clxxxix For Deleuze and Guattari, immanence operates on a *plane of univocal being*, where ecological ethics emerges from the "body without organs," rejecting hierarchical or mechanistic frameworks (Deleuze & Guattari, 1987). Immanence, as explored by Clarke in *Practising Immanence*, emphasizes the inseparability of life from its material

and affective conditions, rejecting dualisms such as human/nature or mind/matter. Drawing on Deleuzian philosophy, Clarke uses the concept of ‘haecceities’ (the thisness of events or things) to frame life as inherently relational and indivisible from the environment, particularly within the Anthropocene (Clarke, 2023). Vitality in distinction contrast with immanence and focuses on life’s dynamic, self-organizing processes. Bazzano describes it as a force driving life to maintain and enhance itself, aligning with vitalist traditions that emphasize resilience and adaptability (Bazzano, 2012). Kaira Cabañas extends this idea by linking vitality to material agency in art, challenging distinctions between animate and inanimate matter (Cabañas, 2021) .

^{exc} For example, the large industrial farms in the Midwest, and the extensive corporate manipulation of beef markets in the Chicago Stock Exchange inevitably increase the exploitation of cheaper labour and cattle feed in the Southern countries like Argentina, Mexico and Uruguay. There is also the genetic transformation of cattle for better consumable meat like the Kobe in Japan or the beefalo in North America. As Schaumberg (2020) argues, the history of cattle ranging is often intertwined with a “racialized and frequently violent history of displacement” (p. 100).

^{exc}_i The relational turn prioritizes interconnectedness over individualism, advancing transformative, context-sensitive insights across disciplines. The importance of the relational turn lies in its capacity to reframe research questions, methodologies, and ethics by centering relationships as the core of social reality. This enables richer, more nuanced, and more ethical research, better suited to the complexities of contemporary social and ecological challenges

^{exc}_{ii} The Jesuit priests were part of a larger French postcolonial drive to maintain power in the oil rich Middle East as they imposed political, social, religious and pedagogic influence on a newly independent colony (Lebanon) - in the midst of warring neighbours and refugee camps.

^{exc}_{iii} The fish swimming under the boats were Atlantic varieties, also native to the Mediterranean when habitat structure, seasonal patterns, and density-dependent mortality permit. The seabream has undergone genetic changes making it more chewable when cooked for human consumption (Cuadros et al., 2018; Casadevall et al., 2020).

^{exc}_{iv} Loud and curious the parakeets build large condominium nests in giant pines brought here under the Franco regime to increase wood production along the coast (Vadell et al., 2016). I had come to learn that the authorities were trying to control the ‘alien’ birds by knocking down their large and heavy nests, which threaten to break the old pine tree branches. They collected about 20 chicks from the nests and gave them to local bird fanciers for breeding in captivity, as this species is quite sought after among lovers of exotic birds.

^{exc}_v <https://www.youtube.com/watch?app=desktop&v=dCRG5HGH7cc&t=0s>

^{exc}_{vi} How can I appease my cynicism - are the birds happy, thriving with the marketing arrangement? What happens if the store decided to renovate, go under, or abandon the marketing strategy? Is this marketing entanglement an example of what proposed neo-liberal sustainability is about? Do they belong or are they the contributing to the public’s appeasement of superficial guilt?

^{exc}_{vii} Hassan (1977) first coins ‘posthumanism’ in an essay based on a keynote speech. He states: “We need to understand that five hundred years of humanism may be coming to an end, as humanism transforms itself into something that we must helplessly call posthumanism” (p. 843).

^{exc}_{viii} I challenged in my post viewing research the idea that plastic playgrounds are inherently safe, cheaper or ‘better’ than playgrounds constructed from natural materials. Research highlights that playgrounds constructed from plastic materials contribute significantly to microplastic pollution. Studies show that microplastic concentrations inside playgrounds are, on average, more than five times higher than in surrounding park areas. The primary sources are the plastic structures themselves, which shed microplastics through physical abrasion and weathering, especially under UV exposure. These microplastics, predominantly polyethylene and polypropylene, pose potential inhalation and ingestion risks to children (Koutnik et al., 2023).

^{exc}_{ix} I was struck by the apparent disconnect between the idyllic scene of vacationers enjoying the water, like a Jacques Tati film and the underlying ecological realities. I could not understand the bathers swimming here. Even though plastics make up around 50 percent of a car’s volume, it only makes up about 10 percent of its weight making the car

cheaper and easier to produce. The high inclusion of plastic products however contributes to greenhouse gas emissions and furthers harmful climate change, which in turn contributes to the rise in the sea level (*Plastic Pollution*, 2024).

^{cc} In the context of the reports indicating the presence of microplastics in fetuses (Sharma et al., 2024), and increased discovery of plastics in nests worldwide, this discovery served as a reminder of the all-encompassing repercussions of petroleum extraction (Batisteli et al., 2019; Janic et al., 2023).

^{cci} Affifi and Christie (2019) link our learning with our experiencing death of someone close to us. They explain: “Intrinsic to our experience but often covered over, lies the fragility and transience of life, and impermanence of all we cherish. To address this loss, educators will need to face their own mortality, the death of those around them, the destruction of animals, plants, and places, the extinction of species, and looming always on the horizon, the possible obliteration of a functional biosphere. Sustainability is a response to the precarious future of humans and the ecologies they depend on” (p. 1144).

^{ccii} The males go into the arena to show their prowess and the females prepare food in the bleachers, take care of the children and howl with fear as the bull approaches their courageous men - *plus ça change, plus c'est la même chose* - in some communities.

^{cciii} An analogy of a visual representation can be seen here:

<https://www.youtube.com/watch?v=rEoc0YoALt0&t=120s>

^{cciv} At the 4th International Holistic Teaching & Learning Conference (HTLC) in April 2024. Participants also discussed afterwards the emotional, kinship and identity formation as they engaged with the MTH of their choice. Consequently, this informative conference and my workshop outcome grounded this research proposal by clearing out impediments and insecurities that tainted my dissertation process.

^{ccv} This location also held a story, not just of human activity, but of intricate social-ecological systems of extractivism, pollution, hyper-consumption, international trade, and oil movement through pipelines and freight trains perpetuating colonialism and epistemicide (Huseman & Short, 2012; Parrish, 2021; Willms & Leahy, 2019; Yu, 2024).

^{ccvi} I recalled Guattari's plea for a transversal mode of perception, moving beyond the human/nonhuman split (2015, p. 79). Navigante (2024) describes the idea: “In the sphere of interaction and practice, transversality involves a passage from reactive energy (of an isolated individual) to active synergy (of a committed group), a breath-turn that conjures another form of socialization, an “impossible position” – that is, a position invisible to the system but co-existing as “alternative” – capable of turning segments of the established reality inside out (or upside down) and reconfiguring them beyond taken-for-granted parameters of continuity and change” (p. 2).

^{ccvii} This multi-perspective approach also aligns with Harman's (2018) Object-Oriented Ontology (OOO), urging us to get out of our own heads and into the ‘minds’ of everything around us (both seen and unseen).

^{ccviii} As Roberts (2009) notes, the Internet is offering more and more, “...diverse sources of information and practice (even by adapting “traditional” methods such as interviews), arenas for “performing lives”, means of representation, and “genres” (fact-fiction) or, in other words, research as/on/by performance on the Web relevant for performative social science research” (p. 331).

^{ccix} This multisensory approach aligned with Castro-Sotomayor et al.'s (2018) notion of “humanimals”, which emphasizes the interconnectedness of human and MTH sensory experiences (p. 18).

^{ccx} Several design and communication technologies aim to create more intuitive and meaningful interactions through advanced interfaces. In the realm of artificial intelligence, for example, protocols like KQML and FIPA-ACL enable complex interactions between autonomous agents and humans, facilitating collaboration and mutual understanding (Labrou et al., 1999; Ahmed et al., 2009; Tsochev et al., 2015; Ateeq et al., 2024; Kolomaznik et al., 2024).

^{ccxi} Emotional bonds promote prosocial behaviour and can improve emotional well-being by reducing feelings of loneliness (Kennedy, 2006; Martens et al., 2011). Furthermore, these relationships contribute to the development of ecological consciousness, leading to a deeper understanding of our place within broader ecosystems (Mayer & Frantz, 2004; Balcombe, 2006; Reis & Roth, 2009; Lansade, 2023). Ultimately, cultivating these connections led to more

sustainable and empathetic interactions with the environment and its MTH inhabitants, extending a more holistic approach to environmental education and sustainability.

^{ccxii} An ethical shift has implications for various fields, including research practices, environmental policies, and our overall relationship with MTH entities. It involves carefully considering consent, potential harm, representation, and context sensitivity when filming animals, other living entities or natural environments, challenging Northern/Western ‘traditional’ anthropocentric views in research and education.

^{ccxiii} Castro-Sotomayor et al. (2018) suggest that “When reading the encounters, rather than fighting the discordant sensation of an inability to relate, we instead attempt to find ourselves within that foreign story” (p. 17).

^{ccxiv} The practice of Engaged Eco-Psychosomatics (EEP) emphasizes the importance of bodily awareness in ecological learning by focusing on breath, movement, and sensory engagement with Nature (Abram, 2010).

^{ccxv} The lens of new materialism proved invaluable in understanding the intra-actions between humans and MTH entities. Spinoza, Deleuze and Bennett (2010) discuss ‘the vitality of things’, which resonated for example with my experience of filming the “Granite Extraction in Ogden”.

^{ccxvi} This aligned with Adams and Thompson (2016) who argue for “an environmental understanding of agency” (p. 19)

^{ccxvii} Thrift's (2004) understanding of affect as an intertextual power dynamic that generates emotions is crucial in NRT-informed cellphilmimg. This perspective emphasizes the political nature of affect in shaping perceptions of space and time. This informs the role of emotions in ecopedagogical approaches to environmental issues and how cellphilmimg can challenge or reinforce existing worldviews.

^{ccxviii} This method aligns with queer ecological and ecofeminist critiques, linking environmental degradation to systems of oppression (e.g., colonialism, heteropatriarchy) and amplifying marginalized narratives, such as Indigenous land stewardship or LGBTQ+ ecological justice.

^{ccxix} Ecopedagogy in its essence tries to conscientize learners by the question that Misiaszek (2018) clearly asks: “Who benefits, who pays, and who suffers from human action that is harmful to the environment?” (Misiaszek, 2018, p. 2).

^{ccxx} Pink et al. (2016) tell us: “Reflexive practice is also considered to be an ethical practice in that it enables researchers to acknowledge the collaborative ways in which knowledge is made in the ethnographic process” (p. 12).

^{ccxxi} As Misiaszek et al. (2022) note, “deeply vulnerable, authentic, and honest reflexivity singularly demonstrates how systemically violent (colonized) curricula have poisoned minds and the essentialness of deliberate and difficult work to up-root Northern epistemologies for needed paradigm shifts towards socio-environmental justice and planetary sustainability” (p. 136).