

Rooted and Rising:
A Pedagogical Narrative Inquiry into
Re-Storying Education in the Era of Climate Change

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ABSTRACT

As my relationship with global climate change grows deeper, I find myself increasingly intrigued by how this era compels a fundamental re-storying of education. In pursuit of this inquiry, I co-created Rooted and Rising – a pedagogical experiment in supportive education with and for youth climate leaders – and took up research within and alongside it. Through this dissertation, I sought to better understand the foundational narratives of this experiment, and what they might offer into the re-storying of education at this very pivotal time in global history. I collected data through a Pedagogical Narrative Inquiry, which explores the storied experiences of students and educators in Rooted and Rising (R+R), including my own, using interviews, document analysis, field notes, and personal reflections. My inquiry contributes to re-storying and re-structuring education as prefigurative, understood as the deliberate and experimental implementation of desired futures in the here and now. I offer three sets of significant narratives towards this re-storying: Interconnecting and the opening practices of valuing, attending, and sustaining interconnecting; Social Action narratives including processual narratives of improvisation and tinkering, social narratives of collaboration, and planetary healing narratives that both framed and emerged in the experiment; and Desired Futures, reflecting with R+R's pedagogical invitations into play, desire, and agency with futures, and the aesthetics, temporalities, and well beings students' expressed desire for across three activities. Theoretical and practical implications are discussed.

Keywords: climate change education, narrative inquiry, prefigurative, youth, desired futures.

DEDICATION

I dedicate this dissertation to the global project of re-making our education systems in climate-and-poly-crisis. To caring young people bravely figuring it out as they go, and the educators, mentors, and intergenerational friends dedicated to supporting and collaborating with them. To earth, water, and nature beings nourishing, teaching, and collaborating in transformational disruption and healing.

I dedicate this dissertation to the iterative and evolving Rooted and Rising Lab and to Conscious Minds Co-op and the people that make up these collectives. To the purposeful collaborations and caring communities we have and will continue to curate together.

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CHAPTER 1

Introduction

On September 20th, 2019, millions gathered in 156 countries for a global climate strike (Ott, 2019). In Toronto, Sharrae Lyon and I led a different kind of protest with the local FridaysforFuture chapter: a teach-in. Over 250 people and 47 small group facilitators took part in what I can only describe as a temporary stabilization of the kind of education I dream of. Driven by a youth-chosen inquiry – how to talk with adults about climate change – and interwoven with music and participatory theatre, layered community support and intergenerational dialogue created a day of embodied hope, child/youth agency, and possibility through education. As much as this is a day to savour, in the aftermath, I can't help but to reflect on the ways in which it was educationally tragic. Why, almost thirty years after education was internationally recognized in the global response to climate change (United Nations, 1992), was this protest/grassroots intervention still needed? Some teachers arranged field trips with their students to the teach-in, but also shared with me how a lack of peer, parent, and administrative support constrained their pedagogical engagement with climate change. Youth attendees and organizers lamented with me about their lack of access to education like this too. They were aware, wholly dedicated to meaningful response; and yet, beyond protesting, they were unclear what effective action looked like, or how their passion connected to a post-secondary degree or career/their personal future. This study is inspired by these conversations. Through narrative explorations with(in) a pedagogical experiment attending to these local needs, I seek to contribute to re-storying of education in the era of climate change.

Humans are storytellers, and it is stories that I wish to engage in this study. Stories help us make sense of the world and shape our actions in the world (Connelly & Cladinin, 1990; Cladinin et al., 2016; Webster & Mertova, 2007). Stories come to guide and govern our lives as “they help us make sense of who we are, what we're up against, what we stand for, why life matters, and where we're headed” (Poland, 2018, p.36). Climate change can be understood in part or entirety as a problem of story itself. Stories identified at the root of the climate crisis include increasing GHG levels, temperature changes and ecological tipping points. They also include assumptions that ‘knowledge is separate from context and experience’ (McConville, 2021), and that ‘humans are separate from the natural world’ (Bowers, 1993). These are foundational stories of climate crisis, and foundational stories on which much school curricula are constructed. Inquiring into educational narratives then, comes into relationship with both restructuring education and storying ourselves out

of extractive and destructive behaviours and patterns; whether in K-12 classrooms or in global ecologies. As many argue, to transmute crisis into thriving futures, we must first imagine and cultivate our belief in these futures through story, and then begin to listen closely, discuss, critically reflect, and live by those stories in the here and now. Many authors eloquently make this point (see for example, Haraway, 2016; Maclear, 2018, p.iiiv; Randall, 2009; Mulcahy, 2012, p.192; Solnit, 2014 in Maclear, 2018, p.1; Bruno Latour in Haraway, 2016, p.45; Okri, 2008; LeGuin, 2004, p.79; Hutchinson, 1996, p.12; Hicks, 2012, p.188).

My pedagogical narrative inquiry gathers significance in contrast with “educationally debilitating” narratives (Barone, 2003: 202) that still (I will show) largely dominate the educational imaginary of climate change – including public images and stories that shape how education and climate change are imagined, stabilized through policy and institutions, practiced, and contested. To understand the stunted evolution of education on/with/in climate change, it is fashionable to trace duelling narratives of international climate change policy (Chang, 2014). This battle has been named the ‘contrarians vs. alarmists’ (Chang, 2014), or climate deniers vs. advocates depending on which side you ask. Though in practical reality the people, events, and circumstances creating and informed by this narrative battle are more nuanced and complex, it offers a still important view of two sides: on one, right-wing think tanks and fossil fuel corporations have actively invested millions into educational narratives framing and confining climate change (Zou, 2017; Kruszelnicki & Smith, 2021). Through copious public campaigns and educator resources they have storied: (1) climate change as controversial and thereby not belonging in schools (Chang, 2014); (2) that education should keep to scientific *facts* (questioning predictive climate science in schools) (Sanera & Shaw, 1999); (3) environmental risks must be balanced secondary to (capitalist-neoliberal) economic needs (Klein, 2014); and (4) ‘action’ should focus on students’ contributions to climate change and individual consumer behaviours they can change (Kruszelnicki & Smith, 2021) – and therefore defocus corporate responsibility – as well as technoscientific solutions. The teachers I spoke with at the teach-in experienced the fallout of these narratives, and Monroe et al. (2019) document how teachers around the world feel similar unease teaching climate change for fear of the repercussions of these narratives in the forms of parental complaints, and administrative hesitancy.

On the other side, and in response/reaction to denier narratives and to climate change itself, climate advocates alternatively story education as a potent space for cultivating action (Chang, 2014). This narrative often goes that if only enough people understood the scientific reality of climate change, they would be compelled to act. Education, in this light, can tumble into mechanized

approaches where the focus is transmitting climate science to children and youth, who can then communicate this to adults and convince them to act (Chang, 2014; Kouppanou, 2020). The goal of education within this approach – and the dominant goal in climate change education literature – is knowledge leading to climate action (Monroe et al. 2019; Henderson et al. 2017; Moser 2016, Verlie, 2020, p.8). This well-intended and ongoing approach has achieved many positive outcomes. However, constrained in evolution by, and entangled with the narratives of climate denial, these mechanized narratives have both educationally liberating and debilitating consequences in the way climate change, young people, the problem, and education are storied.

First, climate change is predominately storied through Western scientific frames as a relatively stable set of scientifically defined “characteristics/facts that need to be studied in order for its effects to be reversed” (Kouppanou, 2020, p.949). This framing offers one important way of understanding climate change and education, but as the only or meta-narrative of climate change in the educational imaginary, it is restrictive and debilitating. Parasram & Tilley (2018) point out that it begins in a colonial “ontological starting point” that is also foundational of climate crisis: “land and humanity are separate, and that land must be worked upon in order to extract value from it”. This ontological starting point means that education is being oriented to climate change through the very narratives that (re)produce the climate crisis. Many argue it limits imaginatory participation in constructivist, critical, and ontologically-distinct Indigenous narratives of climate change as a symptom of relational-spiritual sickness (Allison, 2007; Suzuki & Knudtson, 1992; Mulcahy, 2012; Rose, 2017), colonization (Cameron et al., 2021; Indigenous Climate Action, 2018; Stein & Androetti, 2022), and the co-imbricated systems of capitalism and patriarchy (Kuokkanen, 2008), and/or successful modernity and industrialization (Beck, 2009). The arguments stress how education becomes limited in its ability to understand the causes of crisis, process histories and ongoing patterns of crisis, and engage in pathways of change illuminated in Indigenous knowledge systems widely recognized as critical for guiding humanity through and out of crisis (Stein & Androetti, 2022; IPCC, 2023). As Mbah et al. (2021) explained of the Majority/developing world that I see in the Canadian context too, “climate change education curricula... lack contextual relevance and devalue indigenous knowledge, in addition to Westernised assessment strategies and pedagogy methods that further reduce education effectiveness” (p.16).

In the climate crisis, children are also imagined in particular, educationally liberating, and debilitating ways. Positioned in between climate knowledge and adults with political agency, children and young people are imagined and storied as “adults in waiting” (Trott, 2021) with a ticking clock;

or alternatively in need of protection from apocalyptic narratives and/or scary alarmist predictive science. In this storying of climate childhood, children are given the burden of truth about existential threat, yet not provided educational pathways to agency and voice now. Not only does climate awareness without meaningful action close down educational potential for children and youth to dream, advocate, adapt, and innovate, it also carries emotional and psychological impacts for young people (Vamvalis, 2023). Karsgaard and Davidson (2021) identify some of these impacts as “fear and despair, often expressed in some form of, ‘if we don’t act, the human species/planet will die’; grief for observed and expected losses, particularly for animals and vulnerable people; guilt and shame engendered through knowledge about personal impacts; confusion and frustration regarding a perceived lack of response by authorities” (p.85). Haunted by educational narratives of personal consumption habits that do not attend to regimes of power, many children and youth carry “a deep sense of guilt over consumptive practices” (Karsgaard & Davidson, 2021, p.83). In this regard, stunted educational engagement with climate change can not only contribute to the unwellness of students but it also limits education from supporting students through these emotional waters. Education seems unable, as Karsgaard and Davidson (2021) critically lament, to be accountable to young people now as both sides of the duelling policy debate place the wellbeing of learners secondary to goals of climate action or continued economic relations.

The advocacy narrative that focuses on increasing children’s scientific literacy to inspire action is also educationally debilitating in that it is not achieving its goal. Since 2011, research has demonstrated that increased climate scientific knowledge alone does not lead to increased action or care (e.g., Wolf & Moser, 2011; Trop 2012 in Vaughter, 2016). And yet, both educational practice and research seem stuck in a deficit narrative of the problematic as a lack-of-knowledge *about* climate change. Monroe et al. (2019) found 40 of the 49 articles they studied in a systematic review to be about programs “designed to improve knowledge about climate change” (p.20). Lee et al. (2020) document a stream of 84 studies from 1993-2018 that assess student perceptions on the causes, impacts, and/or solutions of climate change as a measure of education’s success or failure to educate out of crisis, finding persistent misconceptions. While nothing is inherently wrong with any one study or program, the compounding storying narrows the imaginary of the problem and response, producing a restricting deficit-model approach (National Research Council, 2011).

This framing further stories education as residing outside the problem – the holder of truths that once disseminated will fix the crisis, or as a space in which it is inappropriate to talk about climate change at all. This framing limits the educational imaginary from the introspective work of

grappling with education's own complicity in the climate crisis and transforming education in response. How are educational systems and practices implicated in the climate crisis? If climate change is a result of the imbricated systems of capitalism, colonialism, and patriarchy (Kuokkanen, 2008), then how does public education created within, for, and by these systems and their undergirding "Eurocentric colonial knowledge system" (Karsgaard & Davidson, 2021) need to transform in order to be accountable to, and liberating for, young people now and to the promise and possibility of flourishing futures for learners and their communities? Detrimentally, the meta-narrative dominating the educational imaginary closes down interrogation into content, pedagogies, lenses, assessment processes, etc. that need to be unlearned (Stein & Androetti, 2022).

Finally, I am concerned with the way in which these dominant narratives frame the temporality of climate change and its relationship with education. In the swirl of advocate and denier meta-narratives, education is storied to be *about* climate futures, rather than education *in* the era of climate change (Kagawa & Selby, 2010). This framing limits the ability to see, mitigate, and adapt to climate effects impacting schools and school communities (Anderson, 2010 & 2012; Tanner, 2010; Lawler & Patel, 2012). It further closes down educational attention to skills, capacities, efficacies, agency, and competencies for rapid change and uncertainty (Bangay & Blum, 2010; McKeown & Hopkins, 2010). More radically, education *about* climate change is teetering on becoming oblivious to the spirals of transformation in the era of climate change, and what these spirals mean for education, learners, and their communities.

In the era of climate change, an era of rapid socio-ecological change, uncertainty, radical possibility, and increased precarity (and wealth, health, and resources for some), it can be generative to juxtapose spiraling pathways in and out of crisis. Globally, we continue to spiral deeper into climate crisis and collapse. Climate change's "widespread adverse impacts and related losses and damages to nature and people" have already begun and are rapidly accelerating, with vulnerable communities disproportionately affected (IPCC, 2021, p.17). Yet simultaneously, millions around the world are shutting down harmful practices, healing, cleaning, innovating, defending, and creating conditions for life and cooperation, spiraling out of crisis and into multi-species flourishing and justice. This latter spiralling goes by many names. Paul Hawken (2007) names the movement the 'blessed unrest': a global and diffuse movement emerging from interweaving roots of "environmental activism, social justice initiatives, and indigenous cultures' resistance to globalization" (p.42). Joanna Macy (Macy & Brown, 2014) and David Korten (2006) story the process as the 'Great Turning', a mutually reinforcing three-part process of "actions to slow the

damage to Earth and its beings”, transforming “the foundations of our common life,” and “a fundamental shift in worldview and values” (Macy & Brown, 2014, p.6). Isaac Murdoch (2020), Anishinaabe artist-storyteller, land and water protector, stories the end result as the “new beautiful everything”; and Porto Alegre’s World Social Forum captures belief in it in the phrase ‘another world is possible’ (Maley, 2010).

I (like so many others) varyingly live with the narrative tensions, ambiguities, and possibilities of having one foot in collapsing systems and ways of being, and one foot in emerging worlds I know are possible, have been, and are already becoming (Poland, 2018). Education, however, too often remains restricted to some all too familiar narratives of climate change as a future-problem framed through technoscientific concepts and narratives to be understood, communicated, and tackled through consumer behaviours and personal solutions. It is within a lineage of literature critiquing this dominant educational approach (e.g., Jorgenson, Stephens, & White, 2019; Monroe et al., 2019; Reid, 2019; Rousell & Cutter-Mackenzie, 2020; Mbah et al., 2021; Vamvalis, 2023) that this dissertation inquires into what else is possible.

1.1 Purpose

Amidst critique, youth narratives of inadequate education, existential threats and increased global precarity, there have been growing calls to reimagine and re-story education. Selby and Kagawa (2010) urged education to seize the learning moment in climate change “to think about what really and profoundly matters, to collectively envision a better future, and then to become practical visionaries in realizing that future” (p.4). Monroe et al. (2019), in their systematic review on effective CCE strategies however, report that few had embraced Kagawa & Shelby’s perspective in the literature. Already in the years since Monroe et al. (2019)’s publication, this interpretation has been taken up by more authors (e.g. Karsgaard & Davidson, 2021; Bolstad, 2020; Vamvalis, 2023). In 2021, even UNESCO’s International Commission on the Futures of Education released a report calling for a new story of education in “a world of increasing complexity, uncertainty, and fragility” (p.2). There is an important narrative shift here in how education is being storied by a body often accused of perpetuating debilitating narratives. No longer the holder and transmitter of certain Truths, UNESCO (2021) outlines a new social contract in which education is storied as a collaborator and host of collaborative learning *with* children and youth in reimagining and activating healthy thriving futures.

I feel the companionship of others. My research is not alone in inquiry, but rather seeks to contribute to this wider global/local pursuit of re-storying education in the era of climate change. It also comes after a recent swell of literature offering stories of education that does or should attend to *emotions/ affective learning* (McKenzie, 2021; Mochizuki & Bryan, 2015; Karsgaard & Davidson, 2021; Trott, 2021; Vamvalis, 2023), *hope* (Cantell et al., 2019; Ojala, 2015; Hopkinson, 2020; Dolan, 2021), *agency and participatory knowledge production* (Field, 2017; Cutter-Mackenzie & Rousell, 2019; Busch et al., 2019; Zink, 2020; Bolstad, 2020; Trott, 2021; Hayden et al., 2011; Lawler & Patel, 2012), *justice* (Mochizuki and Bryan, 2015; Stapleton, 2019; Waldron et al., 2019; Dolan, 2021; Karsgaard & Davidson, 2021; Reid, 2019; Ke, 2021; Kwauk, 2022), *Indigenous knowledges* (Sherpa, 2018; UNESCO, 2009; Kagawa & Selby, 2010; Stein & Andreotti, 2022) and *multiple-epistemological* (Busch, Henderson, & Stevenson, 2019) orientations. As Siperstein et al. (2016) write on climate change in the humanities, even before this swell, many educators with and without published documentation or mandated curriculum, have been teaching beyond the boundaries of debilitating narratives, and there continues to be more than reported. In education too, there are spiraling pathways deeper into climate crisis, and others emerging into the new beautiful everything.

In this dissertation, I offer narrative reflections with a partial, localized, imperfect practice of education collaborating with and supporting young people in the great turning. In her book *Learning Futures*, Keri L. Facer (2011) argues that “we need to return to the core DNA of schools, their claim to act as a resource for helping students, communities and societies to thrive in the future” (p.134). This dissertation asks after educational narratives on what thriving futures mean in the era of climate change, and, as Karsgaard & Davidson (2021) write, what it means for education to be locally/globally, personally/socially, politically/ethically accountable to young people as they wade through crisis and pursue thriving futures now?

To engage in this inquiry, I co-created a pedagogical experiment, Rooted and Rising that embraced the existential threat of climate change, accepting that we may not know all the answers, but we need to try anyway. Rather than solely focus on science literacy, the Rooted and Rising (R+R) pilot program purposefully prioritized collaborative action, subjective and intersubjective explorations of what it means to live and lead well in the era of climate change. The 12-class weekly program ran with a 10-person teaching team and 22 students aged 13-30, spanning primary through doctoral education and youth out of school, who were already passionate about climate change. I am interested in better understanding and representing the openings, possibilities, and tensions of the foundational narratives of this experiment; learning with the R+R teaching team and students,

and what they, what we (including myself), might offer into the re-storying of education in/at this very special point in global history.

1.2 A Research Puzzle

This dissertation can fruitfully be seen as responding to a research puzzle driven by the question: how does the era of climate change compel a re-storying of education? In response, I inquire into the following three educationally situated sub-questions: (1) What was the emergent curriculum of *Rooted and Rising*? (2) What were significant framings and emerging narratives for the teaching team and youth leaders in *Rooted and Rising*? (3) And, more generally, what did these narratives offer teachers, students, and multiple other educators in the era of climate change?

1.3 Pedagogical Narrative Inquiry

In this study, I re-searched with the storied experiences of students, teaching team members, and myself as educator and researcher in a pedagogical experiment, *Rooted and Rising*. I chose to take up this study as a pedagogical narrative inquiry. Narrative Inquiry (NI) is a story-based qualitative methodology interested in lived-experience and the stories told about them (Clandinin, 2013, p.17). NI is an empirical method that honours participant experiences as knowledge-full, their storying of those experiences as a process of meaning-making; it also acknowledges that relationships are integral to knowledge-production. This makes NI an excellent methodology for tapping into the “practitioner mindset” (Thody, 1997, p.331 in Cohen, Manion, & Morrison, 2007, p.394), which I consider this research to do. I approached my study as practitioner researcher, understanding R+R students as practitioners of climate leadership, and each member of the teaching team as practitioners of education both within and beyond R+R. I also conducted this research as a practitioner, a positionality embraced by narrative inquiry which encourages inquirers into “intentional and systematic inquiry” of their own practice as a key part of the research study (Heikkinen, de Jong & Vanderlinde, 2016). Narrative inquiry drops the illusion of particular notions of objectivity in research, and instead appreciates the researcher as an influencing factor and central actor within research (Heikkinen, de Jong & Vanderlinde, 2016). I took up a particular form of NI in this study, pedagogical narrative inquiry, by making the pedagogical experiment, *Rooted and Rising*, the subject of study, explored through the storied experiences of those who created and experienced

it. I am interested in Rooted and Rising's pedagogical narratives – narratives that (1) a pedagogy is built on, (2) are expressed through the pedagogy, and (3) emerge out of pedagogical practice.

I examine the R+R curriculum (as it was envisaged, conceived, and enacted) as the basis for this study. Data on the curriculum was gathered from the program report (2021), web-based public materials on the program, and field notes and my personal reflections during the planning, teaching, and evaluation of the pedagogical experiment. Personal reflections and field notes further enabled me to reflect on my own experiences and practices as educator and researcher in the process. Alongside this, I conducted semi-structured interviews with members of the teaching team and students in R+R. Participation in the study was voluntary; and, in total, I interviewed six out of the ten teaching team members, and four out of the twenty-two youth leaders in the program. I aimed to interview each participant twice, mid-way through the program and at the end of the program. While some were unable to complete both interviews, I gathered a total of seventeen interviews filled with storied experiences of education in and outside Rooted and Rising. Three out of four students completed both mid-way and end of the program interviews, with one student only completing the mid-way interview. Four out of six teaching team members interviewed completed both interviews, with one member completing only the mid-way interview, and another completing on the end of program interview. These data form the focus of my analysis and what is to follow.

1.4 Rationale & Significance

Clandinin (2013, p.35) writes that narrative inquiries can matter on three levels: personal, practical, and social-theoretical. My inquiry matters on all three. Theoretically and socially, it is my aim that the storied experiences analysed here can contribute to re-storying and restructuring of education. Practically, the pedagogical experiment of Rooted and Rising mattered locally, addressing a gap in educational support identified by local youth climate leaders. My research with(in) this experiment supports improved future practice of the Rooted and Rising program and offers prompts and narrative moves for educators to adapt to other educational settings. This dissertation is of personal significance too, contributing to my life-long puzzling into education and climate change.

Rousell & Cutter-Mackenzie-Knowles (2020) in their systematic review of climate change education and child/youth agency, note the global rise of youth climate movements and their embrace of holistic, justice, and hope-orientations to climate change. Seeing rapid leaps in informal

movement learning, these authors urge education to “catch up to broader social movements” (Rousell & Cutter-Mackenzie-Knowles, 2020, p.203). Youth movements, including FridaysforFuture, are challenging education to recognize the dissonance between the business-as-usual future that education is preparing them for – futures that are no longer possible or desirable in the era of climate change – and the realities of the era that are shaping their child-and-youthhoods, and in which they are becoming adults. This dissertation also seeks to contribute to literature’s catching up to (often youth-led) social movements and their educational innovations and needs.

In the opening of this chapter, I recounted a local educational intervention I conducted with FridaysforFuture Toronto, in which youth organizers shared criticism with me about their formal educational experience with climate change. My own history of 13-years of youth climate activism affirms this gap too. When I learned about climate change in an elective course at the end of high school, I felt betrayed by a school system that told me if I followed their narratives of success, I could create a thriving future as an adult, and yet failed to recognize this alarming and urgent threat to that mythologized future. Not only did I feel that school had ill-prepared me to understand who I am and my purpose, it had doubly unprepared me to understand who I am and my purpose, it had doubly unprepared me to understand who I am in the era of climate change, and what it means to live well and flourish in an era of unattended risk and uncertainty. As I moved into post-secondary education, my passion grew and I found critical education programs, Equity Studies, and Human Geography, that were willing to face not only climate change but the whirl of imbricated oppressive economic, political, and social systems of which climate change is symptomatic. But while these programs well prepared me to intellectually understand and critique, they left me unsupported in imagining and practicing other ways of being, and I turned to social movements to fill this gap.

In 2013, near the end of my undergraduate degree, I co-created Conscious Minds Camp (CMC), an annual 2-week summer camp for youth passionate about climate change, human rights, and holistic health. It was a space for young people to envision and practice the world we want to live in. CMC was inspired by my experiences of summer camp as a child and camping in a downtown park as part of the prefigurative social movement Occupy in 2011. I co-led this CMC for 6 years, at which lifelong community was formed, education and economic systems were reimaged, ceremony held us in healing and dreaming, and through which I learned a lot about how to collaborate for a better world through trial and plenty of error. These experiences affirmed a lesson I had taken away from Occupy too, that education has trained us into individualist and competitive ways of relating that require awareness, practice, and healing to transform out of; that there is as

much unlearning as there is learning to do. After six years, we were struggling as a collective to empower the self-determination of our members, and, frustrated with our inability to scale up our initiatives, one of my co-creators Kristen Alaan Sison and I left the organizing team. As part of our transition, I conducted exit-interviews with the remaining 10+ youth organizers to whom we were passing on leadership, with the hopes of better understanding for myself why we were only able to go so far; and to offer a new vision from their own inner worlds back to CMC. In resonance with FFF-TO youth, the interviews revealed self-described lack of knowledge, skills, mentors, and exposure to the world as barriers to confidence and belief in their ability to achieve our shared vision (CMC, 2018). I found myself sketching out a youth climate leadership program as part of my report back. A Youth Climate Labs (2019) national report also identifies the need for education that cultivates more than just awareness, but also “collaboration skills”, which it deemed necessary if Canada wishes to achieve the UN Sustainable Development Goals. Rooted and Rising was created in part as a response to my personal, and locally expressed educational needs. This dissertation offers formal inquiry into this experiment and my lifelong inquiry into meaningful education with climate change. It is, as narrative inquiry often is, of personal, practical, and theoretical significance.

1.5 Researcher Subjectivities

I enter this research with the experiences described above, and with the beliefs that they have fostered within me. I am not an objective researcher (if this is ever possible). In some ways, I am an ‘insider’ researcher, researching with(in) a pedagogical experiment that I was not only a part of, but instigated and co-led. I am also an outsider researcher, in that no matter our familiarity, I will never share the lived experiences or subjectivities of my fellow teaching team members or students and am always only able to see partial stories and experiences that research participants chose to tell me on the particular day of our interviews, and that I was able to receive through the questions I thought to ask. I am on the edges too. As I have moved through this PhD journey, I have shifted in age-subjectivity. When I began, I was still a youth according to the federal government of Canada’s official definition (13-30); now, as I write the final versions of my dissertation, I am an adult. This feels significant in the world of climate change action and activism, that so often, and rightfully, places emphasis on the impact on younger generations and the power and importance of youth voice and agency. I do feel the shift; I no longer identify as a youth climate activist, and my role as researcher consequently shifted too, from a former insider-youth-researcher to an adult researcher seeking to support young people, and to collaborate, interrogate, and co-create with(in)

intergenerational communities of practice. There are some moments in this writing where I slip into an ‘us’ language of youth, and others in which my new distance is reflected. I embrace this messy transition, intentionally leaving traces of it as I write through a shifting subjectivity.

As I write on climate change as a manifestation of imbricated systems of oppression, my subjectivity in these systems is of relevance too. I am a White Jewish settler woman living on Indigenous territory who grew up upper-middle class in the Global North. I live and write from downtown Tkaronto (Toronto), the meeting place. Nikki Sanchez (2019), a “Pipil/Maya and Irish/Scottish academic, Indigenous media maker and environmental educator”, urges all to take responsibility for the history of colonization that persists, and challenges non-Indigenous people on Indigenous territory to trace land acknowledgements through their matrilineal ancestry. My paternal grandmother spent her early years in England, moving with her family to the traditional territories of the Seminole and the Calusa, followed by the Haudenausonee Confederacy, Anishinaabe, Wendake, and Mississauga of Credit in Toronto. My maternal grandmother was born and raised on the traditional territory of the Nitaskinan & the Abenaki. I grew up along the shores of Ouentironk ("Beautiful Water"), also known as Lake Simcoe, and spent my childhood slowly moving south until I arrived in the city of Toronto at 18, where I have lived since.

The lands on which my grandmothers lived, and I currently live, learn, and research, are governed by a colonial-installed government; but prior to this and ongoing still, they are governed by “a continental treaty and diplomacy system” between Indigenous nations; as well as between human and “animal nations or clans to promote Bimmadiziwin [life/good path] and balance with the region” (Simpson, 2008, p.33). One such treaty is the Dish with One Spoon Wampum, “a pre-colonial treaty between the Nishnaabeg and the Haudenosaunee Confederacy” (Simpson, 2008, p.37). The Dish with One Spoon Wampum is an agreement between political entities to share territory, “take care of their shared hunting grounds, and that they would remain separate, sovereign, self-determining, and independent nations” (Simpson, 2008, p.36). By living on these lands, I am a treaty person too; I share and live off the One Dish, and I too have responsibility to take care, honour sovereignty and self-determination, and generously share. Being a responsible treaty person includes recognizing the way these treaties have been violated and desecrated through colonization and the ongoing climate crisis, and how I and my ancestors experienced benefits from and are implicated in these histories and ongoing patterns of injustice.

I am complicit in the climate crisis in other ways too. Living in Canada, I live in one of the ten worst countries for CO2 emissions per capita, and one of the top countries for food waste

(Weber, 2018). I am a part of the population most responsible for the crisis and experiencing the least of its impact. My everyday habits and patterns of energy, material, food consumption are a part of the problem – some of which are out of my control, and yet I am still complicit, like the way my home is heated, or food is available to me within my means, and some of which is in my control, like my diet and waste habits that are not ecologically perfect. It is in the complexity and mess of all these subjectivities and more that I write, and that influence what I perceive and how I think.

1.6 Organization of dissertation

The following chapter offers a literature review in two parts. This literature explores narratives relevant to this study, looking at narratives of youth in climate change, and narratives of climate change education. I explore narratives of youth in climate change in three parts, examining narratives of: climate change, youth, and youth in the era of climate change. I unpack four different epistemological orientations and the different stories of climate change they produce, examining: positivist techno-scientific, interconnected scientific, constructivist, and Indigenous-spiritual orientations. Given this study engages with Rooted and Rising, a program for and with youth passionate about climate change, I then turn to narratives of youth and youth acting in response to climate change through two ways of seeing. Turning to Anishinaabe and Cree Sacred Circle teachings and stories of adolescence, I explore youth as holding the gifts of creativity, energy, bridging the past and future, pointing out what's no longer working, and forging new paths for their Nation through teachings and medicines (McGregor & Plain, 2013). This way of seeing is contrasted with a critical history of the term 'youth' within the rise of industrial capitalist-colonial and neoliberal society in which youth are narrated as idealized becoming-adults that will replicate existing systems, or as deviants of concern if they exist outside the norm or fight for liberation/climate action (Sukarieh & Tannock, 2015). I then explore narratives of youth in relation to climate change, including youth as: a public becoming literature, passive and active victims, future leaders and scientists, redeemers, and present leaders of change.

The second section of the literature review offers a genealogy of narratives of education found in climate change education literature. Tracing narratives through the literature since the first publication on climate change education (CCE) in 1993, I review developing thought on the role of education, the changing definition of what good climate change education constitutes, and what tensions exist in bringing climate change into education. I trace the ways in which climate change education is entangled with climate change politics, and the shifts in narrative that emerged with the

rise of youth climate movements 2017 and onwards, where more and more authors turn their attention to climate change education and education in climate change.

Chapter Three documents my methodology in more detail in four sections that together describe the research orientations and methods of this study. The first section explores the relationship between my methodology and theoretical framework; and the second reflects on my position as practitioner research with the Rooted and Rising program. The third section explains my methodology of choice, Pedagogical Narrative Inquiry; and the fourth expands on my methodological choices and data collection strategies that shape this study.

Chapter Four documents the basic components of the pedagogical experiment of Rooted and Rising. Here, I offer a summary of the curriculum and how it was developed by the teaching team. Rooted and Rising consisted of 12 sessions, each focused on a different topic with a different combination of educators designing and leading session. Students also completed group projects throughout the program, and here I offer a general outline of this structure. In this chapter, I also introduce the organizations partnered in Rooted and Rising, and the teaching collective that co-created Rooted and Rising.

I present my ‘findings’ in Chapters five through seven. Across the data, I gathered three significant narratives in Rooted and Rising that I offer as central to re-storying education in the era of climate change. Chapter five focuses on the first of these narrative moves, *Interconnecting*. Rooted and Rising was intentionally oriented through interconnection in a series of opening practices. In this chapter, I share three stories of interconnecting, Valuing, Attending, and Sustaining. The teaching team began planning the curriculum with a process of collective valuing in which we established shared values that the program would be rooted in, plotting those values along a spiral curriculum plan that enables non-linear and fractal design thinking. The second story is *Attending*, which reflects with the first class of the program, an opening ceremony on the land led by an Ojibwe Elder. In this opening ceremony, we were asked to pay attention to ourselves and the natural world as interconnected and in conversation together, opening an interconnected awareness that dropped us out of the mind and attended instead to the heart. The third story, *Sustaining*, focusses on the weekly opening practice that began each class: deep breaths, noticing our bodies, offering gratitude, and welcomed students as they were, inviting them to attend to their needs throughout class. This weekly opening practice sustains and returns to practices of slowing down to feel slow down to feel into a sense of interconnectedness. Slowing down emerges as a significant narrative frame in

contrast with narratives of urgent (climate) crisis in a hurried culture of hyper-productivity and individualism.

Chapter six explores the next significant narrative in R+R, *Social Action*. R+R attended to action through funded student projects developed throughout the program. In this chapter, I trace three narratives of action through the practice of framing, supporting, and activating student group projects: Processual Narratives, Social Narratives, and Narratives of Planetary Healing. In Processual Narratives, I reflect with my own experiences as an educator in the program and teaching team interview, discovering processual narratives of improvisation, tinkering and iteration in an era of rapid change, mass uncertainty, and no clear answers or perfect solutions. I explore both how teaching team members embrace this as the creative practice of teaching, and the mental-emotional and structural challenges involved with leading education as improvisation. Next, I turn to Social Narratives, and in particular social narratives of collaboration, turning to stories of leadership as collaboration, multidirectional teaching and learning, teaching team as collaborators in student projects, and how uneven contributions were narratively managed inside a student project team. Finally, this chapter thinks about Planetary Healing. I reflect with two student projects that pursued healing and engaged strawberries and clay as wisdom holders, helpers, and co-healers. Together, they blur the boundaries of social and ecological narratives, opening to multi-species collaboration in planetary healing.

Chapter seven focuses on my third significant narrative in R+R: *Desired Futures*. R+R offers Three Invitations to young leaders to imagine and express their desired personal and collective futures: creating Vision Boards, crafting Leadership statements, and collaboratively writing a Digital Manifesto. I think with the pedagogical narratives implicit and explicitly told in these activities, storying education as desire-oriented, playful, and prefigurative. Through playful invitations, these activities invite youth into agential relationships with the future and provoke a reorganization of education itself towards these desired futures. In the section of the chapter, I think with the content of Students' Desired Futures finding desired temporalities of new-ancient futures and slowing down; desires for futures of/by/for well beings characterized by narratives of sharing, belonging, sovereignty, multiplicity, and creativity; and desired biophilic and artful aesthetics that infuse meaning and connection into everyday objects and public life. In this chapter, I tease out narratives of prefigurative education that creates imaginative space for desired futures, takes seriously young peoples' desires, and embarks with them in the deliberate experimental practice of those futures in the here and now.

In my conclusion in chapter 8, I provide a summary of my findings as answers to my research puzzle. I propose that together these three narratives, Interconnecting, Social Action, and Desired Futures contribute towards re-storying education as prefigurative education. I reflect on the limitations of my study, the contributions it offers to theory, and a series of recommendations that can be drawn out of the research for pedagogical practice, institutional education, and personal practice for educators and climate leaders.

CHAPTER 2

Stories of Climate, Youth, And Climate Change Education

In this literature review, I am interested in narrative frames of climate change, youth, and climate change education. First, I turn to stories of climate change through different epistemological lenses: positivist techno-scientific, socio-constructivist, and an Indigenous/spiritual lens, as well as a scientific lens that embraces an interconnected view of Earth and planetary climatic history. I argue that all of these epistemological frames are necessary for understanding climate change. Next, I turn to narratives about youth. I am interested in narratives of youth through Indigenous knowledge systems and explore a critical history of the term ‘youth’ emerging and proliferating in the neoliberal era and digital age. I next turn to stories told about youth and climate change, storying youth as a public in need of literacy, as passive victims, active victims, and redeemers, examining the possibilities and tensions within each. Finally, I turn to climate change education (CCE). The CCE section of this review is interested first in evolving stories of the role of education in climate change, and associated learning goals and outcomes attached to CCE looking to scientific literacy, ethics, and values, living and learning in climate change, and agency, participation, and action. I also explore a history of disinformation and sabotage in climate change education, and reflect on the interrelations between histories of colonization, schooling, and climate change. Finally, I reflect on gaps, recommendations, and tensions in CCE, turning first to those identified in five recent systematic reviews of CCE, and second to the tension of where CCE fits in educational disciplines and conceptual frameworks.

2.1 Climate Change

Climate change is a term that, like all terms, is defined differently by different people. Depending on one’s epistemological beliefs, assumptions and values, the answer to what is the problem we call climate change varies. Here I contrast narratives of climate change: climate change as a techno-scientific issue of chemical imbalance in the atmosphere (e.g. IPCC, 2019); climate change as a socio-economic-political problem, the result of modernity and industrialism (e.g. Beck, 2009) and the imbricated systems of capitalism, colonialism, and patriarchy (Kuokkanen, 2008); climate change as a spiritual illness, a broken responsibility with G-d/Creator and Earth that must be healed or cleansed (Allison, 2017, Suzuki and Knudtson, 1992; Rose, 2017). There are other narratives that are not addressed in depth here, such as apocalyptic Christian narratives and

conspiracy theorist narratives of climate change as a hoax, nothing-to-worry-about weather changes that are being manipulated for control (e.g. Earth Eclipse, n.d.). In this section, I want to examine climate change through three epistemological orientations – techno-scientific/positivist, constructivist, and Indigenous spiritual - and examine the story of climate change through each. My intention is to set these stories in contrast with one another in order to bring them together into a more holistic understanding of climate change. While I present each of these as a narrative frame in a somewhat static manner, it is important to note that these narratives are changing, evolving, and increasingly intertwining and dialoguing within individual and collective narratives and approaches.

As 7th grader Ela Mody and Cece Bird from Hudson City, USA put it, “scientists have told us what we need to do to stop climate change” (iMatter, 2017). Children and youth are most often introduced to climate change through a scientific story with the techno-scientific positivist epistemology behind it, particularly if they are learning about it in school. Though not all scientists are positivists, the positivist lens often dominates educational-scientific narratives of climate change, and positions humans as independent knowers and users of nature (Bowers, 2008), and knowledge as independent of the knower, gained through observation and replicable experiments (Clandinin & Rosiek, 2007). The techno-scientific story of climate change goes that scientists discovered human industrial activity is triggering the release of too much carbon into the atmosphere, creating imbalance and causal extreme changes in climate and weather. Carbon includes six greenhouse gases that “trap infrared radiation and alter the energy balance of the earth” (Whittington, 2016, p.50). In this story, carbon is the subject and best metric of human activity, and the ‘atmosphere’ becomes a medium carrying carbon (Whittington, 2016, p.51). Often, the story of carbon is attached to another narrative of humans as the actors who both caused the problem with and will fix it with techno-scientific solutions. If the problem is atmospheric imbalance, then to “avoid disaster on a planetary scale,” atmospheric concentrations must be brought back into equilibrium through a reduction and stabilization of CO₂ in the atmosphere (Whittington, 2016; Blue, 2016, 76). Operating from this story, solutions look like scientific and technical inventions that can reduce emissions and stabilize/remove existing emissions. Important guides for shifting human activities like Project Drawdown (n.d.) look for the worst emitters like refrigerants, and most important areas of change such as addressing diets and food waste, needed to halt an increase and then trigger a decline in greenhouse gases. This story is needed, but it is also criticized for maintaining a story of separation between humans and nature that is at the root of the problem in the first place. By emphasizing the impact of human activity on climate, humans are conceived as the subject and actor, and

climate/nature as passive recipient and resource. A stable climate becomes an “essential public good” which has the effect of narratively placing nature under the domain and control of humans; and, reproduced in policy, it relies on the ability of scientists to predict, measure, and manage the climate in robust and quantitative ways which first assumes that scientists can predict and solve everything when science alone has not been able to prevent the crisis, and second, places authority and truth in the hands of experts alone rather than the lived relational human-nature experience (Hulme, 2010, 270-71).

“We will not know peace until we resolve the climate crisis” (youth activist Allie Rougeot, Fridays For Future Toronto, 2019). This statement of belief has root narratives in a constructivist epistemology, and a critical framework, which understand knowledge as socially constructed, and climate change as a socio-political problem. The story of climate change from this root narrative names the problem of climate change as human systems, a “consequence of successful modernization and industrialization” and colonization (Beck, 2009, p.8). Stehr and von Storch (1995) define a constructivist account of climate change as an inquiry concentrating “on the public perceptions of the risks” and emphasizing “the ways in which perception and assessment of risks is influenced by social and cultural factors” (p.102). The constructivist orientation examines the socio-historical context of scientific data, and the impacts of climate change discourse on public, government, and academic perceptions. For example, Hulme (2010) examines how the phenomenon of climate change deepens a cosmopolitan perspective as well as exposes false dichotomies of colonial knowledge (p.270). In this orientation, the main subject of inquiry is also human, but with a focus on social and political rather than physical processes. A constructivist framing often points to climate change as an effect of capitalist and colonial relations (Hulme, 2010 as example), and thus, solving climate change requires a larger socio-political project. It is within this frame that one can locate calls for systems change and climate justice, an awareness of environmental and social justice as intertwined, and an attention to the socio-political impacts of possible techno-scientific solutions that perpetuate systems of oppression responsible for the climate crisis (e.g. Rutherford & Thrope, 2010).

The third epistemological orientation that I wish to highlight is the multitude of Indigenous spiritual frames which variously story humans interdependently with all living beings, and in relationship with Creator. In this story, humans have reciprocal bonds with the natural and spiritual worlds of which we are a part. The seven sacred teachings of the Ojibwe/Chippewa/ Anishinaabe, for example, story Earth, plants, animals, and Spirit as providers and teachers for humans; and in

return, humans are responsible for giving gratitude, protection, and nurturing (Bouchard & Martin, 2009). Humans are one member of the Earth family, and all elements of nature are infused with spirit and thus deserving of respect and care (McGregor, 2008). From this frame, climate change can be understood as the consequence of humans breaking natural and spiritual law, forgetting their responsibilities, a spiritual sickness. Different Indigenous peoples tell the story differently. For the Sherpas living in the Mount Everest region of Nepal and the Buddhist lamas in Khawa Karpo, the problem is excessive human greed that has caused the gods to be angry (Allison, 2017, p.157). The Chewong people in Malaysia name it as a problem of cleanliness; that, once again humans have dirtied the Earth, and Creator cannot stand to see their world so dirty, so it will be cleansed again (Suzuki and Knudtson, 1992). ‘Solutions’ to climate change from this root understanding look to culture and ceremony that renew good relations and healing, orienting individuals and society back into spiritual relationship; to care of earth and community through which we can rebuild our minds and our relationships with each other and earth (Mulcahy, 2012, p.189; Rose, 2017; Suzuki & Knudtson, 1992; McGregor, 2008), and to radically shifting human systems to realign with natural and spiritual law (Doug Anderson, personal communication, 2020).

There is another scientific story of climate change emerging that embraces the interdependence of humans and the natural world and aligns with this spiritual understanding in many ways but is not grounded in a spiritual epistemology. It destabilizes humans as the center of the story by extending the timescale of the climate story to the history of Earth and the universe; gives nature more agency than the positivist or constructivist frame and allows for a more intimate relationship with the natural world, while still turning to Western techno-science, alongside relationships, for solutions. Perhaps an early advocate of this perspective within Western theorization would be Elisée Réclus (1905), a founder of European anarchism and a geographer, who wrote: “man is nature becoming self-conscious” (in Clark & Martin, 2004, 3). If humans are nature, then the story we tell of ourselves and Earth extends further back than human existence. This story says that the earth is a young planet of only about four billion years old, and we humans have been here for just a short while; and Earth, is always changing (Nemeth, 2012, p.74). One can locate the Gaia hypothesis developed by microbiologist Lynn Margulis and chemist James Lovelock in the 1970s here, which stories the Earth as Gaia, a living being that is not singular but “complex phenomena” composing our “living planet” (Haraway, 2016, p.43). This scientific-interconnected story maintains that human activity is shifting atmospheric concentrations, but it also says that this is not the first time the Earth has gone through such life-altering shifts; and, in so saying, it says that

climate change is not Earth dying; that life after death has always re-bounded or further flourished, though differently. Before we humans brought the problem of plastics, oil, etc., trees brought cellulose. Cellulose enables tree trunks to stand tall and firm but for the first hundred million years or so, nothing was able to break it down and digest it (Ainley, 2008, p.214). In this Carboniferous period, dead trees remained on the surface of the earth, piling up, creating significant shifts in atmospheric concentrations of carbon dioxide which came with widespread loss of life, and over time, compressed into coal which helped ignite the fifth mass extinction, and play a part in the sixth mass extinction we may be triggering now (Tyson, 2014). The emergence of trees brought destruction, but also creation, facilitating the flourishing of mammals such as ourselves; and, now we see trees as a necessary part of a healthy atmosphere that supports thriving life. Dorion Sagan (2017) tells another story long before this one of when life on earth first evolved to split water's molecular bond to release oxygen (p. M169). This evolutionary feat by cyanobacteria, which Sagan (2017) names the Cyanocene, created the colour green and made our lives possible, but it also brought drastic atmospheric changes and drastic loss of life and species. Sagan (2017) notes that this extinction was not brought on by meteorite or volcano like other extinctions, but "endogenously, by life's own operations", just like climate change, if humans are counted as part of life's own operations (p.M170). Within Earth's timescale, human activity is causing another major climate change, and who knows what amazing life will emerge out of this death. This narrative does not deny the need for climate change action, but rather opens the timescale at which we can understand and act on the phenomena, and it is often used to reinforce humans' duty to protect and cultivate life, and to turn to the species, bacteria, mycelium etc. that survived, thrived, and transformed the world in past climate changes in order to better respond together to the climate change of the present (Wohlleben, 2015; Haraway, 2016; Sagan, 2017).

These four climate narratives, when brought together, offer a pluralistic view of climate change as a complex relational, spiritual, social, political, cultural, economic, and chemical problem, and the solutions we need as equally imbricated. Though divergent, these four contrasted frames also carry overlapping 'truths': greed and overconsumption of resources leading to atmospheric imbalance are largely synonymous, and pollution and cleanliness too. There are four commonalities I can see across all frames: first, there is an acute awareness that "our bodies, our cultures, and our technologies have inputs and outputs of energy" (Lee, 2013, p.14). In other words, humans are in exchange with the living world around us. Second, across all frames we can see that human wellbeing is connected to and dependent on the health of the natural world. Third, is a persistent

issue of balance – of carbon, of power, voice, and interpretations, of taking and giving with nature and Creator, of generating and cleaning. Finally, across all stories is a clear narrative that human processes and activity are causing destructive chains-of-events, and ‘we’ can either shift our habits and processes quickly and comprehensively to protect ‘our’ ability to survive and thrive; or continue to over-consume and cause the destruction of our own and the majority of other living species.

2.2 Youth

In the previous section, I gave an overview of stories told about the problems of and solutions to climate change from different orientations. In this section, I also want to explore the term ‘youth’ from different frames, understanding first the technical definition of youth. Like climate change, youth is a term that has its most obvious definition – the stage of life between childhood and adulthood – but as we dive deeper in the term, divergent understandings and root narratives produce different understandings of who youth are and what their relationship is with the rest of society. In the era of climate change, cultural narratives of “youth” “science” and “education” are destabilized, changing, and changed (including technical definitions). I turn to the literature in this section to understand how youth are framed and defined in Indigenous ways of knowing, and then, what a constructivist-critical frame can reveal about how the term ‘youth’ how came to prominence alongside the rise of industrialization followed by neoliberalism, and how it has been narratively entwined with discourses of social change. I want to hold onto a particular historic statement through these two frames from Greta Thunberg (Chappell, 2019) delivered around the time I began to conceptualize this review and has stuck with me as a telling account of how the perception of youth in society impacts how we understand youth in climate change. Speaking to the United Nations Climate Action Summit in New York, Thunberg then 16 years old, said "this is all wrong. I shouldn't be up here. I should be back in school, on the other side of the ocean" (Chappell, 2019).

(a) Youth in Sacred Circles

I want to begin with some Indigenous understandings of the life-stage of youth/adolescence. Anishinaabek, Cree, and other Indigenous Nations across Turtle Island have long held the wisdom of Sacred Circles – also named Medicine Wheels. I have introduced Sacred Circles at the most basic level, as holistic ‘living models’ for the good life, represented in a circle divided into four interconnected sacred directions, colours, medicines, seasons, and life phases (Toulouse, 2018, p.58; Wenger-Nabigon, 2010). Across medicine wheels north of the Equator,

youth is represented in the South, as the life phase cycling from childhood (East), into adulthood (West) then elderhood (North) (Wenger-Nabigon, 2010). In the Cree circle, adolescence is storied as “a time of crisis” in which young people are defining themselves, learning about and through their “relationships with self, family, and community,” steeped in discovering “values and identity” (Wenger-Nabigon, 2010, 146; Nabigon and Mawhiney, 1996, p.30). Adolescence is full of energy and relationship-building, but youth are also susceptible to the rascal of ‘envy’ due to the inevitable insecurities involved in finding oneself (Wenger-Nabigon, 2010, 145). The Anishinaabe Sacred Circle also describes the south as a time for growth and emotions (Toulouse, 2018, p.59).

Sacred circles are about many cycles, of which individual life phases is one. As I think about youth in this way, I wonder if the era of climate change is a youth era; if, as a species we are perhaps in a youth phase in the circle; and, if the lessons, medicines, and foci of youth in sacred circles can teach us what is needed right now. The global ‘we’ of humans in climate change are too in a time of crisis, and we too need a refocusing of energy and relationship building in order to realign our ways of life; which includes going through a process of losing and finding oneself again at the individual and collective level; and this process is one of growth and emotions, feelings and relating. Perhaps this story is part of why young people are so attuned to climate change, and why youth energy seems to lead the changes we need. Youth rising to meet the troubles of climate change fits within Indigenous ways of understanding youth’s expected and natural role in society. Deborah McGregor shares that Anishinaabe stories have always named youth as carrying the gifts of creativity and energy and recognize them as critical bridges between the past and the future (in McGregor & Plain, 2013, 105). McGregor and Plain (2013) explain that it is the role of youth to push boundaries, and “forge paths” for their Nation; to bring new teachings, medicines, and food “often through spiritual attentiveness or experiences” (p.105). It is also the profound responsibility of youth to listen and learn from Elders (McGregor and Plain, 2013). In the time of feeling the world and finding one’s path, youth discover traditions and insights, fusing together into what my co-creator Kristen Alaan Sison would call the “new-ancient”. Within this story, it makes perfect sense that youth are leading climate change responses. As a global community of humans, we are suffering in and in need of youthfulness: of bold new paths, teachings, and medicines that fuse the ancient with the new. In this understanding, what youth climate leaders are doing is not disconnected from what “should” be; youth ‘should’ be at the front of the UN Summit, continuing to speak out against old ways not working and bringing forward new teachings and technologies to guide their local and global communities through crises to “ensure the survival of the people” (McGregor & Plain, 2013, p.105).

(b) Critical History of the Term 'Youth'

I also want to unpack youth from a critical constructivist perspective that looks to the history of use of the term 'youth' within the rise of industrial capitalist-colonial society. The term 'youth' can be best understood here as a socially constructed category – a story told that creates real lived conditions – whose modern origins can be traced to the rise of industrial capitalism (Steinberg, 2011, p.268; Gillis, 1974, and Ruddick, 2013 in Sukarieh & Tannock, 2015, p.33). The critical historical frame defines 'youth' as a shape-shifting and elastic term, expanding, contrasting, and meaning-changing when it articulated through different ideologies, histories, cultures, and identities (Forstenzer, 1985; Steinberg, 2011; Durham, 2000; Tuck & Yang, 2014; Sukarieh & Tannock, 2015), including climate change. At the most basic level, we can see this in the attempts to place age boundaries around 'youth'. While each definition of youth individually covers the span of about a decade, some mark the beginning of youthhood at eleven years young (Steinberg, 2011, p.273), and others stretch up to thirty-five (UN DESA), offering a twenty-two-year period which might be considered the 'youth' phase of life. Even overlapping bodies can have different ranges; within the Canadian federal government, for example, some departments define youth at fifteen to twenty-four, while others use fifteen to thirty-four; in a 2021 report, the government defined youth as fifteen to twenty-nine, but shared individuals self-identified as youth were between the ages of thirteen to thirty-six (Canadian Heritage, 2021). These differences can be accounted for because the experiences of youth are so different across socio-economic, racial, gender, sexual, national, family, and educational lines (Tuck & Yang, 2014; Sukarieh & Tannock, 2015; Durham, 2000, p.113). Former UN Director General M'Bow (1985) demonstrated this by comparing the vast discrepancies and injustices between twenty-something-year old North American youth still dependent on their parents and child soldiers in parts of Africa (Forstenzer, 1985, 364). Any attempt, he says, to place age-based boundaries on 'youth' is a false representation of this time in life. That youth-experiences differ so greatly along lines of power and privilege shows up in youth climate discourses too. The internet meme in Figure 1 is one example, which contrasts the experience of more privileged youth like Greta Thunberg who get to claim climate change as the first violation of their childhood, whereas for others, child labour, that may also be wrapped up in climate solutions, have long since eroded child and youthhood.



Figure 1: "Some people call it rassist (sic.), I call it Gretasist lol" (MemeModer3000, 2019)

In the context of climate change, I feel the age boundaries of youth slip even further away. When I think about myself as a climate leader, leaving youthhood and entering adulthood, I think about the demands for climate care I made as a proper 'youth' that continue to be unmet and carried on by the next generation of youth in ahead of me, just as I carried messages from those before me. Severn Suzuki, who shook the world with her U.N. address in 1992, is now almost forty, but the demands she made at twelve remain relevant youth-demands in 2022. Looking forward, youth who speak on climate change do so not only on their own behalf but on behalf of future generations, evoking the demands of youth-to-come. Young children are also stepping into climate action, acting as perhaps we might expect our youth and adults to behave. In the era of climate change, I see multigenerational, multidimensional 'youth'.

A critical frame not only asks how youthhood is experienced differently, but also what the history of the term is and how it has been used in the service of claiming and maintaining power. The story can be said to begin, in part, in early industrialization: whereas before European children simply became adults, a 'youth' stage was constructed. There was a growing need for skilled workers in factories, and schooling increased in response; compulsory schools and then high schools became standard in Western countries to meet the dual need of training skilled workers, and occupying children's time to enable an adult work-day; and, alongside these structural changes to everyday life came the use of the terms 'adolescence' and 'youth' (Tuck & Yang, 2014, p.4; Steinberg, 2011, p.268; Sukarieh & Tannock, 2015, p.33). Over time, youth also became a "category of concern" – a group of the population looked at with worry and considered a potential danger to society (Tuck & Yang, 2014). In their book *Youth Resistance Research and Theories of Change*, Tuck & Yang (2014) trace this pathologizing language through the Progressive Era of the United States (1880s-1920s) in which similar narratives used against women and Indigenous peoples were applied to youth. As justification for colonization, Western-colonial thinkers narrated Indigenous people as children, closer to 'savage' nature and in need of control, saving, and civilizing by the European 'adults' (Livingstone, 2002). This colonial narrative discursively positioned youth too as in need of control and training from 'uneducated' dependent children into independent 'civilized' adults (Tuck & Yang, 2014, p.4). Jean Piaget is one example of an influential thinker who perpetuated this narrative, developing cognitive stages that positioned youth as less-than-adults, not yet developed sophisticated adult cognitive performance (in Steinberg, 2011, 273).

These early narratives of youth imbricated with colonial and capitalist discourses placed youth along a continuum from 'natural' childhood through rebellious youth to educated working

adulthood. Hall & Jefferson (2006) speaks to this image of the rebellious youth by tracing a ‘map of meanings’ associated with ‘youth’ alongside the evolution of youth cultures and sub-cultures in post-war Britain. Citing a Rowntree study of the Popular Press and Social Change by Smith et al. (1975), Hall & Jefferson (2006) discuss how the press wrote about ‘youth’ as a “concealed metaphor for social change.” What the press labelled youth culture, subjects, lifestyles, and values could also be described simply as changes and disruptions in society. Sukarieh & Tannock (2015) further discuss how ‘youth’ is used discursively as a stand-in for oppressed groups fighting for liberation. Just as infantilizing language attempted to discredit Indigenous law and culture, labeling liberation struggles as ‘youth struggles’ works to dismiss and depoliticize them: if it’s a youth struggle, it does not need serious consideration because it’s natural for youth to rebel, they will learn and mature out of it. Similarly, Steinberg (2011) traces the discursive use of youth in popular culture in the first thirty years of television, and his study too speaks to the racialized and politicized elasticity of youth. In television, Steinberg (2011) argues youth are portrayed as either “preppies” – good youth modelling white middle-class America – or “hoods” – dangerous, racialized youth (p.269). As John Comaroff (2005) summarized, social discourse simultaneously stories youth as “idealizations and monstrosities” (p.269, in Sukarieh & Tannock, 2015, p.7). Idealizations if they replicate the power relations in place, monstrosities if they deviate from the norm or seek liberation.

The use of youth as metaphor for social change has also been highlighted within neoliberal stories in more recent times. Sukarieh & Tannock (2015) urge us to pay attention to how the youth category is storied and performed in neoliberalism, which presents a narrative of individuals who are capable, trust the economic market, and do not need government support. Sukarieh & Tannock (2015) describe how the narrative of ‘youth as a time of coming into one’s own’ has been used as a metaphor to promote social shifts into deeper individualism. If the neoliberal citizen is no longer a voter who demands care from government and is instead a ‘passive citizen’ who only has obligations *to* the state (Walker, 2013, p.203), then become successful adults/citizens by becoming resources, consumers, products, and capitalists. The self-managed neoliberal citizen has no need of politics or social change (Biacchi & Ganuza, 2014, 40; Walker, 2013, 203). A material-social consequence of this narrative is that the social networks, programs, funding traditionally there to support young people in their shift to adulthood are being increasingly weakened (Furlong, 2012, in Tilleczek, 2019). Youth are instead encouraged to “care for their own physical, mental, and social health and wellbeing, to develop their resilience, and to become enterprising in a world that is taken-for-granted as being troubling, challenging and ‘disruptive’” (Kelly et al., 2019: p.2). There has been a surge of

publications and activities for youth by global organizations such as the World Bank, United Nations, and World Economic Forum that support this narrative (Sukarieh & Tannock, 2015, p.2). Since the United Nations General Assembly declared the first International Year of Youth in 1985, there has been an explosion of youth programs, ministries, and councils. According to YouthPolicy.org (2013), between the years 2000 and 2005, more than 70 nations created or were in the process of creating national youth policies (in Sukarieh & Tannock, 2015, p.13). Youth organizations and service work of all kinds promoting youth organizing, activism, leadership, participation, civic engagement, empowerment, and entrepreneurship continue to expand (Hosang, 2003; Kim & Sherman, 2006; Kwon, 2013; Mohammed & Wheeler, 2001; Taft, 2011; Watts & Flanagan, 2007, in Sukarieh & Tannock, 2015, p.13). Sukarieh and Tannock (2015) chart the increased use of the language of ‘human capital’ within these policies and organizations. Like earlier narratives of youth, youth are frequently positioned as resources for the future, and like any resource, they must be managed and mined. This discourse further deepens the binary of the idealized and ‘monstrified’ youth. Youth are now either capable citizens in need of individual entrepreneurial training but not after-school programs; or they are outside of that norm, labelled ‘at-risk’ of terrorism, rebellion, and crime that might disrupt economic order (Sukarieh & Tannock, 2015). Oppressed youth are labelled ‘at-risk’, and the story goes that with the right programs they “could become proper neoliberal subjects”, they could move “outside of risks” (Katharyne Mitchell in Kwon 2013, p.48 in Tuck & Yang, 2014, p.4); or they can be jailed and repositioned as new forms of capital.

Returning to Greta Thunberg’s statement “this is all wrong, I shouldn’t be here” as she advocates for climate action, we can see the impact of her statement in a different light. If she was a racialized/at-risk youth, then she would not have the same global attention from press and world leaders, for her speaking out would fit within the story of the at-risk rebel who needs to be controlled and dismissed as juvenile and not-deserving of attention. It is perhaps not surprising then to find criticisms that Black, Indigenous, and people of colour (BIPOC) youth around the world have been sounding the climate change alarm bells and meaningfully responding to the crisis long before and alongside Greta, yet don’t receive coverage or praise (e.g. Xiye Bastida, in Kirkland, 2019; and Vanessa Nataka in Evelyn, 2020). Given that Greta Thunberg is a young white-, middle-upper-class youth from a developed nation, her narrative has weight – rather than dutifully learning to replicate existing adult systems, she must step outside of the narrative of the idealized youth and

speak up against the system that privileges her, using that privilege to bring attention to the era of global climate change in which this privilege is being ruptured, resisted, and reconfigured.

(c) Rising Youth Population in a Digitally Connected Risk Society

I would be remiss to write on the meaning of youth without discussing the size of the youth population nor their global experiences of the digital and connected modern world. There is a ‘youth bulge’ in the population at present (Beehner, 2007 and USIP, 2010 in Sukarieh & Tannock, 2015, p.2). Most recent numbers show the largest youth population in recorded history with 1.8 billion young people ages 10-24 (Patton et al., 2006, in Tilleczek, 2019, p.2). Nearly 90% of young people are also “living in low and middle-income countries”, with many higher income countries facing a contrasting demographic (Tilleczek, 2019). Canada is in the latter group with an ageing population; but Indigenous youth in so-called Canada as a demographic are growing: from 2006 to 2016, the number of Indigenous youth 15 to 34 increased 39%, compared to just 6% for non-Indigenous youth (Statistics Canada, 2018). Not only are there more youth than ever, but youth are also more connected than ever. According to the United Nation’s International Telecommunications Unit (ITU) (2021), 4.9 billion people, sixty-three percent of the total population, are using the Internet, and in the youth population, the percentage is much higher. In 2017 the ITU published that 71% of youth aged 15-24 were using the internet, and that number only continues to grow (Tilleczek, 2019, p.4). The majority youth of today literally grew up with the digital world, though access to this digital world have been dramatically uneven globally. In 1983 the language of the internet (the TCP/IP protocol) was developed, in 1989 the proposal of the World Wide Web was published, in 1991 it was launched, and in 1994 the first smartphone was put to market (Tweedie, 2015). The youth and soon-to-be-youth of Generation Z (born 1997-2002) have only known the world with internet, the oldest of them witnessing the launch of the first iPhone in 2007. Though, according to UNICEF and the International Telecommunication Union, as of 2020, two-thirds of children and young people aged 25 and younger do not have access to the internet at home, with stark differences between high-income countries (87% have access) and the lowest-income countries (6% have access).

The emergence of the internet and digital worlds have amplified youth’s cultural, political and economic power too (to greater and lesser extents). In part, the internet increases children and youth’s capacities as consumers and as producers/content creators. The top YouTube earner in 2018, earning \$22 million, was a 7-year-old child, and his parents, who play with and review toys

(Robehmed & Berg, 2018). The roles of child-youth-and adult are blurring online, and, as Tilleczek (2019) says, digitally influenced pathways into adulthood have become “multidimensional, non-linear, and complicated” (p.2). Youth are also using their connectivity to claim agency and political power. The Reserva: Youth Land Trust, a crowdsourcing effort initiated by Callie Broaddus, is one example, aiming to be the “world’s first entirely youth funded nature reserve” of 12,020 acres of Ecuadorian rainforest, calling on youth’s potential collective financial power (Reserva, 2019). The global spread of movements like FridaysForFuture facilitated by online connection is another example of how young people are harnessing the internet for political agency. Through digital platforms young people have also continued to claim cultural and linguistic sovereignty as, for example, some Indigenous communities and youth are leveraging digital technologies to preserve and share traditional ecological knowledge and language.

Digital worlds also impose framing on young people and distort truth and time. The platforms curating youth digital experiences are individual users, push individualistic frames, and praise stories of individualist lifestyles and economy (Tilleczek, 2019). Physical reality and digital creation are also becoming increasingly entangled and hard to distinguish, and with this entanglement raises questions on the very nature of truth. On social media, images are regularly warped with filters and photoshopping. Movies are filmed with a combination of real people and places and digitally created ones. At the level of information too, there is an abundance of competing and contrasting ‘truths’ online, and it is increasingly difficult to separate ‘fake’ and ‘real’ news. Digital connections can also warp the felt sense of time. In 1984, Alvin Toffler named the increasing rate of change brought on by industrialization, both in frequency of new technological inventions, and increasing speed at which one can perform tasks because of those technologies. In the Digital Age (Tilleczek, 2019) also called *iTime* (Agger, 2013), the rate of change continues to quicken. As we connect in a growing expanse that never turns off, time can feel compressed, like one always has “too much to do, not enough time to do it” (Agger, 2013, p.84). We can connect, work, entertain, and shop from anywhere at any time. And simple things, like the uncertainty of what’s an acceptable email response time, or when is it ok to not be reachable, mean that work and communication feels like it’s expected all the time (Agger, 2013, p.80). Work seeps almost seamlessly into ‘downtime’, and downtime into work.

Digital and technological global connections have also increased our awareness of and exposure to risk. Ulrich Beck (2009) labels our time “the risk society” in which there is an “omnipresence” of global risk in the media that “normalizes death and suffering...as an individual

[and] a collective [fate]” (p.12). On social media, we can tap into first-hand accounts of (climate associated) disasters and death around the world too. In this digital risk society, who gets to witness the destruction and who bears the destruction is deeply inequitable. In addition to the barrage risk-news, our interconnections globally have added a “new dimension of risk”: terrorism, natural disasters, climate change, financial collapse, pandemics are all narrated as global risks (Beck, 2009). These risks are “consequences of successful modernization and industrialization”, which “systematically disregards its consequences for nature and humanity” (p.8). Stories of global risk are imagined (Beck, 2009, p.9) and materially-playing out in real time. The global risk society has spurred exclusion, hate, and white nationalism, and networks of care, love, diversity, and knowledge. Youth bear witness and participate in all these risks and responses.

2.3 Stories about Youth and Climate Change

“I used to think no one will listen to you until you’re an adult, but then I realized, I don’t really have time to grow up.” - Ta’Kaiya Blaney, 12 years old, Sliamonon Nation (Saving My Tomorrow Part 1, 2014)

In the previous sections, I unpacked narratives about climate change, and youth. I examined how climate change is framed through positivist, constructivist-critical, and Indigenous-spiritual epistemological orientations, and reviewed stories told of youth in Sacred Circles, and through a critical-historical orientation that traces the use of the term youth, closing with an overview of the digital risk society in which youth today live. In the following section, I will explore narratives about youth and climate change together. As terms, both ‘youth’ and ‘climate change’ shift over time, and across culture, identity, and epistemological orientation. As phenomena, both terms are caught up in, and represent, a time of crisis. Climate change is a part of the story of youth today, and youth are prominent in the story of climate change. There are hundreds of thousands of youth around the world currently active in climate change dialogue and action (Goodall & Sassor, 2005; Youth Climate Report curated by Terry, n.d). With so much activity, there are many different stories being told about youth and climate change. Here I focus on some prominent narratives about youth found in public climate change and climate change education narratives, specifically: youth as a public becoming literate; as moral witnesses and passive victims; as active justice-seeking victims; as future scientists; current leaders in adaptation; and as the redeemers/saviours of the world. These narratives apply to both children and youth, both of whom have futures entangled in the threats of

climate change. While I bring together multiple authors in this section, I draw heavily from Lee's (2013) identification of four public stories of children in climate change: as a public becoming literate, passive victims and moral witnesses, future scientists, and future leaders of adaptation in his book *Childhood and Biopolitics: Climate Change, Life Processes and Human Futures*.

(a) Public Becoming Literate

The first narrative of children and youth in climate change, is that they are a public becoming literate in climate science or in need of climate-scientific literacy (Lee, 2013, p.132). In this manner, youth are positioned as having a deficit of information that they need to learn, often rooted in a techno-scientific epistemologies. Within this narrative, questions related to how we can get youth to care, what results in better knowledge retention bloom. In section 2.4 of the literature review, I look at how climate change education has primarily dwelled in this narrative.

(b) Vulnerable Passive Victims

The second narrative is children and youth as passive victims, particularly vulnerable to climate change impacts. Children are positioned as inheritors of crisis and failure (Lee, 2013), the recipients of harm passed down to them from generations past (Gibbons, 2014) - the children of Apocalypse (Hutchinson, 1996). A recent UNICEF (2021) report on the Children's Climate Risk Index identifies children and youth as most vulnerable to climate impacts. Children and youth are vulnerable in many ways, beginning with the risks of natural disasters (Gibbons, 2014; Peak, 2008, in Ruppel-Sclighting et al., 2013; Currie and Deschênes, 2016; Nemeth, 2012). Ruppel-Sclighting et al. (2013) document four levels of risk: first, natural curiosity and physical closeness to the earth makes children susceptible to interactions with hazardous chemicals. Second, many "killers of young children" like malaria are known to be exacerbated by climatic conditions" (Ruppel-Sclighting et al., 2013, p.366). Haase (2017) also notes how air toxicity correlates with increased rates of physical and mental illnesses in young people. Third, Ruppel-Sclighting et al. (2013) point to the increased vulnerability of children in developing/majority countries. This is due in part to the larger populations of children and youth in these countries, and partially due to the unfair reality of climate change that those who have contributed least to the problem, and who were harmed in the making of the problem, are facing the first and strongest effects. UNICEF (2021) warns that "approximately 1 billion children – nearly half of the world's children – live in countries that are at an 'extremely

high-risk' from the impacts of climate change". Some (Currie and Deschênes, 2016 for example) claim that children are more vulnerable in developing countries because of weaker institutions less able to respond; but, Lee (2013) warns against this discursive trend in which children in developed countries are storied as the leaders of *tomorrow's* climate action but children in developing countries are storied as the leaders of *today*, thereby implying that developing / majority countries adults are incapable, so children with the supervision of foreign powers must lead, perpetuating neo-colonialism (p.139).

Natural disasters result not only in loss of life, but can also create secondary impacts including psychological distress, interruptions to schooling and subsequent vulnerability to child labour and abuse (Currie and Deschênes, 2016, p.3; Ruppel-Sclichting et al., 2013, p.366-7). In addition to physical health risks, youth are also increasingly being understood as victims of climate change at the level of mental and emotional health. As Stevenson & Peterson (2015, p.2) note, children and youth are particularly vulnerable to despair and depression in response to climate change. In a video by Our Climate Our Future, youth speak on feeling overwhelmed and bombarded by stories and statistics of disasters and risks. A Lancet report demonstrates this is a global phenomenon experienced by children and youth: psychological stress and practical anxiety named 'climate anxiety' due to thinking about the impacts of climate change, and the inaction of government (Hickman, et al., 2021).

(c) Moral Witnesses Demanding Justice, Destined to Respond to the Climate Challenge

Children and youth, vulnerable to so many real and potential climate impacts within their lifetimes, occupy a particular position in the climate change story as moral witnesses for present and future generations. Nixon's (2011) conceptualization of slow violence is helpful in understanding the future-predicted impacts of climate change youth bear witness – emerging gradually with repercussions rippling across temporal scales (p.2). Looking to their own future, children and youth are moral witnesses (Lee, 2013) to the quick and slow violence of climate change, also standing in for future victims of the crisis in the collective imagination, becoming “emotive symbols for our shared ecological future” (MacClear, 2018, p.iii). This narrative positioning as moral witnesses, emotive symbols, and victims of a crisis that began before they were born, gives children and youth particular narrative power in climate change.

Sophia (11) and Lucia (9) are examples of two of many young people who embrace this power in their successful campaign to ban plastic bags in Santa Fe, New Mexico by persistently

speaking on the issue at City Hall (Saving my Tomorrow Part 3; 2014). Reflecting on their success, they tell the camera that there are things “kids can do that adults can’t”, and that young people need to tap into their particular narrative position to advocate for climate change. Youth around the world are leaning into the narrative position as moral witnesses of intergenerational theft and injury in their protest movements, and in lawsuits against their countries and provinces. While children can’t vote, they can sue, and with support Our Children’s Trust, children and youth have initiated legal action against Australia, Belgium, Colombia, England, India, the United States, the Netherlands, Norway, Pakistan, the Philippines, Uganda, Ukraine, Canada, and France. Youth in Ontario are also suing the provincial government for violating their right to life, liberty, and security of person (Boisvert, 2019). In these lawsuits, young people are demanding action through the story that “their generation has been disproportionately burdened by the environmental impact of climate change” because of government policy and inaction (Livni, 2019, p.1).

Within stories told by youth, I am noticing another narrative that acknowledges but moves beyond this victim position, claiming climate change with purpose and possibility. This frame says that children and youth are particularly capable in climate change, and that this is in fact their purpose in life. Take this anecdotal story from a friend of mine describing a young person’s response to an adult story of climate-burden: a mother asked her fourteen-year-old son how he felt about climate change, this big heavy weight unfairly placed on the shoulders of his generation. He responded that actually, climate change was an engaging and exciting challenge, and he was confident his generation has the intelligence and teamwork needed to solve it. The mother expected climate change to be felt as a burden, but the son instead embraced a narrative of climate-challenge over climate-burden. Xiuhezcatl, a then 13-year Aztec-American climate activist shared a similar view on Saving my Tomorrow (2014). Xiuhezcatl told viewers that as young people, climate change is not only “our problem, but that is what we were put on this Earth to do” (in Saving My Tomorrow Part 2, 2014). Ta’kaiya Blaney of the Sliammon Nation at age twelve similarly framed her engagement with climate change as appropriate and purposeful within an Indigenous understanding of humans’ roles as “the caretakers, and the healers, and the speakers, and the warriors for mother earth” (Saving my Tomorrow part 1; 2014). In contrast to adult stories that often center risk and vulnerability, youth are using their narrative and real position as victims of present and future risks to increase their agency, impact climate responses, and narrate a positive way of engaging with climate change.

(c) Future Scientists and Leaders of Adaptation

Lee (2013) names two more narrative frames of youth in climate change as future scientists who will bring technological fixes, and as the future leaders of adaptation. Many authors such as Peak (2008) emphasize the importance of engaging children and youth's capacity to contribute to climate change responses (in Ruppel-Sclighting et al., 2013, p.351). I too advocate for youth to be heard and included in decisions and solutions; but I am mindful that within the frame of "future" leaders, climate action becomes positioned as a future issue rather than already unfolding, and even worse, as strictly as a 'youth problem' that is not of material significance to the adult-world. Lee (2013) also warns that this narrative of youth as future scientists and leaders reinforces a root narrative of youth as resources in climate responses to be used and managed. It also assumes that science is only something that can be done as an adult in a 'professional' and trained position.

Robin D.B. Kelley (2014, p.85) points out another narrative impact of projecting young people as future leaders of social change. Kelley (2014) expresses her frustration with media discourse on uprisings in the 2000s in "Tunisia, Egypt, Palestine, Quebec, and Arizona" in which youth were cast as the inspiration for the movement, but incapable of producing the responding policy nor enacting and leading the movement (p. 90). This is a destabilizing and undermining story for youth and for these movements that get labelled as young and immature – right in spirit, but in need adult, military, or foreign control. I am reminded once again of Sukarieh & Tannock (2015)'s argument that discourse of youth are often used to discredit and silence legitimate resistance; and that we must be mindful of this pattern within narratives of climate and youth; for instance, are young people simply cast as inspiration, or are they engaged in the genuine co-production knowledge and systems change, honoured as movement leaders now?

(d) Youth as Redeemers

Youth are also storied as redeemers in climate change, who will rise up and successfully "transform and heal our troubled world" (MacClear, 2018, p.iii). This affirmation and prayer that "our children will do a far better job than we have" is increasingly present as more and more youth push climate advocacy and action (May, 2010, p.196). Hopeful adults point to the "thousands of incredibly intelligent and articulate children who are grasping the severity of climate change better than adults" (Turns, 2019). It does feel as though Generation Z is grasping this crisis more decisively, inventively, and optimistically than those older than them.

Reaching back into the story of youth as future scientists, youth are often bringing climate resilient technologies to their communities right now. There are youth creating clean building solutions such as self-taught Aäron Claays who is developing self-cleaning, air purifying and carbon-capturing building materials, and William Kamkwamba who at 14 built a windmill from scraps as well as plans he “found in a library” to power lights and radios in his home in Malawi (Frischmann, n.d.). There are youth preventing health risks from pollutants, such as Gitanjali Rao who at age 12 invented a low-cost testing kit for lead and other pollutants in water (BBC Future, 2017), and cleaning up the messes of past generations, such as 18-year-old Fionn Ferreira who discovered how to use a 'magnetic liquid' invented by NASA to collect microplastics from water (Bendix, 2019); 25-year old Boyan Slat deploying solar-powered devices to collect plastic in rivers before it reaches the ocean (The Associated Press, 2019); and Melati and Isabel Wijisen who founded the international movement Bye Bye Plastic Bags at the ages of 10 and 12 in Bali, inventing and spreading the use of a do-it-yourself plastic collectors for rivers (Bye Bye Plastics). Platforms such as the Youth Climate Report and Young Voices for the Planet offer hundreds of hours of videos featuring thousands of youth around the world acting on climate change.

On the political front as well, there are also youth living this story. Beyond the global youth-led lawsuits mentioned already, youth are also globally active in a plethora of ways and organizations. Some fit within the neoliberal model of youth taking on economic and entrepreneurial responsibility, such as the international youth-led UN sponsored movement Earth Charter Youth Initiatives that focuses on local projects like caring for parks, composting, and campaigning (Slaby, 2005, 113; Goodall and Sassor, 2005, 51). Others are more grassroots: sparked in Sweden by 16-year-old Greta Thunberg, FridaysforFuture student school strikes successfully gathered 6 million people in protest on September 20th and 27th in collaboration with hundreds of other organizations (Taylor et al., 2019). In the United States, an epicenter of climate violence and climate care, the Sunrise Movement has emerged to push for the Green New Deal and emphasize positive youth economic climate adaptation futures (Fisher, 2019). When looking at the intersection of decolonization and climate change too, youth are driving change and standing in the way of further harm. Indigenous youth across Turtle Island are driving resurgences including Idle No More, and the Standing Rock Oceti Sakowin Camp – “a historic gathering of tribes, allies, and people from all walks of life standing in solidarity to halt the Dakota Access Pipeline” (Stand with Standing Rock, 2019). In describing the efforts of Indigenous youth towards decolonization, land rights, and environmental protection, Dellavilla (2018) describes a longstanding prophecy, the 8th prophecy, which says that “our youth

are going to stand up and we are all going to be equal...or else they'll just destroy us" (p.47). These are only a few of the countless stories of youth and children around the world bringing to life the story of youth as redeemer through their admirable efforts.

While there are countless stories to fill this narrative, there is a danger in the over-use of a 'youth-will-save-us' frame. The personal impact of this narrative can be felt as a huge burden, as youth may feel intense pressure to succeed in a massive global task in a short span of time – perhaps before even reaching adulthood; spurred on by an abundance of superhero movies, celebrity culture, and neoliberal discourses that promote the narrative of the individual youth who can "make it alone", and singlehandedly save the world. The narrative also has potential consequences at the collective scale, for if youth are the heroes, then do adults and Elders have no or reduced responsibility in climate responses? Where do intergenerational collaboration, resource and power sharing, the exchange of youthful energy and rebellion with expertise and lived experience of adults and elders fit within this narrative of youth-as-redeemers?

In truth, children and youth live all these stories in relation to climate change. Some are a public becoming literate perhaps not just of the science but of also other ways of being and thinking that do not cause climate change; youth are moral witnesses, both passive victims and active victims claiming action and justice. They are present and future leaders of technological-scientific solutions and disempowered could-be-heroes, confined by adults to the sphere of inspiration and continued to be locked out of governance (Bussey, 2002; Kelley in Tuck & Yang, 2014). Many youth are in crisis, and they are bravely speaking out in the face of crisis; they are brilliant and overwhelmed; determined and scared. Others don't fit any of these stories, and it is important to recognize that there are also millions of youth who may be in ambivalent, resistant, or disconnected relationships with climate change. There is no single narrative that captures the entirety of youth experiences with climate change, as their perspectives and positionalities in relation to climate change are diverse, inequitable, multifaceted, and nuanced.

2.4 Climate Change Education

In this final section of my literature review, I turn to climate change education (CCE). I first examine the growing goals of CCE, and the storied role of education in relation to climate change over time. Here I look at climate scientific literacy, ethics, and values, living and learning in climate change, and agency, participation, and action. Next, I turn to discussions of power in and over climate change education, looking specifically at the history of disinformation and sabotage in

climate change education, and the intertwined history of climate change, colonization, and schooling and the implications for CCE. Third, I reflect on additional tensions, gaps, and recommendations, in CCE, turning first to those identified in five recent systematic reviews of CCE, and second to the tension of where CCE fits in educational disciplines and conceptual frameworks.

(a) Goals of CCE and Roles of Education in Climate Change

In this section, I want to look at the roles and goals assigned to education in relationship to climate change in the literature. The National Research Council (2011) describe the ultimate goal of climate change education as generating positive impacts on the environment; and within the literature various sub-goals and methods for how education can achieve this proliferate. Bowman (in National Research Council, 2011) offers that CCE goals might be understood along a continuum from scientific climate literacy to “social change that will reduce societal impacts on the climate at the opposite end, with stewardship somewhere in the middle” (p.51-52). This is some ways a helpful continuum, and in another, lacks engagement with the internal and the personal. Here, I spend time with the broad educational goals of (a) scientific literacy about climate change, (b) instilling pro-environmental ethics and values, (c) learning to cope and live well *in* climate change, (d) agency, participation, and action.

Scientific Literacy *About* Climate Change

This first and most prominent educational goal in practice is acquisition of climate change scientific knowledge, and the ability to communicate that science (Boyes & Stanisstreet, 1993; Holman & Henderson, 1993; Busch et al., 2018; McClaren & Hammond, 2000; Chang, 2014). This might be termed as education *about* climate change, education that specifically focuses on ‘scientific literacy’. Chang (2014) argued this standard approach to teaching about climate change considers “*causality* as the organizing concept for *why* we study climate change”, in other words, we study climate change to understand it is human induced (Chang, 2014, p.10). Chang (2014) desires for education to transcend the question of is climate change real, fueled and stagnated here by international debates on climate change, so that it can begin to explore the questions of how we teach and act about it?

The first article written directly on CCE documents co-created high school curriculum between teachers and scientists, whose goal was scientific literacy, specifically understanding climate,

Greenhouse Effect, Carbon Cycle, Climate Change, Greenhouse Gases, Possible Effects. (Holman & Henderson, 1993, p.138). Holman & Henderson (1993) sought to create educational opportunities for students to understand climate change through first-hand laboratory experiments and saw this move as part of a broader shift within science education from memorization to critical thinking and engagement with issues affecting students' lives. Hobbs (2000) is also an early author in CCE literature who affirms that in both high school science and geography, a CCE goal is to enable students to assess information first-hand with tests and laboratory investigations.

Within this educational goal, the problem that CCE addresses is scientific illiteracy. This has remained a popular framing, and within it, there is an abundance of educational research on scientific literacy on climate change as CCE research. For example, Lee et al. (2020) document 26 studies detailing "participants' reported perceptions about causes of climate change" between 1993 and 2018; another 18 studies on perceptions of impacts, and 40 studies on the perception about solutions in that time period. Others (e.g. Sullivan et al., 2014; Papadimitriou, 2004) focus on teachers' misconceptions. Together, the studies report "persistent misconceptions about climate change across ages" (Lee et al., 2020, p.8).

Likely as a reaction to the prominence of studies documenting student and teacher knowledge, and the general turn of schooling towards managerial and individual assessment, in 2011-12, two large-scale studies in CCE disprove narrative assumptions behind this goal: that scientific literacy of climate change will lead to desired behaviour change and action (Wolf & Moser, 2011; Dijkstra & Goedhart, 2012 in Rousell & Cutter-Mackenzie-Knowles, 2020). In another, Kahan et al. (2012) found no support that individuals with higher degrees of scientific literacy and technical reasoning capacity were the most concerned about climate change. They argue that inaction does not stem from "incomprehension of science", but from a distinctive conflict of interest "between the personal interest individuals have in forming beliefs in line with those held by others with whom they share close ties and the collective one they all share in making use of the best available science to promote common welfare" (Kahan et al., 2012, p.732). These studies represent a significant turn in climate change education literature, from knowledge *about* climate change only, to education that seeks to compel behavioral change in other ways.

While literature has long since move passed this as the only CCE goal, in practice, the sole goal of scientific literacy *about* climate change still dominates much educational practice. For example, Dawson et al. (2022) conducted a *cross-country comparison of climate change in middle school science and geography curricula*, noting that while studied countries include climate change in the formal

curriculum, the curriculum does not align with the literature. While the literature calls for education beyond scientific knowledge acquisition that extends into action, ethics, morals, etc. (see below sections), in practice, Dawson et al. (2022) still find that “knowledge about causes predominates over action and behaviour changes” (p.1379) in high-profile subjects, science and geography.

Ethics & Values

Another prominent goal within CCE literature is teaching pro-environmental values that support individuals in thinking, acting, and being in the world in environmentally-supportive (vs. destructive) ways. Ethics education and values is discussed over time in the literature (e.g. Porritt, 1988; Schlottmann, 2012; UNESCO, 2009; Cantell et al., 2019; Mochizuki & Bryan, 2015; Reid 2019). Here I explore the evolution of the discussion of values, from teaching the right values and ethics; engaging cultural values; to acknowledging existing local, traditional, and Indigenous values and practices education, to the ethical centrality of justice in CCE.

In 1988, Jonathan Porritt wrote an article in *Geography* on the need for “Education for Life on Earth” in the face of global warming. He positions the goal of education as the development of “an appropriate conservation ethic” (p.4). Porritt (1988) contrasts conventional environmentalism which carries a utilitarian anthropocentric ethic and looks to efficient management as the means to sustainability with “deep ecology”, which carries an ecocentric ethic and “recognizes the rights of all living creatures in varying degrees of ‘biological egalitarianism’” (p.4). He argues for education that develops a ‘whole conservation ethic’ that includes a sense of “equity but also of reverence for the world around us” (Porritt, 1988, p.4). Developing attitudes and values that “reflect respect for the environment and all its components; and sense of personal and social responsibility” has become a well-versed goal of internationalized climate change education discussions (UNESCO, 2009, p.12). As argued in UNESCO’s (2017) ‘Education for Sustainable Development Goals’:

The momentum for ESD has never been stronger. Global issues—such as climate change—urgently require a shift in our lifestyles and a transformation of the way we think and act. To achieve this change, we need new skills, values and attitudes that lead to more sustainable societies. (p.1)

This educational narrative of teaching *new* values and attitudes is not without critique. Öhman (2009) argues that education that seeks to teach specific values and attitudes might be in danger of a normative approach which seeks to assimilate students into particular beliefs and values, thereby losing the “critical and emancipatory potential” of education and violating its “democratic

obligation” (p.52). Instead Öhman (2009) argues for a pluralistic approach that seeks to include diverse perspectives and sets of values. It is worth noting in the context of this critique that all schooling, explicitly and implicitly, always already teaches specific values and attitudes, including a pluralistic approach.

Another argument, particularly in relation to local and Indigenous engagement in CCE, argues that rather than teaching values, CCE needs to engage and lean into the local and cultural values already alive for students and their families and communities. For example, in arguing for place-based climate engagement, Schweizer, Davis, & Thompson (2013) note that the research shows climate change will most resonate with diverse audiences when “(1) it is situated in cultural values and beliefs, (2) it is meaningful to that audience, and (3) it empowers specific action” (p.42). CCE is not expected to teach values, but to situate climate change *within* cultural values and places that hold meaning alongside empowering action. Sherpa (2018) also argues in this direction in her narrative inquiry with teachers in the Lamjung District in Nepal. Her study compares and contrasts teachers who arrive from other places and teach only to the science, with teachers who integrate climate science lessons with their traditional stories, festivals and ceremonies, values, to understand the problem and how traditional ways and local efforts contribute to a sustainable future. She argues for the necessity of connecting climate science with social and cultural lives of students and the traditional values and practices they and their families carry (p.59). Henderson (2019), taking from environmental psychology and communications research, also writes that it is clear people understand climate change in relation to their individual values “and the framing narratives of their broader social communities” (p. 989). Again, there is an argument that CCE and educators need to story and engage climate change within student values and the values of their surrounding communities. Within a broader application of this idea, it is essential to inquire into what extent those cultures and values have already been influenced by colonialism, neoliberal capitalism, and patriarchy, and how education might respectfully aid students in confronting and navigating this tension. In their systematic review of Indigenous knowledge systems in climate change responses in the developing world, Mbah et al. (2021) join in this discussion, arguing that CCE curricula lacks “contextual relevance” and devalues “indigenous knowledge in addition to Westernised assessment strategies and pedagogy methods that further reduce education effectiveness.” They argue that the validity and rationality of Indigenous knowledge cannot be measured by Western knowledge systems and standards, and vice versa, because both knowledge systems are rooted in the different cultures they emanate from, with differing epistemologies and values” (p.17). Here again there is a

recognition of dissonance between values in schooling and Indigenous knowledge systems and traditional practices.

Implicit in these arguments is a call for education to reassess the values and epistemological frameworks with which CCE is being developed. Similarly, Dawson et al. (2022) remind that the development of subjects is always value-laden and that it would benefit CCE to be transparent of “the values underpinning the educational intentions”. Drawing on Hicks & Holden (1995), Dawson et al. (2002) argue that educational questions to be engaged with students should include “what values will we use to guide our choices” – a question applicable to both curriculum development and content. In an aligned argument, Stevenson, Nicholls, & Whitehouse (2017) present the idea that “climate change is a systemic problem and therefore requires education that challenges normative values that shape our worlds (Gonzalez-Guardiano and Meira-Carrea 2010)”. From this perspective, education is not tasked with teaching new sustainable values, but with “transitioning from unsustainable values and, [associated] practices such as carbon-dependent forms of transportation” (p.69). Discussions of values raises questions of what values is education currently built on, and how are these values themselves complicit in climate change, and challenge CCE to both integrate local values into education and reimagine the values on which education is built.

Justice is a key concept in ethics/values too, becoming a prominent feature particular in the literature in the last twenty years. As Kagawa & Selby (2009) wrote early on, there cannot be ethical CCE without global climate justice. UNESCO’s (2009) influential workshop had a theme on “climate ethics and justice”, and McKeown & Hopkins (2010) identify social justice is a core component of educating for change (p.17). Climate justice and social justice are named as key principles or components of CCE across multiple important publications (Mochizuki & Bryan, 2015, p.15; Vaughter, 2016, p.4; Schlottmann, 2012; Stevenson, Nicholls, & Whitehouse, 2017; Reid, 2019). Prefacing a journal issue focused on CCE, Reid (2019) identifies climate justice as a recurring construct, quoting Biesta (2013) on the function of education, and arguing CCE needs to address “people’s rights to be free of oppressions created by climate injustices”. To this point, climate justice is mostly conceptualized across the literature as anthropocentric *social* justice across identities and global positionalities. Stapleton (2019) in ‘A Case for Climate Justice Education’ works with youth across various countries to integrate both international and *intragenerational* climate (in)justice into CCE, mirroring widespread youth activist narratives of inter and intragenerational justice in climate change. Waldron et al. (2019) highlights that climate justice has emerged as an educational perspective on CCE that stories “climate change as a global injustice requiring political, social and

economic mobilisation”, distinct from one focus on “climate change as geographic process with individual private solutions”. However, while this shift to include justice into core notions of CCE has been increasingly sweeping, Karsgaard & Davidson (2021) still highlight it as a gap in the literature up until 2018, urging for more justice-oriented approaches to CCE. Verlie (2017) advocates for CCE to widen its ethical scope beyond an anthropocentric lens and attend to the ethics intra-relations between humans and more-than-humans, advocating for relational CCE or interspecies climate justice. Karsgaard & Davidson (2021) reference research with youth participants who do just this, referring to “more-than-humans and the planet itself in their deliberations about justice”. This concern for cross-species justice is rooted in “a strong sense of relationality [which] pervades the students’ engagement in climate issues as they recognise: “we aren’t the only living beings, we coexist with a lot of animals and plants, we can’t allow that our greed hurt all the others living beings” (Karsgaard & Davidson, 2021, p.9). There remains space in CCE literature for more reflections on the ethics of co-existence, and relational ethics with the more than human.

Living and Learning *In* Climate Change

Living and learning in climate change includes the learning goals coping with climate change, making decisions within and in anticipation of change, and living with the emotional realities of climate change; all of which ask education to not only be concerned with the technical realities of impending climate change, but to support children and youth as they live through the changes now. In 1988, when the topic was still global warming and not yet climate change education, Porritt (1988) already recognized that global warming was not a problem of the future; it was already upon us (p.2-3). In 2010, McKeown and Hopkins wrote an important article that brought back this thinking; once again arguing that climate change is no longer a distant possibility: but that we are now teaching and learning *in* climate change. With this acknowledgement, is an acknowledgement that if climate change is a phenomenon of rapid expected and unexpected changes, emergencies, disasters, then education is responsible for preparing young people to live within that. With this temporal shift, they argue CCE needs to be broken down into two parts: first, climate education, which includes the scientific literacy of what climate change is including the natural sciences and geography, climatology, atmospheric sciences, etc.; and second, education *for* change which calls more on the social sciences and humanities (McKeown & Hopkins, 2010). Educating for change here seems to refer to both learning to cope with change and manage decisions, collectively and

individually, in response to and anticipation of change. For McKeown and Hopkins (2010) this encompasses the skills of “issue analysis”, “community and personal decision-making”, “intercultural competence” alongside “behaviour change”.

Informed decision making is frequently listed as a part of CCE goals and climate literacy, as a necessary skillset for addressing and live within climate change (UNESCO, 2009; National Research Council, 2011; Anderson 2012; Chang, 2014). Schlottmann (2012) identifies decision-making to include “trade-offs, problem-solving, and multifaceted ethical problems (such as economic considerations)”. Within decision-making skills, Critical Thinking is an oft-named learning outcome of CCE (UNESCO, 2009; Anderson, 2010; Kagawa & Selby, 2009; McKeown & Hopkins, 2010; Hayden et al., 2011; National Research Council, 2011; Kenis & Mathijs, 2012; Selby & Kagawa, 2013; Bigelow & Swinehart; 2014; Mbah et al., 2021). Some authors advocate for critical thinking engagement with misinformation (Bedford, 2010) and refutation texts (Nussbaum e al., 2015) on climate change, as a means of sharpening critical thinking skills, and effectively eliminating misconceptions. Alongside critical thinking skills, systems thinking is referenced regularly as a necessary learning objective in CCE (UNESCO, 2009; National Research Council, 2011; Shepardson et al., 2012; Alsop et al., 2015; Puttick & Tucker-Raymond, 2018; Bolstad, 2020). Mochizuki and Byan (2015) under their CCE component “learning to live together” name global citizenship education skills including empathy and interpersonal skills as key learning outcomes for living and deciding well together through climate change.

Alongside thinking is feeling/affect in climate change. The American Psychology Association (Swim et al., 2009) argues climate change negatively impacts mental health both through the impact of climate change-induced disasters and the emotions that prediction-models of climate chaos can trigger. Eames, Bolstad, & Roberts (2020) in their editorial for the SET Journal’s climate change education issue, note that responding to climate change, and learning about it, is emotional and cultural work, especially when “reaching beyond the low-hanging fruit of recycling” and extending beyond Western scientific frame. And, as Susan Clayton (2011) notes, although some emotional response, like fear and anger, “is useful in attracting attention or avoiding complacency, too much fear or anxiety can make people shut down in denial” (in National Research Council, 2011, p.27). There is a recognition here that education must both attend to and create space for processing the negative emotions associated with climate change, and generating positive emotional responses like hope (Ojala, 2015; Dolan, 2021) and optimism, beauty, joy (Alsop et al., 2015). Trott (2021) further reflects that children and youth fighting for climate action/justice, experience

emotional and psychological fights within themselves too. Karsgaard and Davidson (2021) name some of youth's emotional responses as: "fear and despair", "grief for observed and expected losses, particularly for animals and vulnerable people; guilt and shame engendered through knowledge about personal impacts; confusion and frustration regarding a perceived lack of response by authorities and hope, often inspired by observing others' actions." Within all the above literature, a common understanding on the importance of acknowledging, validating, and generally engaging in "complex emotions" (Karsgaard & Davidson, 2021) within climate change education is crystalizing. Through these writings, emotional literacy can be added to the broader heading of climate change literacy (Reid, 2019).

The temporal awareness that we are now *in* climate change is also acknowledged by Kagawa & Selby (2010) in an important critical text in CCE history. They too argue that CCE has been focused on education *about* climate change and needs to instead understand education *in* climate change. They urge education to seize the learning moment in climate change "to think about what really and profoundly matters, to collectively envision a better future, and then to become practical visionaries in realizing that future" (p.4). Monroe et al. (2019), in their systematic review on effective CCE strategies however, report that few had embraced Kagawa & Shelby's perspective in the literature.

As climate change worsens, this temporal shift from climate change as a problem of the future to climate change as the context in which we live is taken up more and more in the literature. Stevenson, Nicholls, & Whitehouse (2017) offer one interpretation to the question 'What is Climate Change Education,' defining it as a social and scientific issue that is "characterized by uncertainty and context-specific knowledge". They ask, if we can "no longer promise young people a stable atmosphere in their lifetimes," and if we have never before been in this situation, then "what and how are we to teach? And how are students to be engaged and to learn in preparation for this uncertain future?". In this educational context of 'incomplete knowledge' (McBain, 2016 in Stevenson, Nicholls, & Whitehouse, 2017), education becomes framed as a co-inquiry between students and teachers as they face the unknown together, in which the role of education is to "creatively preparing children and young people for a rapidly changing, uncertain, risky, and possibly dangerous future."

Agency, Participation, and Action

The final cluster of goals of CCE and roles of education in climate change that I want to look at is agency, participation, and action. Here I look at CCE as action, and education's role in preparing and empowering students to act. I first turn to early international policy guiding CCE that commits to young people's engagement in decision making, followed by a look at literature that similarly calls for participatory decision-making in/through/as CCE. I then turn to the broader educational goal of empowering young people to act, examining four frameworks for action in/as CCE and the emphasis on visions of the future within them. Next, I sit with literature in recent years that resists narratives of individual action and turns instead to community/collective action, including schools as sites for climate action, and notions of education as and for transformative prefigurative change.

Participatory Decision Making

I begin by looking back to the first international climate declaration, the Rio Declaration/Agenda 21 (1992), and the associated United Nations Framework Convention on Climate Change critical to the history of climate change education. The UNFCCC Article 6 on Education, Training, and Public Awareness, commits parties to not only developing educational and public awareness programmes on climate change and its effects, but also in “public participation in addressing climate change and its effects and developing adequate responses.” Though subtle, this article roots climate change education not just as informational, but actively participating in addressing climate change which can be understood as both decisions and actions. Though Agenda 21's clauses on education focus mostly on individualized approaches to climate action such as positive attitudes and sustainable consumption (article 4.26), there is another Article 25.2 that names the imperative for youth to “actively participate in all relevant levels of decision-making processes” including their “intellectual contribution,” ability to mobilize, and “unique perspectives” (Agenda 21: p.275). Within this Agenda's education and youth references, there is both evidence of oil and gas lobbyist narratives for narrowing education to individual consumerist conservation efforts, and a radical commitment for youth to be actively engaged in decision-making. As youth spend a significant amount of time in educational settings, an inference that can be drawn that CCE should include preparing and engaging youth in active and meaningful participation in all levels of decision-making processes. In reality, there is a large gap between these articles and the on-the-ground reality

of climate decision making. Reporting on their participatory international project with 99 youth from 13 countries, Karsgaard & Davidson (2021) lament that “young people’s access to decision-making in many climate policy remains marginal”, and that “youth seeking to engage often endure ‘tokenistic treatment in adult-dominated processes’ when they are accommodated at all” (p.3). Within the literature too, there remains need for more discussion and participatory and action research on pedagogical approaches for meaningfully engaging children and youth in all levels of climate decision-making.

An early narrative of children and youth agency in climate decision-making, emerged across multiple authors in the mid 2000s in natural disaster management literature. Penrose & Takaki (2006), for example, urge a reframing of children from strictly victims to central actors whose involvement can greatly aid community short- medium, and long-term recovery. Similarly, Wisner (2007) writes on schools as centers and models of participatory risk reduction and projection, advocating for the agency of schools, the learners in them and the communities surrounding them to mitigate and prepare for climate change and other environmental (future) risks. Tanner (2010) also advocates explicitly for a narrative shift from children and youth as ‘vulnerable’ and ‘in need of protection’ to children as actively engaged, often through education, in community-based action to “reduce climate and disaster” risk (p.345). In reference to students on Camotes Islands in the Phillipines who worked to restore degraded mangrove ecosystems in teams Tanner (2010) shares that “the groups have combined local knowledge on mangroves with a range of sources including school textbooks, training sessions, discussion with parents and the media...the mangrove example suggests that the ability to mobilise and collaborate with others is crucial to successfully enabling child agency and participation” (p.346). Lawler & Patel (2012) further argue that children have unique perspectives of their environment and can enhance community capacity to address climate-related risks. They argue that in their interviews, children are aware of their community’s vulnerabilities, and can help identify both vulnerabilities and solutions. They argue from children’s rights perspective using the Convention on the Rights of the Child, that involving children in the design of climate change policies is “essential to creating policies that do not have unintended negative consequences” (Lawler & Patel, 2012). Lawler & Patel (2012) also note that “when asked what would help children and young people to cope with and adjust to climate change, a majority in Indonesia replied that they wanted to do something tangible about climate change for their communities and that they wanted to be involved in planning for a future with climate change” (p.130).

Educational Goal: Empowering Young People to Act

Participatory decision-making can be seen as part of a broader goal of climate change education to empower young people to act on climate change, and here I look at the literature on education as a site for that change, in contrast with mainstream approaches that engage youth as ‘adults in waiting’ (Trott, 2021) who get to act when they are adults. Trott (2021) points to the growing everyday activism of children and youth and argues that “there is a need for approaches that invite children to use their radical imagination and to act on their ideas” (p.303). In contrast with those who say education should equip students with knowledge and skills but leave it up to students to discern how to apply those concepts, Schreiner et al. (2005) argue that an important goal of education is to empower “today’s youth to act” (p.4). They define empowerment in CCE as a “prerequisite for action”, painting the picture of an empowered person as someone who “feels capable of taking appropriate action to achieve what s/he aims for, and combines his/her cognitive resources (knowledge and skills) with affective resources (motivation, attitudes, hope and visions)” (Schreiner et al., 2005, p.8). Educationally, empowerment includes “content-specific knowledge and cognitive skills, motivational patterns, and personal value orientations” (Schreiner et al., 2005, p.8). Writing within science education, they quote educator and philosopher Wolfgang Klafki (2001) who says, “the mission of education as inseparable from the challenges facing a society” (Schreiner et al., 2005, p.5).

Schreiner et al. (2005) are among multiple authors who lay out key components, frameworks, and elements of CCE with a strong action-focus. Four examples I found include Schreiner et al. (2005) who speak to empowering CCE in science; Hayden et al. (2011) who propose the use of a Critical Youth Empowerment conceptual framework; Mochizuki & Bryan (2015) who identify components of ‘learning to do’ as a core consideration of CCE; and Vaughter (2016) who identifies an Action Competence Learning Process. Shared across these frameworks for action, are assessing the situation from multiple perspectives; hopes and visions for preferred futures, identifying and choosing pathways of action, and then putting that action into practice, and reflecting on lessons or evaluating results. There are also elements unique to each framework: Schreiner et al. (2005) recommend after assessing the situation, thinking about the meaning of sustainability in that context. Mochizuki & Bryan (2015) is more focused on learning skills that prepares one to act, and include learning to cope with one’s emotions, and learning to adapt to new situations, as well as “identifying what constitutes essential survival skills and creating opportunities to equip people with these

practical skills” (p.20). Vaughter (2016) notes that alternative visions of the future should include thinking about social justice; and planning should include thinking about barriers and enablers; and specifies both individual and collective action. Hayden et al. (2011) also speak to individual and community level empowerment, and name student participation specifically in “sociopolitical processes to affect change” which can be read in contrast with education for individual behaviour change (p.121). Hayden et al. (2011) add educational goals of creating “a welcoming safe environment” and “equitable power sharing between youth and adults”; and expand reflection to include reflecting in “interpersonal and sociopolitical processes” (p.121).

Common among these four frameworks is the role of education in developing and nurturing positive/preferred/alternative visions of the future, and role/goal that other authors also identify as key for a sense of agency and efficacy (Hicks & Holden, 2007; Bolstad, 2020; Cantell et al., 2019; Karsgaard & Davidson, 2021; Field, 2017; Alsop et al., 2015; Ojala, 2015; Cutter-Mackenzie & Rousell, 2019; Zink, 2020). Hicks & Holden (2007) write that alongside a futures perspective, young people also need “exposure to cooperative learning environments with those sharing similar values appears to have had a significant impact on young people’s sense of agency” (p.508). Here, developing visions of the future is positioned as a necessarily social process as well as an individual one. Bolstad (2020) adds educational visioning of the future should also include career opportunities and pathways in a “transition to a low-carbon, changed-climate future”. Alsop et al. (2015) also further speak to the need for CCE to engage in hopeful futures, but beyond this, to support “students with a sense of optimism, beauty, delight and playfulness: being more about passion, hope and love, than apathy and despair” (p.8). This article’s turn to play and beauty is rare in CCE literature, and worth holding onto.

On this note of hope and despair, Ojala (2015) also writes on the importance of constructive hope for motivating agency. Building on arguments for the importance of developing preferred visions of the future as part of an action-competence approach, Ojala (2015) argues that CCE also requires a goal of cultivating collective efficacy and constructive hope where students feel that they can individually and collectively tackle climate change. For Ojala (2015) this means that emotional regulation and coping is a part of CCE, noting that these two processes happen “not only at an individual level, but are also social processes (Folkman, 2009)”. Constructive hope is built through teachers’ reactions to their negative emotions relating to social issues, and the engagement (or not) of positive and solution-oriented pedagogical approaches and content. Ojala (2015) argues that “more constructive hope the students experience, the more probable it is that they believe they can

influence their own life situation to a high degree”(p.141). Here, constructive hope and optimism are intermingled with the capacity to imagine preferred alternative futures as necessary elements of agency; proposing that CCE concerned with the ultimate goal of climate action must attend to students’ emotional state and cultivate their sense of self and collective efficacy and hope. However, as Ogunbode et al.’s (2022) research on climate anxiety, wellbeing, and pro-environmental behaviours explores, there remains and will remain tension between emotion and agency. While they too found that climate anxiety was positively associated with pro-environmental behaviours, their 32-country study also demonstrated that taking action does not necessarily mitigate or ‘solve’ negative emotional experiences: as young people who are anxious about climate change take action, the negative impact of climate anxiety on wellbeing does not necessarily go away. This raises questions of what it means for climate change education to be present with the complexity of emotional experiences, rather than seeking to fix or solve negative climate emotions. Ogunbode et al. (2022) show that climate emotions are also social and contextual, as they found varying results across cultures and countries; for instance, the strongest association between anxiety and pro-environmental behaviours is in countries whose cultures have higher levels of individualism. Their text offers a reminder not to slip into global generalizations.

Moving from Individual Action to Community-Embedded/Engaged Action:

There is growing literature that attends to the role of education to facilitate and engage in community/collective action as learning, pushing back against individualized solutions in CCE. Stevenson, Nicholls, & Whitehouse (2017) write that while encouraging individuals to take personal action on climate change has been encouraged by many, and while individual actions are an important part of a climate response, “transitioning from unsustainable values and, practices... requires students to assume responsibility and develop the capacity to become civically engaged in collective actions that can contribute to reducing greenhouse emissions and transforming communities and societies to enact more sustainable policies and structures” (p.69). Here education takes the form of “active social learning” and asks after capacities for “personal and societal transformative practice” (p.70). Henderson (2019) writes that we are witnessing the expansion of CCE away from “what’s broadly seen as a failed emphasis on the notion that individual action alone is sufficient for dealing with climate change at scale” (p.989) and towards broader climate impacts and action. Field (2017) further advocates for participatory knowledge creation with children and the larger community, envisioning CCE as connected, collaborative, place-based, transformative, and

emancipatory. She suggests two shifts to CCE approaches: the first, adopting “community as curriculum” (p.86) which engages knowledge production as a process done “with and amongst community members trying to solve local problems”, and second to harness the advances of the digital age with an equity agenda (p.83). Here again education is oriented to dual intertwined goals of local community climate response and student-empowering learning.

It can be argued that community-engaged CCE benefits both quality education and better community climate responses. Alsop et al. (2015) argue that teachers, administrators, and educational researchers have distinctive expertise but are rarely engaged in long term governmental policies, research, and action. They advocate for school boards to support and encourage student/teacher action groups in schools. Trott (2021) further reflects that when youth are engaged in participatory action-oriented research projects with community, they are more likely to be effective and last. Siegner & Stapert (2020) writing on CCE in the humanities, report that “actions/solutions focus can be strengthened by better incorporating authentic and meaningful student climate action projects in the local community.” In their systematic literature review, Rousell & Cutter-Mackenzie-Knowles (2020) demonstrate that participatory creative approaches should be foregrounded; and Mbah, Ajaps, & Molthan-Hill (2021) also advocate for CCE that works *with* communities to validate and strengthen community practices. Similar to others in this section, Jorgenson et al. (2019) turn to a broader societal conceptualization of action in CCE and focus on “collective action, multi-actor networks, and sociotechnical innovation” (p.160). In recent years, there has been a growing turn in the literature away from individual action to collective action done with and in community.

Interconnected, Relational, Multi-Epistemological Education

There are growing scholars calling CCE to take up goals of understanding interconnectedness, attending to multi-species relations. As Allen & Crowley (2017) argue, CCE needs to not only embrace the connections between learning subjects but center an understanding of interconnectedness across content and structure. Verlie (2017) writes on the importance of a relational frame in CCE with an emphasis on intra-relations between humans and nature. Alongside these are other calls for culturally relevant CCE that appreciates how, particularly Indigenous, cultural heritage and practices contribute climate action. In a frequently quoted article, Busch, Henderson, & Stevenson (2019) advocate, for multi-epistemology CCE that supports students in engaging with climate change through positivist, social constructivist, and transformative

epistemological frames. Karsgaard & Davidson (2020) further argue that “climate change education needs to abandon a ‘save the planet’ mentality in favour of multiple, differential, contextual and accountable responses” (p.88) as part of a decolonized approach.

Schools as Action Hubs and Living Labs

Alongside changemaking with and in local community, there is also recurring dialogue in CCE literature of schools as sites and models for climate action and transformation, a place where community engaged participatory learning can happen. Orr (2000) argued early on for schools to educate by example, advocating for every school to develop plans to reduce emissions towards eliminating or offsetting all emissions by 2020. Orr’s (2000) vision included school wide energy audits and shifts to renewable energy facilitated through the combined effort of students, teachers, and community members. Wisner (2006) argued that education should include an awareness of local hazards and risk reduction strategies for schools and communities, and that a goal of CCE should be schools as models and centres of “participatory risk reduction”. Writing from Australia on their Sustainable Schools Program, Flowers & Chodkiewicz (2009) also advocate for a whole school approach, engaging the local community and students in school audits and action plans. Anderson (2012) adds to this thinking, arguing that alongside curricular content CCE should “focus on the institutional environment in which that content is learned to ensure that schools and education systems themselves are climate-proofed and resilient as well as sustainable and green” (p.191). Vaughter (2016) also advocated for schools as living labs, arguing “linking knowledge to action on climate change in curriculums will be more successful if education institutions have operational policies that allow students to practice action competence” (p.3). He further argued that students should be involved in the school’s decision making on climate responses and co-create and enact those “solutions through real-life behaviours”. Here education is positioned as not just responsible for outward knowledge acquisition and changemaking, but also must turn introspective and examine how physical sites of learning, schools, can model desired climate futures through participatory action.

Transformative Climate Change Education

Schools as physical sites of student- and community-engaged participatory climate action also begins to open educational goals of societal transformation and prefiguratively creating desired

futures in the here and now. Trott (2021) argues that there needs to be a cultural shift in which “adults take seriously children’s perspectives and experiences” and engage them in “informed and active participation”. Thinking with the everyday activism youth and children are engaged in around the world, Trott (2021) calls on education to pay attention to prefigurative politics, which they characterize with an “ethos of ‘not asking, just doing’ in order to create desired change in the here and now”. They open educational inquiry into a prefigurative approach to social change to create a new and better world, an inquiry which this dissertation also engages. There are other nods to this orientation in the literature. O’Gorman & Davis (2013) argue that teacher education faculties can also play an important role in CCE not just through student learning and content but through “their social connections within the broader educational community” thereby generating change-making networks and resourcing action-as-education (in Rousell & Cutter-Mackenzie-Knowles, 2020). Shelby and Kawaga (2010) argue that CCE should facilitate a paradigm shift, positioning education as creative, and critically transformative; reiterated as a needed frame by Monroe et al. (2020).

(b) Power Over Climate Change Education:

No literature review of climate change education is complete in my mind without reflection on the political nature of CCE, and the ways in which broader politics fighting for and against climate action have shaped, constrained, and sabotaged CCE. Below, I examine power struggles in CCE – first, looking to the disinformation and educational sabotage pushed by fossil fuel sectors and associated think tanks and non-profits that still impacts CCE today, and second, looking to a historical analysis of schooling as colonial, and colonization as a root of climate change.

Disinformation, Individualization, and Educational Sabotage

Climate change education is inherently political, wrapped up in larger political struggles over climate change policy and interconnected corporate – namely fossil fuel – profits. Here I reflect on how the oil and gas sector learned of climate change, and then sought to influence CCE by pushing climate disinformation in public discourse and education theory and practice. As Busch et al. (2019) recognize, there remains resistance to CCE at every level.

Whereas the birth of the climate change movement piercing mainstream consciousness might be said to be 1988 when James Hansen, then Director of NASA “testified before a packed congressional hearing” and “global warming became the stuff of chat shows and political speeches”

(Klein, 2014, p.73), climate change/global warming was well known within the oil and gas industry long before this. Historian Ben Franta (2021a) has uncovered a history of oil industry's knowledge of climate change, beginning as early as 1959 with a petroleum conference in which industry experts and others were warned of global warming by known scientist Edward Teller. He found records again in 1965 of an oil executive presenting on global warming to the American Petroleum Institute, who by the 1970s had formed a secret task force to monitor and discuss climate science.

In 1980, Franta (2021a) found record of another scientist, John Laurmann, warning this task force of the effects global warming by 2060s that would be 'barely noticeable' in 2005, but reach global catastrophic effects by the 2060s. That same year, the American Petroleum Institute published a public policy document, *Two Energy Futures: A National Choice for the 80s*, in which they recognized that fossil fuels could cause global warming, but also misquoted scientists casting doubt on global warming, failed to present on the concrete science they knew internally, attempted to reassure the public and lawmakers that another decade of fossil fuel expansion was safe, and "called on governments to triple coal production worldwide" (Franta 2021a, b). This history matters in this discussion of CCE because formal climate change education is entangled with public awareness of climate change, and this evidence of disinformation by withholding and disputing known science delayed educational response as one arm of delayed public responses to climate change.

The oil and gas industry, and interconnected right wing think tanks such as the Heartland Institute and Fraser Institute also have a strong history of intentionally influencing education on climate change and the environment. In one recorded instance, BP Oil actually co-authored China's Environmental Education policy alongside the Worldwide Wildlife Foundation in 1997 (Han, 2015). Dunlap & McCright (2011) document that in the early 1990s "much of corporate America was lining up against climate science and policy making that would lead to increased regulation" (p.149). This decade sees an increase in foundations and committees such as the "Citizens for a Sound Economy" and the "Committee for a Constructive Tomorrow" funded and controlled by oil corporations and "Richard and Mellin Scaife, and David and Charles Koch" who both drew on oil fortunes to fuel climate change denial "actors and activities" (p. 149).

The oil and gas industry and third party funded think tanks and non-profits push two educational narratives. The first seeks to story climate change as controversial and unfit for the classroom. The second, which came more into prominence as climate change effects and science became increasingly irrefutable, pushes industry-positive energy curriculum, and attempts to limit climate change education-action to individualized consumerist and conservation acts.

Especially earlier on in climate change education history, the climate-denial narrative storied climate change as controversial, unconfirmed, and not belonging in schools, particularly without serious questioning. This narrative is found in early articles on global warming in schools that refute the certainty of the phenomenon, such as Eichman, Chistensen & Brown (1994) who ask teachers: “Does global warming exist? Let your students investigate this question and then decide if any human intervention is necessary, or if it would even be effective” (p.28). A significant publication was released by the Fraser Institute in Canada in 1999, *Facts Not Fears*, arguing from the position of concerned parents that when it comes to climate change in schools, “only scientific facts that are known without any uncertainty should be taught” (Sanera & Shaw, 1999). As McClaren and Hammond (2000) soon refuted, this scientific-facts-only education would “eviscerate” the topic of climate change and its educational potential, as climate science is a science of prediction in which uncertainty is inherent. Though educationally restrictive narratives have largely shifted to advocate for a ‘balanced’ perspective in schools that includes industry voices, this narrative of controversy still continues. In 2012, leaked emails from the Heartland Institute uncovered a “scheme” that included “spending \$100,000 for spreading the message in K-12 schools that ‘the topic of climate change is controversial and uncertain’ - two key points that are effective at dissuading teachers from teaching science” (Goldenberg, 2012). Multiple authors over time point to the felt impact from teachers, who feel pressured by parents and administration to avoid the ‘controversial’ aspects of climate change, whether the science itself, or more recently the socio-economic-political implications (Branch, Berbeco, & Heffernan 2017; Enoch & Eaton, 2019; Monroe et al., 2019). Bissell (2014) writes on petrol-province Alberta teachers, noting that these:

Teachers may also be uncomfortable with addressing climate change because acknowledging the anthropogenic contributions to climate change as a result of a fossil-fuel-dependent economy challenges the dominant power structure... In Alberta, the grand narrative of progress and capitalism is inextricably tied to fossil fuels... For example, students with parents who work in the oil field may feel threatened by a discussion about the solutions to climate change (p.23).

As Bissell (2014) points out, to truly teach the causes of climate change is to expose the dominant power structure and dependency on fossil fuels at root, and with this recognition comes ‘action’-learning of structural and energy-source transformation. In the everyday lived experiences of

teaching and learning, this means parents, community members, administrators, even those setting educational policy may feel threatened by these narratives of transformation and justice, and there are real felt tensions and barriers by the educators receiving this discomfort and criticism.

This leads to the second story pushed by the oil and gas industry, engaged more regularly as climate change became harder and harder to contest. This story does not flat out refute climate change or environment in schools, but seeks to limit responses to individual action, avoiding corporate responsibility. This approach aligns well with a general neoliberalization of governments and school systems around the world over the 1980s and 1990s, characterized by deregulation, privatization, and marketization, and with it, decreased budgets for public services including education. Neoliberalism is both the context in which educationally-limiting climate narratives were advanced and their co-conspirator, also influencing and shifting education in ways that limit agency and action in education on climate change and any social/environmental issue. As Eaton and Day (2019) write on the neoliberalization of education,

the very purposes of education has been shifted with increasing emphasis on producing human capital – standard-tested, job-ready workers to meet market demands and enhance the competitiveness of the state and capital...In addition to the above material practices of restructuring, neoliberalization has also advanced through discourse that promote an ideology of individualism, competition, and markets as the optimal mechanisms for addressing a wide range of social issues (p.459).

Neoliberal re-structuring and associated re-storying of education through individual learning, action, and success, competition, and markets in and of themselves closed down educational engagements with CCE as social action and re-making power structures and economies. On a practical level, the neoliberalization of education increased the compartmentalization of subjects and reliance on standardized testing, two contexts that make project-based learning and other meaningful climate education hard (Schreiner et al., 2005, p.12).

There were and continue to be specific interventions that push this narrative of individualized action in climate change education too. In 2004, BP Oil unveiled their carbon footprint calculator, a distortion of the ecological footprint, which altered public and educational narratives of climate change and climate action. With the carbon footprint calculator, individuals could go online and calculate their family's emissions based on energy use, transportation, family size etc. Promoted as an educational tool for climate awareness, the carbon footprint made its way into classrooms around the world. I remember completing this activity myself in school as some of

the only climate change education I received between 2006-2010. The calculator stories individual consumer choices as responsible for climate change (Kruszelnicki & Smith, 2021). The carbon footprint calculator intentionally depoliticizes and individualizes climate change education, changing how “we speak and think about climate change” (Pattee, 2021). It becomes an individual problem, when in reality “just 100 companies are responsible for 71% of global emissions” (Pattee, 2021). Enoch & Eaton (2019) released a critical report through the Canadian Center for Policy Alternatives on the fossil fuel industry’s influence on environmental education, inclusive of climate change education, over the past decade. Their study reveals the prominence of fossil fuel funded third party organizations delivering materials, programming, and professional development to teachers and schools in the province of Saskatchewan. Enoch and Eaton (2019) report on the push for ‘balanced’ education that includes industry voices in curriculum and teacher training; their interviews with educators evidence that these strategies have been “a success” as teachers report being swayed out of anti-fracking positions, or feel the need to include industry voices in their curriculum for quality education (p.11). Their report also found that this ‘balanced’ approach strongly favours individual actions “with no discussion of industry responsibility or culpability” (p. 11).

Oil and gas industry have also embedded themselves in other insidious and overt ways in higher education. One way is through direct funding that directly and indirectly influences research and teaching foci; one study by Data for Progress and Fossil-Free Research found “six fossil fuel companies funneled more than \$700m in research funding to 27 universities in the US from 2010 to 2020” (Westervelt, 2023). Milman (2023) exposes another form of influence at play in his article on ExxonMobil’s presence on university campuses. Exxon employees are guest lecturing in classrooms and mingling with students. One employee is quoted speaking to engineering students over pizza, criticizing the divestment decisioning, warning “transition away from oil and gas will be ‘very difficult’ and that the unfolding climate emergency was “not our fault” (Milman, 2023). Exxon also has office space at universities including Princeton and MIT in connection with research centers. In conversation with previously quoted Ben Franta, the article states

fossil-fuel firms have purposely sought to “colonize” academia with industry-friendly science, rather than seed overt climate denial, according to Ben Franta, a senior research fellow at the University of Oxford who has studied industry’s influence over universities. Their research dollars, he said, had effectively discouraged academic endeavors that challenge the core business model of burning oil and gas, instead shifting the focus to

avored topics such as capturing carbon emissions from polluting facilities, a still niche technology that would allow industry to continue business as usual. (in Milman, 2023).

These are just some examples of how climate change education, engineering, science, environmental, and higher education more broadly have been shaped, swayed, and constrained by active influence from the oil and gas industry and funded by third party education providers and think tanks. This is an important aspect of any review of climate change education, as both the education provided in schools, and the research on climate change education have been influenced and constrained from these efforts. As Enoch & Day (2019) wrote “fossil fuel companies have targeted public education as a site for shaping morals and values, thereby securing consent for continued growth of fossil fuel consumption and obstructing just transitions” (p.460). This is an ongoing pattern of sabotage that must be recognized and addressed in CCE.

Education, Colonialism, and Climate Change Education

Another critical aspect of any discussion regarding climate change education and power, is the relationship between education, colonialism, and climate change. As discussed in the previous section, the constructivist/critical narrative of climate change points to the intersection of capitalism and colonialism as root causes of climate change. In addition, increasing mainstream and critical research are highlighting the importance of Indigenous traditional knowledge-culture-science for stopping the acceleration of and finding our way out of climate change (e.g. IPCC, 2021). Explored through the history of colonization, climate change can be understood as successful colonization tied to the establishment of settler-colonial states (Sanchez, 2018). As colonization swept the world, the land deteriorated (Morin, 2020; Tsosie, 2009), with intentional keystone species extinction, deforestation, soil disruption as features of the colonial project (Sanchez, 2018). Unaware of the science that would one day confirm their narratives, European philosophers and scientists in the ‘Enlightenment’/ colonial expansion period in fact directly name ‘climate change’ in their writings, acknowledging the links between deforestation, soil disruption and climate change, and celebrating it as a success of colonization (Fleming, 1998). Between 1634 and 1837 writers including Montesquieu, David Hume, John Adams, and Thomas Jefferson directly name and anticipate ‘climate change’ caused by clearing and cultivating the land (Fleming, 1998, p. 32). In these writings, climate change is imagined as a positive phenomenon that would bring ‘balmy weather’ and possibly stimulate ‘plant growth’; and the zest for tracking expected climate change helped spur the development of weather monitoring the U.S. and around the world (Fleming, 1998).

Schooling is also deeply implicated as a tool of the colonial project. In Canada for instance, Egerton Ryerson, often referred to as the ‘father of public education’, was a key figure in establishing the public school system in Western Canada in the 1800s; and, in establishing the genocidal and assimilatory school system run by the Church (Truth and Reconciliation Commission, 2015). The residential school system and other colonial policies and genocidal practices attempted to eradicate cultures/knowledge systems/educational structures/peoples who know how to live in reciprocity and balance with the land. Meanwhile, public schools not only disengaged from Indigenous knowledge, but actively taught the capitalist-colonial values and ways of knowing, doing, and being responsible for climate change today. Brandi Morin (2020) aptly identified that as schooling looks to include climate change and ‘sustainable education’, it is important to recognize that public schooling has and continues to be “unsustainable education”. From this understanding, climate change education might be seen as seeking to intervene in climate-change-reproducing unsustainable education that has been complicit and active in the intertwined destruction of Indigenous peoples and planet.

(c) More Gaps and Challenges in CCE and Literature

In this final section, I look at some tensions, gaps, and challenges in CCE practice and literature. I first turn to the most recent systematic reviews across the literature, offering a summary of their findings and a look at the gaps they have identified. Next, I interrogate a core tension of climate change education, which is where and how climate change fits into educational practice and theory.

Systematic Reviews

There have been five recent systematic reviews of CCE literature in the last five years. First, Monroe et al. (2019) conducted a systematic review of effective strategies for CCE found in literature assessing CCE interventions. Second, Reid (2019b)’s critical review is an introduction to a CCE collection in the *Environmental Education Journal*, of which Monroe et al. (2019) was a part and highlights the disconnects between the “low-hanging fruit” knowledge-attitude-behaviour models for CCE produced by UNESCO, recommendations in critical literature, and real educational practice. He argues that despite all the international rhetoric for CCE, the practice of it is still “found wanted”, suggesting that economic studies of CCE investments will reveal why. Jorgenson, Stephens and White (2019)’s critical review of climate change and energy education documents a history of education engrossed in individual “energy conservation behaviour” and seeks to orient

environmental education to the needs of the renewable energy shift. They identify the need for CCE that engages “collective action, multi-actor networks, and sociotechnical innovation” (p.160).

Rousell & Cutter-Mackenzie (2020) conduct a systematic review of child and youth empowerment in CCE; arguing that CCE needs to “catch up with broader social movements” (p.203). While much research is fixated on children rehearsing scientific knowledge, knowledge alone has no direct impact on climate change, and instead the authors advocate for participatory and creative CCE that focuses on young people’s voice and ability to redress climate change. Finally, Mbah, Ajaps, & Molthan-Hill (2021) conduct a systematic review of Indigenous knowledge systems (IKS) in climate adaptation programs in the developing world and offer implications for CCE globally. Mbah et al. (2021) argue adaptation is presently lacking cultural and local relevance, and that for IKS to be properly engaged, IKS-based assessment measures must come alongside Western assessments, as the Western worldview does not recognize the value of IKS and spiritual practices for adaptation.

Together, these reviews narrate a history of CCE fixated on teaching scientific concepts to young people and researching the impact of that teaching within Western assessment frames focused on individual knowledge and attitude retention, all the while discovering that knowledge alone does not produce action or behaviour change. The reviews also collect recommendations for better CCE across the literature. Monroe et al. (2019) reinforce Kagawa and Selby’s (2010) argument for values-reassessments, imagining, and realizing alternative futures. Together, they call for interdisciplinary, culturally and locally relevant, critical, creative, participatory, place-based, cooperative, emotionally-literate, justice-oriented, and holistic CCE that engages in collective action, multi-actor networks, sociotechnological innovation, learns from social movements, and acknowledges that all learning is happening in the context of rapid and uncertain climate change (Reid, 2019; Monroe et al., 2019; Jorgenson et al., 2019; Rousell & Cutter-Mackenzie, 2020; Mbah et al., 2021).

Where does climate change fit in education?

Both in the literature and in practice, this question seems to be a central tension of climate change education. In the literature, CCE does not yet have its own peer-reviewed academic journal, and it is contested whether it is or should be a stand-alone discipline, or a part of other educational conceptual frames; and if so, does it best fit under Environmental Education (EE), Education for Sustainable Development (ESD), or another such as Critical Global Citizenship Education (Karsgaard & Davidson, 2021)? This tension is replicated in policy and pedagogy too, where climate

change struggles to find space in overcrowded curricula and structures oriented to standardized testing (Fortner, 2001; Dawson et al., 2022). The question is also wrapped up in the political history of climate change and CCE sabotage explored in the previous section. Under this question, I look at how CCE has spread across the disciplines, discussions of CCE as multi- or interdisciplinary, or as a stand-alone discipline, and CCE as fitting under existing conceptual frames or requiring its own.

Expanding Across Disciplines:

CCE began in science (e.g. Holman & Henderson, 1993; Boyes & Stanisstreet, 1993) and geography education (e.g. Porritt, 1988; Hobbs, 2000) and has over time expanded in practice and theory to social sciences and humanities (Siperstein et al., 2016; Seigner & Stapert, 2020; Young, 2018; Dolan, 2021), and the arts (Dolan, 2021; Alsop et al., 2015; Siegner & Stapert, 2020; Trott, 2021). As was explored in the previous section on sabotage, this expansion across the disciplines was not without resistance, as critics attempted to limit CCE to science, and limit that science education to understanding the phenomenon and individual conservation acts in response (McClaren & Hammond, 2000). And it is understandable why they sought this limitation. Within the literature, CCE's spread to social sciences and humanities is synonymous with expansion into deeper discussions of living *in* climate change, justice, and attending to education for and in this change. In National Research Council (2011), David Hassenzahl, speaking from a social sciences perspective, advocates for an educational narrative that large scale changes are possible and do happen, urging CCE to avoid a deficit model which only aims to increase individuals understanding of how and why climate change occurs. McKeown & Hopkins (2010) write on the need for CCE to expand into the social sciences and humanities as they advocate for CCE that attends to education *for* change. Selby & Kawaga (2010) also, and this time from a transformative stance, expand CCE to the social sciences & humanities, integrating and interacting with “antiracist education, emergency, faith and interfaith, peace, social justice, and Monterssori-based education” (Skamp, 2012). In 2016, Siperstein et al. (2016) publish a book, *Teaching Climate Change in the Humanities*, exploring how humanities disciplines can and do “mobilize the creative and critical power of students, teachers, and communities to confront climate change”, with particular emphasis on literary and cultural studies. However, as they make a point to say, even before their publication and the others listed here, educators with and without published documentation or mandated curriculum, have been teaching CCE in the humanities and other disciplines outside science and geography.

Interdisciplinary, Multidisciplinary, Integrated, or Stand-Alone:

A prominent narrative in CCE literature also acknowledges that climate change itself is interdisciplinary; that it is implicated in scientific, “political, economic, and ethical domains of human enterprise” (Schreiner et al., 2005). Some authors respond by advocating for multidisciplinary education, in which climate change is taken up across various disciplines (McClaren & Hammond, 2000; Klock, 2005; Fahey, 2012; Anderson, 2012). Fahey (2012) for example writes against educational trends in specialization, arguing that multidisciplinary thinking is required to “prepare future leaders to solve problems not yet known”. CCE is also, and very prominently, storied as requiring an interdisciplinary frame (Fortner, 2001; UNESCO, 2009; Læssøe et al., 2009; Feierabend & Eilks, 2011; Wolf and Moser, 2011; Seow & Ho, 2017; Busch et al., 2019; Monroe et al., 2019; Siegner & Stapert, 2020; Rousell & Cutter-Mackenzie-Knowles, 2020; Dolan, 2020; Karsgaard & Davidson, 2021). Multiple authors also advocate for multidisciplinary, or integrated, *and* interdisciplinary framings (Kagawa & Selby, 2009; Klock, 2005; Mochizuki & Bryan, 2015); meaning that climate change is integrated into various subjects, *and* there are opportunities for interdisciplinary learning and action learning. Schreiner et al. (2005) for example, propose to keep “the traditional subjects but develop more opportunities and strategies for cross-curricular projects” in which multi/interdisciplinary learning could take place (p.41).

Eilam (2022) acknowledges that this has been the core approach in practice: first, and most prominently, “cross-curriculum inclusion” in which climate change is addressed “in various disciplinary-subjects across the curriculum” (p. 232). Second, the “less common approach involves creating a non-disciplinary or inter-disciplinary space in the curriculum” (Eilam, 2022, p.232). Eilam (2022) argues there is a lack of empirical evidence supporting either approach (p.257) and instead argues for climate change to become a core, separate, “high-status disciplinary subject in the curriculum” (p.258). As a disciplinary subject CCE would be given what it needs, a “specialised learning environment that allows the development of coherency and connectedness” (p.237). To get here, Eilam (2022) proposes climate change education specialists (building on Young, 2013), and that these specialists will prompt the development of various institutional efforts including “professional development workshops, resources for teaching, and communities of practice, all which are typical to the work of disciplinary professional communities in education (Pedretti et al., 2008; Wenger, 2011); and are critical for developing teacher agency in CC education (Priestley et al., 2015)”.

While Eilam (2022)'s proposal has merit, there remains a deeper tension of where climate change fits in the curriculum. The challenges identified by Rosanne Fortner (2001) still remain:

There are ample materials for teaching about global climate change, many credible and free sources of sound scientific information, and numerous places where the topic could fit into the curriculum. However, with an overcrowded curriculum and with little interdisciplinary training, teachers may be reluctant to infuse information about a topic that is inherently intangible and uncertain (p.28).

It remains that teachers receive little interdisciplinary training, and that the structures and supports of school systems largely remain barriers rather than enablers to this type of education. Ultimately, as Schreiner et al. (2005) wrote, that the “compartmentalization of subjects does not favour meaningful climate education”, and that interdisciplinary project learning is not supported by the context of standardized testing (p.12). The dominance of standardized and international testing emphasizes “literacy, numeracy and science knowledge content at the expense of pressing social concerns” (Dawson et al., 2021). This core tension of CCE returns to transformative goals discussed in CCE, and pathways of decolonization and regeneration (Henderson, 2020). I wonder, can CCE ever be contained within the educational structures currently in existence, or is the most practical route to quality CCE and the ultimate goal of living well in climate change and regenerating planetary health, a complete re-storying and re-structuring of education?

CCE in Environmental Education or Education for Sustainable Development

Another debate of where CCE fits is theoretically, where the question also stands as to whether CCE should be subsumed under another conceptual framework, or if it should be a stand-alone field. In particular CCE seems to be positioned most often either under environmental education (EE) or education for sustainable development (ESD or CCESD).

In 2009, Læssøe et al. examine trends in a cross-country review of CCE and ESD, predicting 3 possible futures for CCE: 1) develop independently of ESD and EE, perhaps as a substantial component of science education; 2) that CCE will develop into an integral part of ESD; or 3) a hybrid in which CCE is an independent field related but distinct from ESD and EE. Over the next five years, climate change education is positioned as either best implemented under an ESD framework (e.g. Anderson, 2010; Bangay & Blum, 2010; McKeown, & Hopkins, 2010) or under Environmental Education (EE) (e.g. Öhman, 2009; Ardoin in National Research Council, 2011, Schlottman, 2012; Chang, 2014). International policy and bodies such as UNESCO (e.g. 2009)

position climate change education under ESD; however critiques abound on this approach. Similar to political critiques who see the ways in which international policies such as the Rio Declaration (1992) and NAFTA (1994) position capitalist development/perpetual economic growth as a more important priority than environment/climate change (Klein, 2014), so too is ESD critiqued for prioritizing (capitalist-neoliberal) development over sustainability. Kagawa & Selby (2009) critique ESD as having managerial and instrumental agendas (within neoliberal thinking). Chang (2014) attacks ESD as not qualifying as a conceptual framework, but rather resembling “list of descriptive features” (p.21). Similarly, González-Gaudiano (2005) critique ESD as an “empty signifier” that only promises to congregate various fields (p. 245 in Eilam, 2022, p.236).

Schlottman (2012) offers a unique position of climate change and EE, arguing not that CCE is a part of EE, but that an environmental education needs to adapt its purposes in response to climate change to include concern for “future generations of humans and other animals”, stronger emphasis on collective action, global justice, and decision-making including “multifaceted ethical problems”. Karsgaard & Davidson (2021) argue instead for a completely different conceptual model – critical global citizenship education (GCE) as better suited for CCE than ESD. They argue

critical GCE counters epistemic violence by legitimising non-western knowledge systems, questioning naturalised western notions of growth and development. Acknowledging the power relations inherent to the global system, critical GCE addresses the interrelationships, structures and processes underlying global climate injustices, encouraging students to move beyond individual responses to collective action from their differential positions (p.5).

As a conceptual frame, GCE offers educational frame for social transformation, and education as re-making power relations and attending to relationships, structures, and processes underlying climate change. There are implications for writing and teaching under any of these conceptual frames, and I remain curious about CCE as an evolving stand-alone field that inherently requires multiple conceptual frames, as well as epistemological frames (Busch et al., 2019) to capture the full complexity of climate change as a phenomenon that is a wicked problem (Rittel & Webber, 1973, p.160) imbricated with others in a poly-crisis (Swilling, 2019, p.33)., a symptom of economic-political systems and culture, and the rapidly changing socio-ecological-emotional context in which we live and learn.

CHAPTER 3

Methodology: Pedagogical Narrative Inquiry

This chapter has four main sections that together describe the research orientations and methods of this study. The first section explores the relationship between my methodology and theoretical framework. The second reflects on my position as a practitioner researcher within the Rooted and Rising program. Third, I explain my methodology of choice, Narrative Inquiry, in more detail as both methodology and theoretical framework; and the final section expands on my methodological choices and data collection methods that shape this study into re-storying education in the era of climate change.

3.1 Narrative Inquiry & My Theoretical Framework

While climate change education does not have a single overarching theoretical framework, there are swells of scholarship that emphasize certain foundational frames and approaches for CCE with which my research joins in conversation. Here, I briefly outline my broader attachments to feminist intersectionality, new materialism, post and post-posthumanism, anarchist and feminist geography that inform my approach; followed by an outline of three frames in the emerging and forever-multi-framework theoretical field of CCE that I intentionally pick up in this research: ecological relationships, collective and social action, and practices of envisioning preferred/alternative futures. Finally, I turn to my methodology, narrative inquiry, as an anchoring frame.

I draw from and write within a broad ecology of Indigenous, feminist, and youth-and-child centric theorists and practitioners striving to rescue climate change education from a solely scientific lens (see literature review); and I therefore draw from a range of disciplines and orientations with which to construct my theoretical framework including feminist intersectionality, new materialism, post and post-posthumanism, anarchist and feminist geography. I find affinity with feminist intersectionality and Indigenous epistemologies. How I understand the landscape of the world and theorize change has been deeply informed by Black and Indigenous feminist theorists, such as Rauna Kuokkanen (2008) from whom I learned to frame colonialism, capitalism, and patriarchy as “imbricated” root systems; bell hooks (1994) who introduced me to education as a practice of freedom and love; and adrienne maree brown (2017) who masterfully articulated emergent and fractal theories of change grounded in nature’s patterns and wisdom.

In interconnected waves, my theoretical alignments extend to new materialism too, which challenges anthropocentric perspectives and blurs the boundaries between human and non-human subjectivities (Haraway, 2016; Tsing et al., 2017). Gough & Whitehouse (2020) argue that environmental and climate change education research and curriculum must also turn feminist-new-materialist perspectives in conversation with eco-feminism for a robust engagement with climate change. Within this (eco)feminist-new-materialist lens, they position climate change as a set of relationships that education must attend to, with an openness to the “presences of others” (Gruenwald 2003, p.40 in Gough & Whitehouse, 2020, p.1430), and with more-than-human perspectives. In my study, I remain open to more-than-human agency and perspectives within pedagogical narratives. I also use language like "re-search," "re-imagine," and "re-story," aimed at reconfiguring dominant ways of understanding and relating to the world. This curiosity to re-story and reconstruct further aligns with new materialism’s emphasis on the entanglements and interrelations between humans, technologies, and non/more-than-human beings. New materialism itself is closely connected with a post-humanist perspective.

Studying with youth at the intersection of technology, ecology, and society, I take up post, if not post-posthumanist curiosity into alternative desired futures, and turn to multiple perspectives and ontologies from which to draw understanding. I lean into a relational ontology that highlights interconnectedness. Like new-materialism, post-humanism too has been recently engaged to understand climate change more fully. Amid a rise of eco and climate anxiety, and literature discussing it, Boyd, Parr, & Philo (2023) for example, bring humanist geography, climate emotions, and post-humanism into conversation to argue for a new form of “posthuman wellbeing studies”. Following Verlie (2022), they contend that climate/eco-anxiety must not be framed solely through a clinical lens which positions this climate-anxiety like all other forms of anxiety, as an individual’s problem that can be traced to an “identifiable (and ‘treatable’) error in thinking”. Through a post-humanist recasting, Boyd, Parr, & Philo (2023) argue instead for climate anxiety to be more deeply understood as a relational experience, an expression of human-earth relationality, and in particular of human vulnerability in relation to nature/Earth. They turn to “collective psychologies”, and processes of progressive grieving as more generative responses to climate-anxiety than clinical individualized intervention (ibid). Following this thread, my study remains open to these relational and interconnected understandings of individual (emotional) experiences of climate change and pedagogy.

My theoretical frame is also influenced by human geography, and in particular, critical, anarchist and feminist geographies, which is the field I began both my postsecondary and personal climate change education journeys. I am still attached to looking for broader patterns and movements, giving attention to place and space, and a curiosity into everyday lived experience as an expression of and resistance to socio-political-economic systems (Massey, 1994). I am particularly aligned with anarchist geography in the tradition of Elisée Reclus who ontologically held that ‘man is nature becoming self-conscious’ (Clark & Martin, 2013) and was a precursor for social ecology (Clark, 1997) – those familiar with the latter might find traces of this theoretical frame in my writing too. Anarchist geography drew me into the theory, language, and personal practice of prefigurative politics and social movements, utopia/visioning desired futures, and enacting self-determination (Kinna, 2016; Graeber, 2014).

Following these broader theoretical entanglements, I now turn to CCE literature in particular, and to the three frames and approaches my study engages. First, my research picks up a thread of theory that argues for CCE to be rooted in an attentiveness to the interconnectedness of all life. ‘Interconnectedness’ and ‘interrelatedness’ are frequently mentioned in environmental and climate change education literature as a necessary root awareness for quality CCE and EE (e.g., Kagawa & Selby, 2010; Zink, 2020; Lehtonen et al., 2018; Allen & Crowley, 2017). Lehtonen et al. (2018), for example, identify dichotomized/dualistic thinking characteristic of the Enlightenment as in part responsible for the climate crisis and also deeply “integrated into modern education” (p.862). They argue that CCE needs to step into an alternative pedagogy of interconnectedness that integrates “minds and bodies, reason and emotion; and seeing the world and humans as interconnected” (p.866). In seeking to decolonize schooling, and decolonize CCE, scholars relatedly argue for relational frames and relational learning (e.g., Verlie, 2017; Mbah, Ajaps, & Molthan-Hill, 2021), that does not seek to flatten learning communities and ways of seeing, but to embrace multi-epistemologies (Busch, Henderson, & Stevenson, 2019) and “multiple, differential, contextual and accountable responses” (Karsgaard & Davidson, 2020, p.88). I am inspired by these scholars, and by the practitioners in my life who also center relationality and interconnectedness as CCE frames. In my research, I am interested in how narratives of interconnectedness and relationality are centered, experienced, and storied in *Rooted and Rising*.

My dissertation also comes into a CCE theoretical landscape increasingly oriented towards and through action. As explored in earlier parts of my dissertation, while education has been constrained by an overemphasis on individual – often consumerist and behavioural – climate action,

there has been a growing swell of literature that frames CCE as social and collective action. Vaughter (2016), for example, offers an “action competence learning process”, a cyclical process of preparing for, practicing, and then reflecting on both individual and collective action (p.2). Stevenson, Nicholls, & Whitehouse (2017) argue for “active social learning”, framing CCE in part through questions of what it means for students to “become civically engaged in collective actions” (p.69) and pursue “personal and societal transformative practice” (p.70). A number of authors engage an action-framing, arguing in particular for participatory student action projects done with and in community (e.g., Field, 2017; Trott, 2021; Siegner & Stapert, 2020; Mbah, Ajaps, & Molthan-Hill, 2021; Jorgenson et al. 2019). The language of ‘participatory’ action and knowledge production is also engaged in CCE to talk about learning and action as a deeply social practice (e.g., Wisner, 2006; Feierabend & Eilks, 2011; Mochuzki & Bryan, 2015; Rousell & Cutter-Mackenzie-Knowles, 2020; Öhman and Öhman 2013). My research joins in this growing conversation framing CCE as (increasingly) social action, and I deliberately pay attention to narratives of participatory, social, and collective action in *Rooted and Rising*.

Finally, I follow in the footsteps of scholars who emphasize the importance of alternative and preferred futures in CCE. Many authors write about the importance of envisioning better/preferred/alternative visions of the future in CCE (e.g., Hicks & Holden, 2007; Kagawa & Selby, 2010; Kenis & Mathijs, 2012; Bolstad, 2020; Cantell et al., 2019; Karsgaard & Davidson, 2021; Field, 2017; Alsop et al., 2015; Ojala, 2015; Mochizuki & Bryan, 2015; Cutter-Mackenzie & Rousell, 2019; Zink, 2020). This practice of imagination is most often written about in relation to action – hopeful visions of the future motivate and sustain the capacity to act and set the course for action – but there is less detailed writing about the pedagogical practices that invite alternative visions and what visions these practices co-produce with students; and little written on how students preferred visions might reciprocally inform CCE. In my research, I want to attend to the pedagogical narratives of better/preferred/ alternative visions of the future and their implications for CCE.

Though in conversation with these three threads of visioning the future, social action, and interconnectedness in CCE theory, and informed by many disciplines and ways of seeing, I ultimately turn to my research methodology, Narrative Inquiry (NI), as my theoretical framework. This chapter is thus both a methods chapter and an exploration of my theoretical framework, and in section 3.2 I explicitly detail the ontological and epistemological underpinnings of NI. As I will discuss in more detail, NI comes from a lineage of pragmatic philosophy (Clandinin, 2013), and an ontology of experience which turns to immediate human experience as the most fundamental reality

we have from which to construct knowledge (Clandinin and Rosiek, 2007, p.45). I see my attachments to relational ontologies and diverse theories as complementary to, challenging, and coming into agreement with the ontology of experience. Rather than viewing this as epistemological inconsistencies as some might, I understand this multi-ontological approach as a strength of my research. By engaging with multiple perspectives, my study adopts a more nuanced and inclusive approach to knowledge production.

3.2 Defining Narrative Inquiry

Narrative Inquiry (NI) is the methodology of storied experiences. It begins with a basic premise: humans are storytellers (Moen, 2006). We live experiences in which we interact with other beings and the environment/context around us, and then we “organize those experiences into stories” to capture and share meaning (Moen, 2006). We use stories to help us make sense of the world, to communicate with the world, and to shape our actions in the world (Connelly & Clandinin, 1990; Clandinin et al., 2016; Lyons & Laboskey, 2002; Webster & Mertova, 2007). In narrative inquiry, a narrative can be defined as a retelling, a story about an experience: a sequence of events that includes characters, “human or otherwise,” in a particular place and time and has meaning for the listener and/or the teller (Dauite, 2014, p.3). Narrative inquiry honours lived experience and the stories we tell about it as important sources of knowledge (Clandinin, 2013, p.17). In the process of inquiry, researchers prompt the act of narrating – storytelling – that is also implicated in particularities of time and place, audience, purpose, and surrounding context. For this reason, Clandinin (2007) describes narrative as both the method and the phenomena.

Within NI, inquiry is relational, attuned to impacts and changes in relationships over time (Connelly & Clandinin, 2006; Clandinin, 2013; Clandinin et al., 2016) by collecting and reflecting on narratives (Josselson, 2007, p.538). The relationships under analysis are many: there is the relationship between story and experience and the ways in which the telling, retelling, and reliving experiences through story can further unearth meaning and open pathways for further experiences (Clandinin, 2013). Next, there is the relationship between individual and context in the story and in the act of storytelling, and this can be further broken down in two ways: first, how “an individual’s past and present experiences, . . . values, the people the stories are being told to, the addressees, and where and when they are being told” impact the story; and, second, the ways in which a “multivoicedness” can be found in narratives – that a narrative contains both personal stories and collective ones “shaped by the knowledge, experiences, values, and feelings of the persons who are

telling them. At the same time, they are also collective stories that are shaped by the addressees and the cultural, historical, and institutional settings in which they occur” (Moen, 2006: p.61). The entanglement of individual and collective stories means that personal stories can also shed light and understanding into the broader socio-political and cultural narratives (Moen, 2006; Clandinin, 2013; Clandinin & Rosiek, 2007; Pratt & Rosiek, 2021). Alongside the relationship between story, experience, and meaning, context and individual, there is the relationship between researcher and researched. The researcher and research participants come into relationship through the study, and both parties are expected to learn and change through the process (Clandinin, 2007, p.10). The narrative inquirer is expected to be informed by their own lived experiences, and to bring those into the research as another point of analysis. Clandinin (2007) summarizes the foundations of NI in four key moves the narrative inquirer makes in their research: (1) to embrace the relationship between researcher and researched; (2) to move away from numbers and towards “words as data”; (3) to leave behind the pursuit of universal truth for a pursuit of local specific knowledge; and (4) to widen the spectrum of what counts as knowledge, to accept “alternative epistemologies or ways of knowing” (Clandinin, 2007, p.12). These four moves form one larger move away from positivist research, and towards relational knowledge grounded in experience. It is to this ontological orientation I now turn.

3.3 Narrative Inquiry and the Ontology of Experience

Theoretically, narrative inquiry was birthed in the lineage of pragmatic philosophy, and further inspired by Johnson’s (1990) work on embodied knowledge and MacIntyre’s (1981) work on narrative unity (Huber et al., 2016; Clandinin, 2013). Reflecting on her many years developing the methodology with colleague Michael Connelly, Jean D. Clandinin (2013) shares intention of the narrative inquiry: “we wanted to find a way to build on what Dewey (1938) wrote of experience and to use his ideas to think about teacher knowledge as knowledge that was personal, practical, shaped by, and expressed in practice” (p.9). Clandinin and Rosiek (2007) describe NI’s grounding in Dewey’s pragmatism well:

narrative inquiry is a quintessentially pragmatic methodology. What genealogy is to poststructuralist Foucauldian sociology, what critical ethnography is to critical theory, what experiments are to positivism, narrative inquiry is to Deweyan pragmatism (p.42).

Narrative inquiry shares with pragmatism a root philosophical story of being and reality, otherwise named the ontology of experience. Following Dewey, the narrative inquirer understands immediate

human experience as the first and most fundamental reality we have from which to construct knowledge (Clandinin and Rosiek, 2007, p.45). Summarizing William James's (1909) basic principle of the ontology of experience, Clandinin (2007) puts it in simple language: "what you see (and hear, think, love, taste, detest, fear, etc.) is what you get. That's all we ultimately have in which to ground our understanding. And that is all we need" (p.41). In this statement we can see both a profound centering of experience as a means of understanding reality, but also a means for creating one's reality: 'what you see/think is what you get' describes how the stories we tell about ourselves and the world around us also shape our experiences in/of the world. The implications of this ontology reverberate into epistemology, what counts as knowledge. Clandinin and Rosiek (2007) explain that within the ontology of experience, inquiry is not the search for knowledge defined as a "faithful representation of a reality independent of the knower" as a positivist orientation would demand (Dewey, 1981, p.175 in Clandinin & Rosiek, 2007, p.39). Instead, "inquiry is an act within a stream of experiences that generates new relations that then becomes part of a future experience" (Clandinin, 2007, p.41). Experience then becomes both the origin of representation and the marker of its validity (Clandinin & Rosiek, 2007): does the inquiry enable researched and researcher to generate new relations with one another, themselves, and with the cultural, social, institutional, environmental contexts in which the stories emerged? Do these new relations create the possibilities for new, better experiences?

Clandinin and Rosiek (2007) also describe narrative inquiry and its ontological orientation by describing bordering orientations that it is not. NI is not positivist, as described above, nor post-positivist. Where post-positivism believes in a reality independent of the mind, NI grounds reality in experiences of the mind and body (Clandinin & Rosiek, 2007, p.45). NI is also not Marxist. While both share the goal of "generating scholarship that transforms the ontological conditions of living", Marxism privileges the "macrosocial material conditions of life as the primary influence on human life and thinking", while NI "privileges individual lived experience as a source of insight useful" to the person and the broader field of scholarship (Clandinin & Rosiek, 2007, p.50). Neither is NI post-structuralist: where post-structuralists listen to stories for discourses that reproduce power and oppression with the end goal of exposing problematic interrelations of individual and systems of power, narrative inquiry examines the cultural and socio-political as important elements that make up the situation and analyzes with the end goals of understanding individuals and the systems in which they live better towards improved experience (Pratt & Rosiek, 2021, p.3). In NI, all parties are expected to bring their "'external' and 'internal' conditions'" (e.g. childhood memories of school) to

the research and engage it within the inquiry, not ignore nor dwell in it (Dewey, 1938 in Elbaz-Luwisch, 2002, p.268). NI is not post-positivist, Marxist, or post-structuralist/critical, it is pragmatic, valuing experience and story as knowledge-full.

3.4 History of Narrative Inquiry

Narrative analysis and a general turn to narrative in research has a broad history that spans across varied disciplines and theoretical inspirations (Dauite, 2014; Clandinin, 2013), but narrative inquiry as a methodology was developed by Connelly and Clandinin (e.g., 1988; 1990; 1996; 1998; 1999; 2004; 2006) inspired by a particular lineage of social movements alongside pragmatic theory. Clandinin (2007) traces how women's and Black liberation movements used stories to unite members, to empower "intellectual contributions" of everyday people, as knowledge banks from which leaders could "theorize and plan," and as "powerful and authentic evidence" on the need for change (p.25). She traces how these activists came to academia, birthing disciplines including "women's studies, Black studies, Chicano studies, LGBTQ studies", and I would add Indigenous studies, and using stories as "evidence" (Clandinin, 2007, p.25).

Narrative inquiry was developed in the lineage of these disciplines, but formally developed in education research, specifically teacher research. Pratt & Rosiek (2021) historicize NI within "an international teacher practical knowledge movement that transformed the field of teacher education" in the 1980s and 1990s (p.2). This movement emerged in response to process-product research that searched for the right step-by-step process for all teachers to follow to get the desired product (good grades); but also, in response to critical scholarship that "presumed teachers were dupes of macrosocial ideologies and discourses" and that therefore teacher research and education should "fix teachers by pointing out their complicity in such systems of thought" (p.2). In reaction to both forms of research that blamed teachers and tried to fix them, some researchers began to document the complexity of thought and experience that went into teachers' decisions and practices (Pratt & Rosiek, 2021). Within this wave of practical teacher knowledge research, Connelly & Clandinin developed narrative inquiry as methodology that honours teacher experience as valid, complex, and knowledge-full (Huber et al., 2016). Researchers continue to engage NI in educational studies into the lives and practices of teachers (Lyons, & Laboskey, 2002; Webster & Mertova, 2007) and of youth and children (Clandinin et al., 2016).

I have been particularly inspired to engage narrative inquiry with students and teachers in the pilot education program after finding other narrative inquiries that did the same. Clandinin et al.

(2016) report on Caine et al. (2010)'s study with "youth of Aboriginal heritage" and their lives in and around school (p.23). Researchers designed and led an art club within the school, and then once the art club was active, invited participants into the research, inquiring into their lives within and beyond the club (Caine et al., 2010). I appreciate that an experience was created that allowed youth to come into relationship with the researchers before being invited into knowledge production; it is a kind opening for trustworthy knowledge exchange particularly with young people and populations that have historically experienced research as an extractive and colonizing experience. Like this study, youth climate leaders were invited into Rooted and Rising for the sake of the program alone, and once they were engaged, I asked them to participate in knowledge production in and around their experiences in the program. I learned of two other similar narrative inquiries in Webster & Mertova (2007) with pilot education programs: in one, narrative inquiry was used as a means of reflection for programme participants and teachers in a faculty of law teaching programme, and for program evaluation (p.37). In the second study, Naidu and Cunnington (2004) investigate a pilot program in "distance medical education" to understand the influence of information and technology and provide insight into possible improvements for similar programs (Webster & Mertova, 2007, p.37). While my use of narrative inquiry is not meant to prove the efficacy of the program nor judge what students did or did not learn, the stories of experience gathered give insight that can be inform future R&R iterations and broader public knowledge.

3.5 Pedagogical Narrative Inquiry

In a classical NI, researchers are interested in coming to know the educational lives of their research participants in and beyond the classroom. While there is strong awareness that any narrative brings together individual and collective stories, and offers deeper understanding into both, the emphasis is on the individual(s) storied experiences. The inquirer embarks on a journey of coming to understand those individuals and their educational lives by coming into relationship with them, visiting their home, and gaining a more holistic picture of the person. This study represents a particular style of narrative inquiry, pedagogical narrative inquiry, that has a slight shift in subject focus: it is not the individuals interviewed, but rather Rooted and Rising, the pedagogical experiment itself, that is the subject of inquiry. Pedagogical narratives refer to the foundational stories that (1) a pedagogy is built upon, (2) are expressed through the pedagogy, and (3) narratives that emerge out of pedagogical practice. Pedagogy – the theory, method, and practice of teaching – is an exercise of creating a world that learners and educators experience and live out together, and pedagogical

narrative inquiry asks: what are the stories that shape that world? What are the storied experiences of what happens in, and in relationship to that world? Foundational stories include ontological stories about self and the nature of the world, epistemological stories on what is knowing and how one comes to know, stories of what is success, a good future, the role of education and the relationship between teacher and student. Inherently interwoven in this as well, are the foundational stories being named and unnamed, rejected, and let go of in the experiencing and storying of that pedagogy. In the case of this study, this latter question asks after foundational narratives of Western institutional schooling that are being let go, reproduced, replaced, ignored, and/or re-imagined.

Pedagogical narratives are expressed in many forms, and I turn to Eisner's (2002) concept of three curricula to explore them. Eisner (2002) details the three curriculums that all schools have: explicit, implicit, and null. Explicit curriculum is the clearly expressed learning goals, and what is formally taught. Implicit curriculum is the socialization that happens in schools through the values that "are a part of the structure of those places" (Eisner, 2002, p.88) expressed as expectations and rules, organizational structures, building, and classroom design, and the storied relationship between students and teachers. Null curriculum is that which is not taught, both in terms of specific content, and types of intelligences/ processes that are engaged. Intuitive knowing, for example, is one form of intelligence/ process that is part of the null curriculum of institutional schooling. Each of these layers of curriculum together and separately tell stories about education, the world, and students' roles within both. Inquiring into re-storying of education, I am interested in the stories told by, in, and about *Rooted and Rising* – and the collective pedagogical narratives that these stories construct and disrupt.

3.6 My Research Study

(a) The Research Puzzle

Clandinin & Connelly (2000) explain that in narrative inquiry, research is crafted around a wonder – a research puzzle rather than a research question. Where a question might carry a "precise definition or expectation of an answer," a research puzzle carries a sense "of continual reformulation," a searching and re-searching (Clandinin & Connelly, 2000, p.124). Clandinin (2013) also says that in formulating a narrative inquiry puzzle, the researcher should think about the 'so what', and 'who cares' of the research, and offers three ways to justify studies: (1) personally – why the inquiry matters to the researcher, (2) practically – "what difference this research might make to

practice”, and (3) “socially and theoretically” in terms of the contribution the inquiry might make in “theoretical understandings or to making situations more socially just” (Clandinin, 2013, p.35). My inquiry matters on all three levels. It matters to me personally, as it contributes to my life-long puzzling into education, climate action, and youth leadership. Practically, the research findings can support future practice of the Rooted and Rising program and offer prompts and ideas for educators to improve practice in other education contexts. Finally, this study contributes to theoretical and practical understandings of climate change education and prompts for orienting education to thriving and just futures in the era of climate change.

(b) Data Collection

To explore this research puzzle, I gathered four forms of data with the Rooted and Rising youth climate leadership pilot certificate program: semi-structured interviews (Newing et al., 2010) with students and members of the teaching team mid-way through and at the end of the program; media published about and from the program; the detailed post-program report; and personal journal notes of my own experience organizing, teaching, and learning in R&R (see Table 1 for details). Before and during the research, I completed a literature review. In narrative inquiry, the review of the literature is “different from a typical academic literature review, shaped in a way that does not solicit legitimacy by citing the expected roster of qualitative and narrative researchers whose work preceded theirs, but rather by presenting the intellectual processes that undergird the authors' own work” (Elbaz-Luwisch, 2002, p.276). This chapter is a part of that work. In the following two chapters, I conduct a further review of literature that unearths stories about youth and climate change and education for climate change that exist prior to my research, and to which my research responds and exists in the midst.

Table 1: Data Collection

<i>Method</i>	<i>Participants /Authors</i>	<i>Intended collection</i>	<i>Real Data Collected</i>	<i>Hours/Pages of Data</i>
<i>Semi-Structured Interviews</i>	4 R&R students	2 1-hr interviews per person: 1 mid-way	3 youth did 2 interviews; 1 youth only did the first	7 hrs of youth interviews
	6 R&R teaching team members	through, and 1 after the program	4 teaching team members did 2 interviews; 2 only did one interview	10 hrs of teaching team interviews

<i>Media Collection</i>	Any public posting on social medias or websites on R&R	Youth & team social posts about their time in the program + web-page data	Interviews on Zoom. YLRL webpage and bonesthrown.com webpage on the program 1 article published on York University's YFile News Website 3 student projects that produced video or articles online	2 web-pages; 3 social posts; 1 article mini-series by students; 2 student videos totalling 14 minutes
<i>Curriculum Document</i>	3 members of teaching team – myself and 2 others wrote the report	Originally planned to be a detailed curriculum document shared with partners	3 social media posts Publicly published report on program curriculum content, student feedback, history, and proposed alterations for the next run	61-page report: words and photos
<i>Personal Journal Notes</i>	Me		Journaled in a notebook during and after R&R classes and meetings between Summer 2021-January 2022. Also, wrote thoughts between sessions.	30 journal entries collected

(c) Semi-Structured Interviews

I gathered story-data via semi-structured interviews with students and teachers in R&R. Savin-Baden & Van Niekerk (2007) describe that the interviewee in NI should be seen as a storyteller “rather than as a respondent” and the interview agenda should be “open to development and change depending on the story being told.” I prepared semi-structured interviews with this in mind; creating five open-ended questions with three possible follow-up prompts and planned to ask for more details and explore new lines of questions in response to how they answered these basic questions (Newing et al., 2010). My questions inquired into their experiences leading into, and in the R&R program. The first question asked to both teaching team and student participants was: “tell me the story of how you came to be in Rooted and Rising” (see [Appendix A](#) for full list of questions). Savin-Baden & Nierkerk (2007) warn that in a narrative interview, researchers should be asking

questions that elicit stories, and “avoid ‘why’ questions as they tend to intellectualize”. As I reflected on my transcripts, I noticed that I did ask some follow-up questions beginning with why: why do you think that matters? Why do you think that is? These why questions diverge from the method, and I have learned how to conduct better narrative interview technique through this imperfect practice. Within broader practitioner research these questions still fit the invitation to practitioners to reflect on their experiences.

I first invited my teaching team colleagues into the research after I received approval from the Ethics Committee in the Spring of 2020, see Figure 1 for full research timeline. I asked those interested to let me know privately after a planning meeting, and I emphasized the voluntary nature of the research and that their choice would not affect our personal or professional relationship. We are a 10-person research team, and six members opted-in to the research representing the range of non-exclusive positions on the team: tenured professors (2), graduate students (2), educators (3), artists (1), ecosystem restorers (3), youth activists (1).

The students of the Rooted and Rising program were invited into the research after they began the program, in the third class. Since I was one of their teachers as well as the researcher, Ethics protocol stipulated that I not invite them into the research myself, to avoid felt pressure to participate. Instead, a friend of mine attended our class, introduced the research, and offered his email, asking anyone interested to email him about the research and he would connect us after once more confirming their willingness to participate, sharing the consent form. See [Appendix B](#) for the script used, and [Appendix C](#) for a consent form. Out of the 22 students, four reached out to

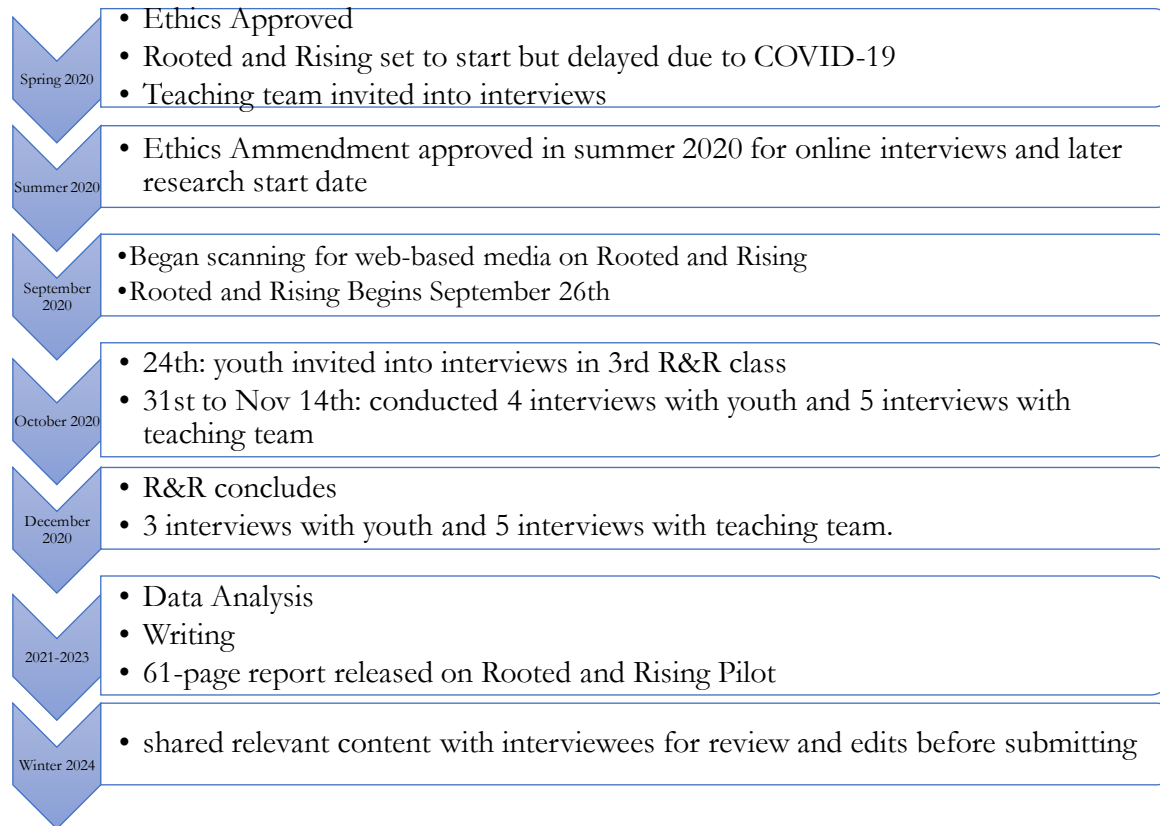


Figure 2: Research Timeline

participate. For me, this low opt-in rate affirms the importance of not demanding youth participate in the research in order to participate in R&R. I don't know for certain why more students did not opt-in, but I believe it was partially due to the impersonal request from someone they didn't know; and, that students already had full lives alongside potential other factors like confidence and perceptions and past experiences with research. All R&R students were in full time school and/or work, participating in cultural and activist projects alongside Rooted and Rising and living through the first year of the COVID-19 pandemic. It is understandable if few felt they had space for research interviews. Reflecting on my process, I wonder if an approach like Caine et al. (2010) took of inviting specific students into the research might have been a more fruitful method (in Clandinin et al., 2016), however York University's Ethics Committee's rules are clear that as their teacher, I could not ask students to participate directly. That 18% of students participated to the research also reinforces that this study is not an evaluation of the program. All four students who opted-into the research were over 18-years old even though the R&R student body ranges from 13-30. Two were completing their undergraduate degree, one was entering their Master's degree after Rooted and Rising, and the fourth was out of school and an entrepreneur. Three of the four participants were

also some of the most active students in the class, and the fourth was one of the least present students due to overlapping work commitments. Their stories do not stand for the experiences of all students in the program, only for their own.

In most research, participants names are kept confidential, and pseudonyms are used to protect their identities. I chose a different path for my research. Both students and teachers of the Rooted and Rising program are active climate change practitioners in one way or another, each with their own voice to assert within the web of effort to change our human ways. Anonymizing their ideas of which they may be quite vocal about in other areas of their lives felt disconnected from practice; and yet, I also honour the choice to share oneself anonymously. And so, I gave my interviewees the option: use their real name, or a pseudonym. At each interview, interviewees were presented with the choice, and after my draft was written and I shared content from my writing with them (see Figure 1 for research timeline), they were presented the option one more time. Eight out of nine interviewees chose to use their real name, one chose a pseudonym. I respect both decisions and have honoured their wishes in the pages that follow. The interviewees include teaching team members Blake, Kate, Kristen, Gia, Doug, and Sarah; and students Claire, Clemi, Field, and Samantha. In [Appendix D](#), you can get to know the interviewees better – how they came to be connected to the program and for students why they chose to take the program.

(d) Media Collection

The second means of data collection was a media collection of social media posts and web postings about and from the program. Once ethics was approved, I scanned the social media platforms of Facebook, Instagram, and Twitter regularly for any media content on or related to the program. In writing my research plan I expected participants, partners, and teaching team members to post about the program. However, there was almost no social posting. Two posts, one from myself and one from one other member of the team were created after the program report was released, and one post was done in the lead-up to the first day. The Young Lives Research Lab (YLRL) put together a website page on the program, as did a teaching team member on her personal website. On the YLRL site, three student projects with media outputs from the program are shared, and these four projects have been integrated as research data under this media collection. Each project tells a story: the first, tells the story of the Strawberry teachings two students gathered as they planted strawberry plants in connection with an Indigenous-led restoration effort along a local river. The second, created a video of their experience visiting a BIPOC-centered clay studio, and in it they tell stories of intimate connection with Earth, waste,

and social constructs. In the third project, students created a 4-part photo-journalism series on youth climate activists to make sense of and challenge the concept of ‘activist’ when it comes to climate action. In the fourth, students created stickers of caribou, canoes in the water, and corn, to represent the ecosystem of life that flourished together in Toronto before colonization including Indigenous governance and agriculture, with QR codes that told the story of the stickers, to be posted around the city.

(e) Document Analysis

The third method of data collection I engaged was a document analysis of the program report. The 61-page report is a secondary type of data (Bowen, 2009). It includes pieces of primary data – students’ vision boards, copied text from class Zoom chats, etc. – but it is a curated collection, and a second-level description of the program that was developed intentionally by a few members of the teaching-team including myself. It includes descriptions of program sessions – some briefly, some in more detail, student, and teacher reflections in and on the program. The report is a public document housed on both program webpages and shared with all partner organizations. I co-authored the report with two other members of the teaching collective which included both reflecting on program content and evaluative data and writing the report text.

(f) Researcher Journal

My final method of data collection was a journal I kept of personal thoughts and experiences throughout this process. In my notes, I document meaningful moments of my own learning and growth through my participation in the program and research, as well as my emotional moments as an organizer, teacher, and researcher – my doubts, anxieties, moments of joy and excitement. In narrative inquiry, the researcher’s experiences provide another layer of data. Paschen & Ison (2014) argue that good narrative research involves “critical (self) reflection on behalf of all participants in the research situation” and this includes the researcher (p.1089). By engaging narrative inquiry, researchers are opting into an exercise of self-reflection and learning. Quoting Paley (2007), Dauite (2014) articulates that narrative research “recognizes we are always in process of becoming” (p.9). In other words, the researcher is not static in the research, but is in process of becoming just like her research participants and her research.

3.7 Data Analysis

Data analysis often presents the biggest challenge for narrative inquirers (Clandinin, 2013), and this was certainly my experience as well. Being as involved in the pedagogical experiment as I was, it was

a challenge to separate myself enough from the recent experience to be able to re-search for meaningful storyings. As an organizer for the program, I was also co-authoring the program report, which itself took many months to produce, as I began my analysis journey. This was a challenge because I was sorting through two different sets of data with two different audiences and goals about the same pedagogical experiment. It took many months before I could see anything from the interviews as important. Because I was so immersed in the experience, at first what interviewees chose to share felt mundane and not as insightful as I had hoped. I needed space from the experience, and from the interview content. Once I did finally have enough distance, then, everything became important, brilliant, and necessary. And I had to allow myself space once again to take in all the meaning I had glazed over before, in order to begin the real process of analysis, of re-searching through storied experience for significance and connections.

Another challenge with data analysis, is that while there is a good set of literature on narrative inquiry as it relates to its history, research examples, and guides for researchers, but when it comes to the analysis, there is limited discussion, no one standard procedure, and it is far less clear how to proceed. Some researchers draw from literature studies, and encourage a plot analysis that examines the characters, actions, climax, problem, resolution of the problem “and sometimes moral of the story” (Dauite, 2014, p.116). Dauite (2014) who does offer clear paths for analysis in their book, also recommends searching through the interviewee’s storytelling, to look for significance through expressive moments, and qualifying adjectives like ‘good’ and ‘bad’, ‘more’ and ‘less’ (p.116). Another approach is to engage in a values analysis that seeks out values expressed and resisted explicitly and implicitly within narratives (Dauite, 2014). Values are not often expressed directly but enacted and expressed through the story and choices of storytelling (Dauite, 2014, p.70).

For my process of analysis, I began following Dauite’s (2014) initial advice, which itself aligns with many qualitative analysis processes: I read the data multiple times and paid attention to “basic topics and relations related to the research question”; an open-ended process that begins to filter the complexity of the data (Dauite, 2014, p.10). In narrative inquiry, the focus is on understanding the stories and lived experiences of participants in their own words. Unlike standard thematic analysis, which may primarily identify consensus themes or patterns across data, narrative inquiry remains focused on the intricate narratives and storytelling techniques employed by interviewees to convey their experiences. After a few reads and time to digest, I undertook two complementary and intertwined approaches to sorting the data. Firstly, I grouped together data on the same moment or aspect of the program – for example, when multiple interviewees discussed the gratitude practice that opened each class, I pulled together all of the data from the media collection, interviews, and my own notes that touched on this practice, assembling a more fulsome (yet forever partial) pedagogical narrative from multiple

perspectives. Secondly, I looked for expressive moments across the dataset, which were characterized by the expressiveness of the storytelling or highlighted by multiple interviewees. Additionally, I noted instances where I, as the researcher, felt strong emotional reactions, including discomfort, resistance, excitement, accomplishment, and resonance. I used these moments to guide my data organization into pedagogical narratives. The titles of these narratives and associated groups shifted and changed over the course of my analysis in dialogue with my supervisor.

As I got deeper into my data analysis, I took guidance from Clandinin et al. (2016) and Clandinin (2013) and directed my focus towards personal and social conditions (Clandinin et al., 2016), and temporality, sociality, place, and aesthetics (Clandinin, 2013). I attended to personal and social conditions in which experiences and stories of experiences take place, which contrasts a standard thematic analysis that may prioritize identifying themes without necessarily considering the rich contextual nuances embedded within the data. Social conditions refer to “the milieu”, formed by “cultural, social, institutional, familial, and linguistic narratives” in which experiences happen (Clandinin, 2013, p.40). In this pedagogical narrative inquiry, I was interested R+R pedagogy as the milieu, as well as the broader socio-cultural-ecological milieu in which the program took place. Attention to personal conditions further invites an inward gaze as the researcher pays attention to participants and their own emotions, aesthetic reactions, and moral responses (Clandinin, 2013, p.40). Clandinin (2013) describes the process as one of thinking “backward and forward, inward and outward, with attentiveness to places” as the researcher looks to how personal and social conditions inter-influence each other (p.40-41).

Alongside and connected to these conditions, I examined the (1) sociality, (2) temporality, and (3) place found in the story-data; three dimensions of analysis that are “threaded into” each other (Clandinin, 2013, p.48). Aesthetics is also named by Clandinin (2013), and I chose to elevate aesthetics to a fourth dimension with which to explore pedagogical narratives. In the dimension of sociality, I looked for interactions and storied relationships; and chose to understand sociality as not only interactions between humans, but also as cross-species and whole planet interactions and relationships. This meant taking note of how students interacted with and described their relationships with other students, Rooted and Rising, and with elements of nature such as water, planet, Spirit, etc. In the dimension of temporality, I was interested in orientations to the past, present, and future, and the pace/feeling of time in the program – what felt slow, fast, urgent. I also looked for when pedagogical narratives were expressed over time through the progression of the program, and to the significance of beginnings and endings. Though the program was mostly online, I paid attention to digital and natural places, and how these informed and were informed by the pedagogy. Aesthetics also captures elements of place, paying attention to digital and natural places engaged in R+R in a particular way. I chose to focus on aesthetic

reactions as a key dimension of analysis precisely because this is a study into re-storying education. Aesthetics asks after beauty, and the particular approaches, art and designs that are pleasing to the senses. This inquiry is interested in a particular re-storying into education that supports healthy and thriving futures for people and planet. And so, I'm interested in pedagogical narratives that felt nourishing, enlivening, and desirable; as well as those that were distasteful and uncomfortable and what these aesthetic-emotional reactions expose and clarify. In part, my analysis asked the story-data, what was sensorially pleasing and displeasing in creating and experiencing R+R? I also asked after what stories are told and values expressed through aesthetic pedagogical choices in the program.

Through this process, I came to identify three central pedagogical narratives in *Rooted and Rising*. In the following chapters, I explore these three pedagogical narratives, *Interconnecting*, *Social Action*, and *Desired Futures*, and the various narrative forms through which they were expressed. I have also identified sub-narratives that offer further insight into the pedagogical narratives.

CHAPTER 4

ROOTED AND RISING: A PEDAGOGICAL EXPERIMENT

This chapter offers an introduction to the Rooted and Rising pedagogical experiment: how the idea and team came together, and the emergent curriculum. It offers readers a way of conceptualizing the program as a whole, and a glimpse into the behind the scenes planning and relationships that enabled the experiment. I reflect with the seven organizational partners that came together to certify Rooted and Rising and explore the porous relationships between teaching team members and organizations/youth being served. R+R was developed in conversation with and response to these organizations as well as non-partnered organizations, movements, and youth organizers in relationship with various members of the teaching team. I also provide a brief overview of the curriculum as a whole – understanding it across four phases from the opening to intentional project ideation, active project time and our closing – which sets the pedagogical context for my upcoming data chapters that explore specific approaches and content from different moments across the curriculum in more detail. And provide an outline of the core assignment for the program which was a group project. Finally, I explore the ways in which the COVID-19 pandemic reshaped the pedagogical design of our program, forcing a shift from in-person to online and, the two important digital spaces, Zoom chat and the MilaNote¹ platform that facilitated dialogue across the program. Overall, this chapter provides a historical narrative of the program development (from my perspective) and curriculum that enable the reader to get a sense of the pedagogical experiment, acting as a guide in further exploration.

4.1 Getting Started

It was early 2019 when my PhD supervisor Steve and I shared a meal together after a day collaborating on a book chapter. We talked with excitement and wonder about the growing climate movements, and especially the swell of youth voices in recent months. The FridaysforFuture movement was growing rapidly – by September of that year it would host one of the largest protests in Canadian history with an estimated 500,000 people in attendance in Montreal alone, alongside other sites around the country (Riga, 2019). At the same time, the LandBack movement was growing. An important moment happened in January 2019 when the RCMP and military breached

¹ MilaNote is an online digital platform for collaboration, project management, and notetaking geared towards visual engagement and creative collaborative endeavours. R+R used MilaNote as its digital course platform.

unceded Wet'suwet'en territory in a longstanding fight over a gas pipeline, triggering widespread solidarity actions and organizing (Shah, n.d.). There were protest movements rising all around the globe that year too, from Black Lives Matter gaining momentum, to political protests and popular insurgencies in Brazil, India, Sudan, Iran, Hong Kong, and many more places (Wright, 2019).

Sitting together, we asked how we could better show-up for local youth in Southern Ontario (co-)leading climate movements from our positions inside education and inside academia? After some brainstorming and informed by my own youth climate activist experiences, we thought up the idea of a leadership program. I began to attend more FridaysforFuture protests, asking youth organizers if this was something they would want, and received a resounding and enthusiastic yes! And so, Steve and I wrote up a 2-page letter explaining our intentions and sent it out through our networks in search of other educators who wanted to co-create such a program. We reached out strategically, thinking of organizations and individual educators and community organizers/curators with whom we had ideological affinity, and who would together offer a diverse container for youth leaders. I didn't know how many responses to expect, and certainly did not expect to wind up with a 10-person teaching collective as we did.

Some members of the teaching team were long-time collaborators of mine, some new connections. A couple joined after a mutual connection forwarded them the letter. It was a networked team-gathering, and so when we did solidify as a team, not a single person, including myself, knew everyone on the team prior to this collaboration, and there's something distinctive about that. There was a unique and enlivening combination of lived experiences, passions, and expertise present on the team too. Dreamt up by a grad student-professor/supervisor duo, R+R became a collaborative effort by professors, graduate students, artists, storytellers, community educators, (youth) activists, organization leaders, ecosystem restorers and more in an interdisciplinary collective bridging academic and non-academic education, and representing a series of environmental, educational, cultural, Filipinx, Black, and Indigenous organizations. We all agreed the era of climate change has been brought about by imbricated systems and histories of oppression, but each of us hold a different piece of the complex puzzle closest to our hearts. As a consequence, we sought to engage multifacetedly with climate crisis; ceremony and spirit, reciprocal care with land, caring for young leaders, and understanding climate change as an emotional experience were all present from our very first discussions.

Members of the teaching team joined for different reasons, with different sets of serendipitous and purposeful circumstances that brought us together at that particular time. Doug

(i1) said, it was ‘personal’. Many of us on the collective were, or are, youth activists who crave supportive education space for transformative change, which wasn’t often there, and as a consequence we struggled in various ways – emotionally, spiritually, strategically, and in interpersonal collaborations. This was accompanied for many of us with disappointing experiences in university, in which we were taught to critique but not how best to act. As Kristen (i1) expressively puts it, I did not feel “supported or encouraged to embody, or play with, or imagine what else could be possible,” nor to engage in changemaking. And so, in creating R+R a shared vision was that we could strive to offer that support to the next generation, and to help them start a little further ahead, learning from the lessons of those who came before. It is personal too because each and every one of us on the collective are living in and navigating climate crisis. We are each keenly aware of associated needs and responsibilities, and are actively pursuing collective systemic change, yearning for thriving and just worlds and the communities with whom to create them, and aware of the power of youth for visioning-dreaming-bridging the past with new ways, and to act. There was evidence of a genuine care for young people and education, a curiosity about what promotes and gets in the way of young people’s wellbeing that led them to R+R and the intersection of education, climate change and youth empowerment.

4.2 Organizational Partners

Distinctively, Rooted and Rising comprised and was certified by seven organizations, each with different foci: (1) a university education department’s professional development office; (2) a university-housed research laboratory on youth wellbeing and education; (3) a national non-profit on environmental protection, biodiversity and climate change; (4) a youth-founded non-profit running afterschool programs on emotional intelligence, healing, and empowerment opportunities for predominately Black youth in a low-income, historically disenfranchised neighbourhood; (5) a local chapter of youth-led climate change protests; (6) a provincial non-profit subsidiary of a credit union focused on fair finances; and, (7) a youth-founded co-operative that hosts annual retreats for envisioning and practicing desired futures. Four of these seven partners had a founder or core organizer on the teaching team.

Having a network of organizational partners creates an ecology of accountability. Co-certification means that the program is accountable to the educational and ethical standards of the university and also those of the organizations. Bowman (2019) writes that responding to climate change is not just a protest, “it is a world building project” (p.296), and I think that having these

organizations represented and agree on the validity of one certificate can be understood as a practice of pedagogical world-building – creating a new network (university, community, NGOs) collaborating to empower individual and collective learning towards more just, (bio)diverse, and thriving worlds. It also creates a chain of trust to youth activists and alter-activists who have strong tendencies to distrust existing institutions (Earl, Maher, & Elliott, 2017; Costanza-Chock, 2012; Elliott & Earl, 2013; Tufeczki, 2017), but may trust one of the certifying partners through direct or secondary experience.

The partner organizations offered their work as inspiration to R+R students, lent their name for credibility and accountability to values they hold, and they were in the minds of the teaching team, becoming essential elements of the context considered in pedagogical design. There were others in mind too. We had seven organizational partners, but the teaching team was connected to far more organizing efforts and collectives that also informed R+R through this relationship. Gia (i1) describes how their participation in non-partnered local youth-led climate justice organizing informed R+R:

I was really inside of that youth movement building, youth activism. And I was learning, developing, and figuring out what skills they needed to be participating in that and, what knowledge I needed. And so, I was not far removed from thinking about what I would want to provide for other young people who are interested in doing that work. What things do I wish my peers were having more conversations about? Or what things are my peers having conversations about that I would love to bring into other spaces? ...It's been good to bring my experiences, both within youth climate organizing, and other experiences, and see how that can support the experience of people who are also basically my age, but also some were a lot younger than me, a few who are older, to engage with learning and practicing some of the important skills that I think are needed to address climate change. – Gia (i1)

There is a porous nature of educator relationships – that is perhaps always present, but nevertheless important to note. The teaching team was decidedly not siloed in education, but wove together conversations, questions, and challenges across varied youth and community climate spaces. Though the program ran online, I think it remained very much by and for local places through this attention to the particularities of local partnered and non-partnered organizations and youth organizers.

4.3 Exploratory Curriculum Development

(a) First Design Phase

We met as a team for the first time in September 2019, and six months later we were ready to launch. I won't describe all the details of how we got there, but as a young leader I always

wondered why so few wrote on how, exactly, did they do it, so, bear with me while I indulge my younger self's curiosity a little. Logistically, everyone in the collective was very busy, and so we decided to meet once every two to three months for three-hour planning meetings. In between, I would follow through on decisions, continue conversations, and fundraise with various members of the collective.

As for curriculum design, we began by co-creating a set of values that would hold us in our work, and that we wanted to be nurtured in the program. In Chapter 5, I explore our values-setting

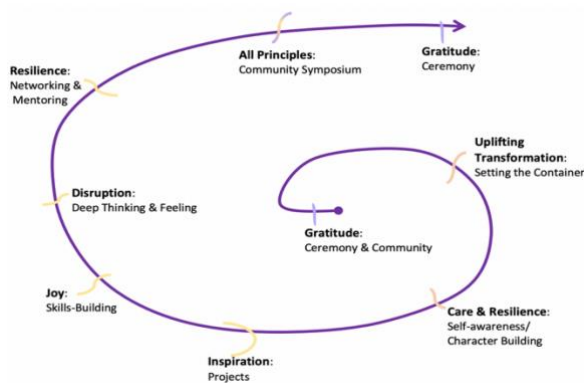


Figure 2: Program Weeks By Values

process in detail, and how it connected us across difference, and rooted us into interconnection. The short version of the story is that after some discussion, we agreed on seven values in a particular order – Gratitude, Care, Resilience, Inspiration, Joy, Disruption, Uplifting Transformation – and proceeded to line them up along a spiral representation of the program, creating the flow and overarching narrative arc of R+R (Figure 2). This visual acted as compass for Rooted and Rising's curriculum. Beginning with values as opposed to more traditional learning objectives or core topics allowed us to begin in ethical openings of what it means to educationally support youth as they navigate and lead the Great Turning (Macy & Brown, 2014; Korten, 2006).

(b) Continued Emergent Pedagogical Design:

Once we had our compass, we went through a process of “self-selecting or volunteering, depending on capacity, how we wanted to contribute” to the curriculum (Kristen, i2). We evolved a rotating teaching-team model in which pairs (with the rare trio) were responsible for designing and facilitating individual sessions. Though admittedly as the course went on, this document was not updated with the same vigour as in the beginning, it enabled a fluid and emergent design process. Figure 3 offers a visualization of this networked facilitation, connecting each class to the teaching collective members who designed and facilitated them, and partner organizations that contributed.

adrienne maree brown (2017) encourages to move at the speed of trust, and this is what we did as a collective, grounded in a shared understanding that this is experimental pedagogy through the practice of which we would discover our program (Report, 2021, p.8). In other words, it was an

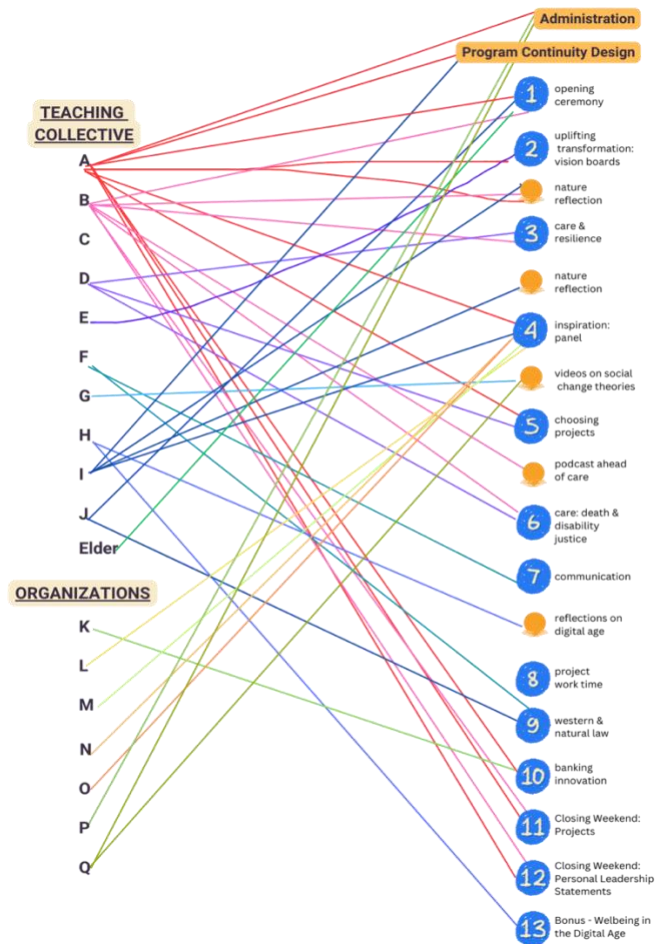


Figure 3: R+R class by facilitators

20 minutes debriefing how the class went, what could be improved in the future, and what next week’s facilitators might want to keep in mind. If the following week’s facilitators were not present for that reflective debrief, I would relay the information to them.

4.4 The Curriculum:

The curriculum developed could be broadly thought about in 4 phases centered around the core assignment, group projects: Opening, Intentional Project Ideation, Active Project Time, and a closing (see Figure 4). The first phase, Opening, set the container for our new learning community, and established core narratives of what brought us together in Rooted and Rising and how we wanted to be together through a blend of introspective reflection alone and with nature, collective ceremony, conversations, and exercises. We began in an opening ceremony on the land, around a sacred fire, and led by an Indigenous Elder offered introduction to each other, the land, to

exploratory curriculum model whose purpose was to actively develop curriculum together. Smaller teams did not need to approve their plans by the collective, and this allowed for each class to take on the unique flavour and approach of those particular facilitators together. It also offered opportunity to be responsive to students and how they were receiving the content. Often these sessions were drafted in the week or two prior to the class, and in some instances, curriculum plans were finalized the night before (personal notes, Kristen i2, Kate i2).

Consistent reflection after each class was another key enabler of emergence and responsiveness. After each class, the facilitators of that day and other teaching collective members who were observing the session, would stay on the call, and spend 10-

conversations with more-than-humans, and between climate change, Indigenous sovereignty, and natural law (Chapter 4). In the second class, students had conversations on defining the climate crisis from their own perspective, facilitators offered embodiment exercises to move through climate emotions, and students created vision boards for their personal-and-collective futures (Chapter 6). We asked students to take reflective walks between classes, guiding them to notice seasonal changes and reflect with these changes on their own sense of resilience, care, and wellbeing. In the third class, students created care maps documenting their personal “networks of human and more than human beings that surround and support” them, debriefing the exercise in a conversation on “interdependence and reciprocity” (Report, 2021, p.40).

The second phase of the curriculum, most discussed in Chapter 5 on action, might be titled Intentional Project Ideation. This phase focused on inspiring and supporting students in joining into project groups, in part by widening awareness on the many forms of climate action and leadership. Students were presented with a panel of partner organizations and special guests who shared their own unique approach to climate and its interconnected crises with time for questions from students. In this phase, we explored diverse leadership traits and opened conversation on what it means to bridge different skills together into collective leadership and action. Students were guided in brainstorming and self-selecting into project teams that would together pursue a goal for the remainder of the course. See the next section for an outline of the project structure.

The third phase was Active Project Time. Each class in this phase preserved the final forty-five minutes of our 2.5-hour class for project-work and mentorship. Each class focused on a different topic or skill-building area, with one class adapted to be strictly for project work and support – class five to ten on Figure 4.

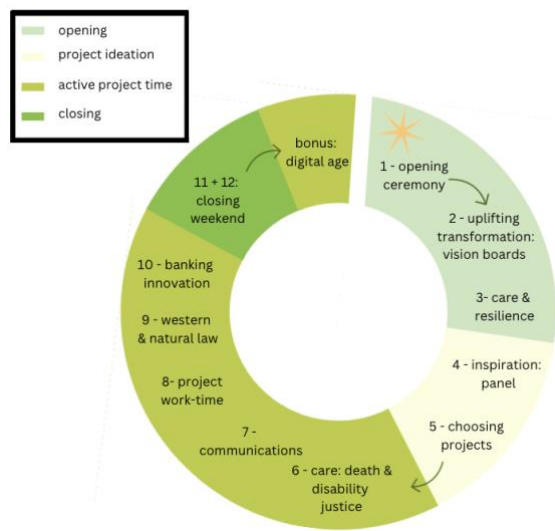


Figure 4: weekly classes by curriculum phase

The final phase of the curriculum was the closing weekend, which, mirroring the opening weekend, was oriented to community and foundational narratives, this time, honouring and celebrating what we had learned and cultivated over the program. The closing weekend was a two-day online event: on the first, we celebrated student projects with each team presenting what they had pursued and learned through their work (Chapter 5).

On the second day, students invited loved ones to

witness them in a graduation of sorts. Students read out leadership statements they had prepared on what they learned in the program, and how they view themselves as leaders and learners moving forward (Chapter 6).

(a) Group Projects:

Chapter 5 focuses how group projects were framed and executed, and so here I just want to provide a brief overview of this core assignment. R+R was only twelve weeks long, so students had a tight timeframe in which to plan and execute their projects. They had two weeks to form project ideas and groups, and then five weeks to action their projects. Projects were also offered micro-funding within the program. R+R had a \$1300 project fund, representing 10% of the program's total budget:

When projects started, students were told the total fund available, but no limits were set on how much an individual project could take. Each project was encouraged to spend what they needed while being considerate about the small amount split between six groups. We acknowledged each project would have different needs, and each needed to consider its own needs, as well as the needs of others... Each project spent a different amount, ranging from \$0-\$450. Collectively, the projects finished \$155 under budget. (Report, 2021 p.58).

Embedded in this approach is a sustainability principle of taking what is needed and ensuring enough for all, and it offered students opportunity to practice decision-making that balances collective and individual needs, in a low-stakes, simplistic, and contained experience. This approach contrasts with other climate leadership programs that are run on a social enterprise model in which youth are asked to arrive with a project idea that they develop over the course of the program ending in a pitch competition in which 1-3 students are awarded small funding for their project.

4.5 The Pandemic

The program was originally designed as an in-person program, with some classes on the land, and many in a classroom. Then, just two weeks before the program start date, the first COVID-19 lockdown began, and we had to adapt. Here I provide an overview of the adaptations we made to the start time and program places (from physical to digital). The team decided to postpone for 6 months, but with a firm start date set for September – hoping we'd be able to meet in person by then, but ultimately opting for an online program over no program at all (Report, 2021, p.16). In between, we held three online check-ins with students where we processed the realities of the pandemic and talked about what they wanted for the program (personal notes, summer 2020).

Rooted and Rising was adapted as an online program, with the opening ceremony as our one in-person gathering. We ran the program on Zoom and created a digital home for course content and real-time engagement on the project management platform MilaNote.

MilaNote became an important digital place for the program. In contrast with a typical university online course portal designed for teacher-controlled content sharing, assignment submissions/grading, and gradable written participation (forums, journals), MilaNote is a project management platform for creatives oriented to visual thinking, collaborative thinking, and shared ownership. Students were given a 1-year pro account on MilaNote where they could see the whole program and return to class content and recordings. On the platform, everyone has equal permissions so students and educators both had access to edit, add, or delete shared content. It “made it easy to make our digital place visually appealing; it could be colourful, include gifs, and accommodate divergent thinking. Students created vision boards [Chapter 6] and mapped their networks of care... They could write in linear text, share thoughts digital post-its style, make mind-maps, create mood boards, + more!” (Report, 2021, p. 17). For in class activities, we could see each other’s contributions and changes real-time. “In many classes, we asked students to add content to a shared space, mimicking a lot of the collaborative processes we might have engaged in person. We encouraged emoji-reacting to boost ideas!” (Report, 2021, p.17). It was a wonderful tool, but of course does not replace being together in person.

One thing that was lost in this adaptation was the informal time before and after class where students talk and build relationships (Report, 2021, p.17). In our first class on the land, students and teaching team members stayed “a full hour after class” socializing and building relationships (Report, p.17), and I wonder after the long-term friendships and collaborations that might have been born out of a weekly practice of such connection. In many ways COVID-19 undermined a community-building goal of the program, and yet somehow, students still reported feeling very connected to each other online (Report, 2021, p.18), and soothed by the thought that even though we were calling in from different places – one student even called in from a bus once – we all cared, and we were all showing up (Clemi, i2).

Though nothing can replace this informal time, there was another digital space that supported dialogue in the online adaptation, entwined yet sometimes separate from formal class proceedings: the chat in Zoom. Here, class dialogue thrived, alive with affirmations, critical dialogue, questions, and reflection (Report, 2021, p.16). The chat acted as an “equalizer space between students and educators” where non-facilitating members of the teaching collective could stimulate

conversation, affirm, and build on student comments without commanding the attention of the whole class in the way that interjecting with a comment might do in an in-person classroom (Gia, i2). Kate (i1) reflects on how students used the chat space to share comments that may have gone either unspoken in an in-person class or shifted the focus of class, for better or worse. One student, she recalls, expressed bodily discomfort they were feeling in reaction to the pedagogical format that day, one of two that employed a more traditional lecture and discussion format. Another student challenged a facilitator's perspective in that same class, and many proceeded to dialogue about it in the chat as the presentation continued - respectful and eager to talk across difference. Though the facilitator did engage with the comments, for a while,

It was also almost like there was a dual conversation going on. There was the lecture presentation, and then this fully separate conversation. And students could choose which one to more focus on and engage with. And I think it was pretty slick. And it just posed some really interesting pedagogical reflections for me of, what does the zoom chat open up in terms of interrupting, disrupting, even in a disruptive course, you know, how do we disrupt the disruption? – Kate (i1).

She and I wondered how this would have played out differently if the session were in person? And, as learning returns to in-person, Kate wondered, how a chat-like place for conversation and disruptive dialogue be created during presentations in in-person learning? In the following three chapters, I attend to three pedagogical narratives that emerged through this inquiry. Interconnecting, Social Action, and Desired Futures each structure a set of significant narratives for re-storying education in the era of climate change, and I turn to the first narrative theme, Interconnecting, now.

CHAPTER 5

INTERCONNECTING

In this chapter, I inquire into interconnecting as an important narrative in *Rooted and Rising* and explore its broader significance in the context of contemporary climate change education. Described with terms such as ‘understanding, ‘analyzing’, applying’, [climate] education is often articulated as an instrument with which to address climate change by increasing knowledge and behaviour change. In this manner, education becomes narratively tasked with solving the climate problem by disseminating the necessary (often scientific-technical) knowledge to act and innovate. Within this, students often become narrated instrumentally too, either as the saviour generation that will finally ‘save the planet’ or ‘save us all’ when they’re older, or as innocent and as a rhetorical means to convince adults to care and act. This can place significant pressure on youth and perpetuates underlying narratives of human exceptionalism and separation (nature/human, knowledge/context, body/mind, child/adult), that are foundational to Western institutional education and to climate change (see literature review). In contrast, in what follows, I draw on data - including my personal experiences- to tell a different educational story through processes of interconnecting.

‘Interconnectedness’ is frequently mentioned in environmental and climate change education literature and is seen as a root awareness needed for more transformative education that addresses ontological and epistemological roots of climate change (e.g., Kagawa & Selby, 2010; Zink, 2020; Lehtonen et al., 2018; Allen & Crowley, 2017). It is also recognized as an ontological starting point that underpins Indigenous knowledge systems known to be vital for effective climate responses, often positioned in contrast with Western, colonial, capitalist ones (e.g., Parasram & Tilley, 2018). However, ‘interconnected,’ like learning and development, has also become an educational ‘buzzword’ that can lack in specificity, substance, and direction. Interconnected in what senses (conceptual, physical, material, spiritual, emotional, economic), and for what purposes all matter deeply. Here, I argue that interconnecting needs to be seen in multiple ways for the deeper educational purposes of tending to and living well in the era of climate change. As I explore multiple interconnecting narratives in *Rooted and Rising*, I am interested in interconnecting ideologies and valuing, interconnecting self with community and all of life. I am interested in interconnecting relationships, interconnecting pedagogical practices, and the interconnections of spiritual, change-making, and educational practices in the era of climate change. Here, I explore how *Rooted and*

Rising re-stories education through opening practices and invitations that orient individual and collective attention to the interconnectedness of all life, and to relational learning. In the process, foundational narratives of institutional education were unearthed and disrupted within student and teaching team members' internal thinking and experiences, and pedagogically through the content, approaches, and relational orientations of the program.

I focus on three interconnecting stories – interconnecting as *Valuing*, *Attending*, and *Sustaining*. These offer different openings, drawing on data gathered at the start of the course in the planning phase, and from interviews, notes, and report content. *Valuing* explores relational approaches to program planning that the teaching team took. Rather than beginning by identifying content that students needed to know, we (the teaching team) began by coming into relationship with one another as a new collective through a process of valuing existing entanglements and commitments, youth climate leaders' commitments and needs, and each other, and then articulating the values that we wanted to uphold and honour within the program. This significantly shifts conversations of change (climate change and education change) to educational valuing. The second story of interconnecting, *Attending*, looks to the Opening Ceremony as a narrative form of *interconnecting* that oriented individual and collective attention to the natural-spiritual-social world by centering in heart, a portal of interconnectedness (Mercurieff, 2019). In the third, *Sustaining*, I think with the weekly practice that opened each class with a repetitive narrative that worked to sustain interconnecting in the program. R+R's weekly practice dug at the narratives of fixing problems, hurried productivity, and urgent climate crisis in the broader socio-cultural milieu over time. Our provocation invited a slowing down by noticing the intrinsic value of all life connected to and through self. In this chapter I interested in the ways in which interconnecting plays out across these narrative forms, how it was experienced, rippled in effect, and its implications for re-storying education in the era of climate change.

5.1 Valuing

The first type of interconnecting is valuing. Here I reflect with the teaching team's first step in designing the Rooted and Rising program: a practice of collective valuing in which we created a set of shared values that would guide our pedagogical decisions and bind us as a program and teaching collective. Here I share a brief reflection on the process by which we came to these values, as well as an overview of the values themselves. I then reflect with the impact of beginning with values, and the ways in which this practice of collective valuing served as an interconnecting force

for our new collective and program. Finally, I reflect valuing as a re-storying of education reflecting and the way in which it re-orientes education from objectives to valuing, emphasizes relational valuing, and offers a shift from a linear to a spiral pedagogical design.

I first reflect with the process by which we co-developed values. Before we had a name, or knew the content of our lessons, the teaching team met to assemble a series of shared values that would serve as the container for our new learning community and guide our pedagogical design. We decided to begin this way at the suggestion of one team member and the enthusiasm of others (Blake, i1; Gia, i1). In late November 2019, we met all together, and in one meeting, crafted Rooted and Rising's 7 values, and a map of the program in the form of a spiral with our values placed along it. I co-designed and facilitated that meeting with Steve, and the rough agenda outlining our process is in Box 1.

Agenda

1. Opening grounding and gratitude
2. Get to know each other:
 - in pairs introduce yourself, and then in a large group, each person introduces their partner to the rest of the team.
3. Explore the values, principles, pillars, vision statements from partners and organizations the team is involved with.
 - First in small groups then all together: what do you notice? What do you appreciate?
4. Discuss, debate, and decide on values/principles
5. Look at spiral image.
 - Emergent decision: place values/principles along the spiral

Box 2: First Full Team Planning Meeting (personal notes, November 2019)

When it came time to craft our shared values, there was “brainstorming, debating, and negotiating” (personal notes). As we discussed, we shared the concepts that mattered to us in and with the local contexts in which we were variously embedded, and uncovered the terms we could agree on to express those concepts. While the values were shared with students via the program booklet, and some sessions were explicitly titled with a value or two, they more so formed the implicit curriculum of Rooted and Rising – informing our decisions as educators in regard to pedagogical structures, expectations, content, and approaches. These values represent what felt important to our team in the context of climate change, and in support of and gratitude for young leaders who, like us, were choosing to respond and desiring to activate thriving, just, and well

worlds. Box 2 details the 7 values, offering notes gathered from my fieldnotes and reflections on the day and from later discussions with Kristen as we sought to draft statements for each. These notes offer some insight into the teaching team's framing and reasoning behind each value.

Values (in Descending Order):

1. Gratitude – honours Indigenous leadership - gratitude before all else; even grateful for emotional journey and discomfort in climate work.
2. Care – youth care a lot, want others to care too; tension of ‘saving’ the Earth; care for us; rest and slowness even in climate urgency; reciprocity; action.
3. Inspiration – imagining futures we want; dreaming; thinking big; inspired by what exists.
4. Resilience – faith in our visions even when it seems ‘impossible’; vulnerability: openness, willingness to face pain; Bruce Lee – “be like water”; flow; change.
5. Disruption – disrupt status quo; speaking truth to power; asserting our own life and learning paths; disruption is a gift.
6. Joy – laughter; play; rest; kindness to self and others; pleasure; love; climate action can and should be joyful; Linda Hogan: “what happens to the people and what happens to the land is the same thing.”
7. Uplifting Transformation – a lot of debate on what to name this one; decolonization; honouring Indigenous knowledge and leadership; uplifting voices and ways of being normally silenced; youth; Elders.

Box 3: Rooted and Rising Values

These values are decidedly not learning objectives. Rather, they represent feelings, experiences, and ways of relating that the teaching team wanted to be held in the program, engaged, and nurtured.

(a) Why Begin With Values?

When I asked Blake (i1) why he had suggested we begin our pedagogical design with values, he shared this:

For a project like this, it's all about values in some ways, and the strategies need to flow from the clarity around values and intentions. In that respect, I draw a little bit more from traditions like nonviolent communication (NVC). I've been very happy to have learned at the feet of some pretty brilliant NVC teacher over the years, and what really struck me about NVC is that we tend to go too quickly to strategies. And that's where we often have conflict with others, we get very attached to certain strategies for trying to make things work. And we forget that the strategy is just a pathway to meeting a need, around something that we value. And the more we can be clear on what we value and what our needs are, the more

open we are to the multiplicity of strategies that actually exist as a way of getting there. –
Blake (i1)

Blake underscores the tendency of collaborative efforts to jump into strategies, the ‘how’, without first clarifying values and needs, the ‘what’ and ‘why’, and the potential conflicts that can arise when collaborations are pursued in this manner. Alternatively, by beginning in a process of collective valuing, Blake suggests that our collaborative is better able to pivot and adapt, tapping into a “multiplicity of strategies,” always grounded in our values. Kate’s comments reinforce this idea, reflecting back on the decision to begin in valuing Kate shares,

Let’s start with the principles, content will come. But what we need to do now is just understand the world we’re living in, and the principles by which we will proceed, and then we could teach any number of things – Kate (i1)

Here, Kate foregrounds the values/principles, storying lesson plan content as secondary – as the strategies that can be drawn upon and adapted to meet the needs around our shared values.

In the above comment, Kate also hints at the importance of taking the time to first understand the world that we are in, alongside the principles by which we chose to proceed, before creating content; and here, I explore the practice of valuing as interconnecting. In the process of valuing, we took to the time to get to know each other interpersonally and as a new collective. Most members of the teaching team were meeting each other for only the first or second time that day; and so, negotiating these shared values meant that we could come to better know one another and our moral/ethical/ecological/community commitments. Following the language Blake offered at the opening of this section, the teaching team was gathering to meet a need: supportive education for youth climate leaders, around something we valued in common – youth climate leaders, and in common with them as well, life and the capacity of all life to flourish. But there also exists between us a multiplicity of ideas on how to get to this elusive value, various concepts that could fill a term ‘flourishing?’. Spending time teasing out shared values helped to clarify what we meant by words like ‘care’ or ‘disruption’, and also what we value in common that was propelling our collective pedagogical action. Blake reflects that focusing on strategies too early can result in conflict, and I think grounding in values first alternatively built trust in our new collective as we developed a shared language with shared meaning. The practice of collective valuing contributed to our ability to trust one another to design, experiment with, and lead individual sessions with a certain responsiveness and flexibility, knowing that all decisions would be oriented and accountable to these 7 values. We were interconnecting, actively forming relational ties between us as a team, which then came to be

the foundation upon which the program was designed. Kristen describes it as a “new language” that we crafted that day together, and a “container for us to arrive” in as a team and a program (i1). After crafting this container, as Kate (i1) said, “we could teach any number of things” within it. These values became core themes woven into each week and across the program, tying the narrative of the R+R together. Kate (i1) reflects on the decision to place these values along our weekly program schedule, grounding the curriculum in the values. By doing so, values became “touchstones” throughout the course, in contrast with “empty principles” that are created and then ignored – a contrasting relationship to organizational values that both Kate (i1) and Blake (i1) referenced critically. As the teaching team collectively generated the language with which we would build our program, we ourselves became interconnected as a new team through valuing, laying the foundation for collaboration, trust, and adaptability.

(b) Valuing as Re-Storying

When I asked the teaching team what was meaningful to them about planning Rooted and Rising in interviews, this early process of valuing was raised by three people. Reflecting afterwards, I became more curious about why this practice was so significant, and in particular, what it offers for re-storying education. Re-searching with teaching team interviews, I have teased out three provocations for the re-storying of education.

From Objectives to Valuing

When I asked Sarah (i1) about her experiences co-designing R+R, she shared this:

It was an eye-opener and a very concrete experience of when we talk about how education could be otherwise, not just the mainstream way of teaching and learning. If we can think about it in other ways... When you presented it in a spiral and then we had all those guiding principles that are very much not about understanding this concept, or applying, or analysing – those words that you often hear in education when you want to identify key learning objectives and learning outcomes for your students. – Sarah (i1)

Sarah’s account helps me to understand how valuing facilitated a disentangling from the narratives of mainstream curriculum planning. Concentrating on valuing first moved us away from language like ‘applying’, ‘analyzing’, ‘understanding’ often used to weave institutionalized top-down education. It leaves me thinking about how climate change education too often gets swept up in instrumental narratives of solving climate change through knowledge-dissemination; and how beginning by identifying concrete knowledge that students must learn, analyze, etc. continues to reinforce this.

In contrast, beginning with a process of active valuing turns away from this top-down rigidity, and instead asks after the needs and desires of the local learning and change-making communities in which teaching team members were embedded. Education is never value-free, it is always an active process of valuing, that in this case was done explicitly and intentionally. Teaching team members were asked to articulate what mattered and what was being craved by and in relationship to youth climate leaders. It was agential and highly contextual, interconnecting community and youth needs and values with education. We turned to and learned from our connected communities as detailed in the following paragraph, standing in sharp contrast to education's dominant turn to experts and curriculum writers to set the content and direction of education across all local contexts. Valuing then held the *program* accountable to those highly contextual interconnecting needs/values.

Valuing also served to value and honour the teaching team members themselves within their relational entanglements. One of the things that the teaching team was valuing was the very practice of interconnecting: taking the time to sit with one another, listen and share about our interconnected efforts for climate action, social justice, community, individual, and planetary wellbeing, and then to co-develop values deeply informed by and interconnected with these related visions and ethical commitments. As a first step of valuing, we began by reading and reflecting with the values of organizations to which teaching team members were individually; the majority of which are youth-led or youth-centering. Some team members came up to me after the meeting to express that beginning in this way made them feel respected, and that it was touching we put in the time to gather and print them (personal notes, Nov 17th, 2019). It was a simple element that acknowledged the individuals who joined the team, the work they had put in prior to this coming together, and the relationships and commitments that were apart of them, informing their experiences, perspectives, and capacities. It recognized team members as part of intricate interconnected networks, and anchored program curriculum development in these interconnections. The team's decision to begin with valuing instead of learning objectives rooted us in the interconnected network of organizations and leaders around us engaged in active valuing. It also rooted R+R into richness of interconnected relationships that shaped our program's development. And it is to the relational I turn next.

Relational Re-storying

A second layer of re-storying was relational re-storying which happened in the process of valuing itself. Re-searching with teaching team interviews, I see the way that we treated each other in the

valuing exercise also worked to craft the program. In other words, the way we related in the planning came to implicitly define pedagogical narratives, and the social-emotional tone of the program. As Kristen (i1) said, as we negotiated values, we “helped each other live into the values”.

Kristen and Sarah both reflected on this:

It was cool to be in a space where it was clear that each of us embodied really different ways of existing in the world, and we could bring that to the table without it feeling like an ego attack. We could agree to hold paradoxical ways. There was this respect for each other...[that] was just obvious in how we communicated around the table. – Kristen (i1)

The way that the course was structured and how the synergy between all the educators, and how they are really truthful, and feel like they are very authentic to the work they are doing in their organizations and still trying to connect to that through Rooted and Rising without feeling like they were sacrificing any of the things they truly believed in. So, I feel like this kind of work and the way that you’ve brought the people and organized us, it’s hard to determine. It’s the whole experience of being there and seeing how something very organic is blooming and growing with the discussions. That’s the curriculum part. – Sarah (i1)

Kristen’s description highlights the way the team embodied a desire for the program – to celebrate many different narrative frames and strategies for climate response and to nourish collaboration between them. Sarah and Kristen’s descriptions both capture that interpersonally, this looks like standing strong in oneself and in deep respect of others. I like Sarah’s blooming analogy because I also think our program bloomed organically that day through our interactions. Team members described feeling “good,” “excited,” “proud,” and “psyched” after creating these values; feelings we also wanted students to feel as climate leaders in R+R, represented in the values of joy, inspiration, uplifting transformation.

Another relational layer informing R+R’s values and pedagogy was the psychological-emotional-spiritual journeys of the educators doing this valuing, otherwise named our inner work, done prior to and during this collaboration. In our interview, Kristen (i1) spoke about how her own inner journey enabled her to relate to the rest of the team in the way she did that day. She describes herself as present in that meeting, ready to listen deeply and genuinely, and compares this to her younger self, who may have felt “angsty,” “bored,” and “waiting to speak over” others. Through her “life journey of transformation” over many years, she found herself now listening more wholly. I similarly found appreciation for my own inner work in my journal notes from that day:

I still can’t believe it...I was late! I hate being late. And everyone else arrived even later, so we ended up starting a full 45-minutes late. But it didn’t matter, we had a great meeting. And I’m really proud of myself that I didn’t let it matter. My younger self would have dwelled in the lateness: I would have focused on my ‘error’ and everyone else’s – using it as ‘evidence’ that

the team wasn't committed, that this new collective wasn't working, already doomed to fail. And these feelings would have spilled out into the meeting dynamic. But instead, on the subway there, I chose to soothe myself, saying things like 'it's all working out'. When I arrived and no one was there yet, I was relieved instead of upset, and took the opportunity to lean against a tree and ground myself. I actively steered my thoughts to gratitude: how glad I was to be the first one there, just like I like to be as the host; how amazing the team is... I focused on how beautiful the snow was, how crisp the air. I thought about and generated within me the feelings I wanted to feel in that meeting – excitement, pride, living in my purpose. – personal notes (October 2019).

As part of the explicit content of the program, Blake created a video lesson on how change happens. In it, he speaks about our emotional microclimate, and its relationship with our health and wellbeing, and that of others, asking: “what are we putting out into the world?” (personal notes, October 17th, 2020). My journal excerpt reflects the conscious choices I made about what I wanted to put out into our meeting, which impacted my experience that day and others. Through my own excerpt, and Kristen's, I can see the impact that all of our inner work had on creating a team dynamic of respect, openness, deep listening, integrity, curiosity, and excitement. It was not just our values, but the norms and expectations of Rooted and Rising that were created in that meeting in an interconnected co-creative swirl of mine and others' emotional micro-climates, the micro-social-climate we created within that meeting, and the explicit language of articulated values.

From Linear to Spiral

Third, the valuing process - and in particular the spiral curriculum design on which the values were placed - disrupted educational narratives of linear development, and linear curriculum design, in favour of the spiral (as shown in Chapter 4.3 Figure 2). The term 'spiral curriculum' in education typically refers to Bruner's (1960) concept by that name, an approach in which concepts are revisited at different stages of the learning in different contexts and with increasing complexity as student competency increases (Harden & Stamper, 1999, p.141). While Bruner's concept is relevant here – as you can see in Figure 5 below values are returned to throughout the curriculum, explored in relation to different contexts/topics – the R+R curriculum was not explicitly designed using Bruner's model. I use the term 'spiral curriculum' here to refer to the aesthetic shape of the curriculum plan and how this shape was experienced and discussed. While our process did not eradicate linearity from planning, it did open another interconnected way of seeing the values, and curriculum. After forming our values, I pulled out a piece of flip chart paper with a big spiral drawn on it and invited the team to imagine it was our program, starting from the center and spiraling out. Someone offered

the idea that we place our newly formed values along this spiral, and so we did. I wrote in my journal how I was happy with the shape...*It has movement*. Interconnecting values took the form of a spiral here, rather than a linear form, and this spiral was raised by multiple team members in research interviews. Here I draw together our voices to better understand its significance and how it disrupts linearity, engages active language of nature, and opens to an interconnected understanding of being.

[The spiral] stood out during the design process. The way we mapped out the values on the spiral visually made me think about how our structure could be really fractal, and that we could hold the same arcs within each session that we could see in the program overall... [it is] poetic and practical. – Gia (i1)

The spiral shape offered a different realm of pedagogical play and imagination, inspiring Gia to think fractally and interconnectedly. I remember, “everything is everything” was an often-repeated phrase as we chose where to place values along the spiral, indicating this fractal conceptualization of design and values (Gia, I1; personal notes, Nov 17, 2019). Each value seemingly always fitting together and across each and every class. Sarah and Kate both spoke with me directly about the spiral disrupting linear pedagogical narratives in their interviews too:

What we did with the spiral is not necessarily how we think of curriculum development. We’d usually put those lesson plans into a very linear way of thinking about this and then this and then this. – Sarah (i1)

Kate (i1) adds that this linearity of lesson plans mirrors the “linearity of a Western worldview of life where x leads to y leads to z”, and the spiral disrupts this “thinking [that] we are necessarily progressing towards some kind of perfection”. Their aesthetic reactions highlight the spiral’s potential as a re-storying tool out of visual and cognitive linearity.

Spirals offer another aesthetic/geometric language for valuing education, representative of the language of nature and cosmos. In his geometry book, high school science teacher Michael Schneider (1994) describes spirals as the language of growth, interconnection, and transformation in nature. Spirals are the ongoing movement and shape of growing plants, swirling waters, moving jet streams, growing mushrooms, ears, fetuses (Schneider, 1994). He advocates education turn away from static nouns like ‘greenhouse gases’ to understand climate change and concentrate on the verbs and processes that are the language of nature, spirals being prime among them. Kate (i1) also shares that circles and spirals are from a “cosmic worldview”. Honouring that her comments are informed by her learnings from and with “Indigenous people, Elders, and communities”, Kate shares how these shapes – circles, overlapping circles, spirals – are “in tune with the kind of education I really love to do and the kind of the thinking it is going to take for us to address the climate catastrophe

and ecological devastation...it's so simple but it captures all of it at the same time". The spiral is a simple shape, and yet it carries deep ecological, cosmic, and spiritual wisdom, offering an alternative geometric and dynamic language with which to shape education.

I asked Doug why, from his perspective, the spiral felt so significant. He began his response by sharing a scholar he'd read for one of his graduate courses. This scholar wrote about the Haudenosaunee Thanksgiving Address but reduced it to the horizontal plane, flattening it. Doug explains that if you talk to Elders,

they'll tell you that the Thanksgiving Address is connected to the Longhouse. It's always spiraling, sort of vertically, towards the source of all creation and it goes through these layers and levels of being. This author writes about it and completely eliminates all of that, and just talks about animals and plants and the more than human. That's the conversation they're having in the academy, and it's actually scary because it's ineffectual...it's not addressing the questions we need to ask. – Doug (i1)

Doug tells me to look up the Cree spiral of interconnected being that connects personal, family, clan, nation, environment, Spirit to better understand (Figure 6). As I look at our Spiral (Figure 5) vs. the Cree spiral (Figure 6), our aesthetic looks a bit flat itself, and I wonder how successful R+R was in engaging the vertical spiral, which necessarily moves towards Spirit/Cosmos.

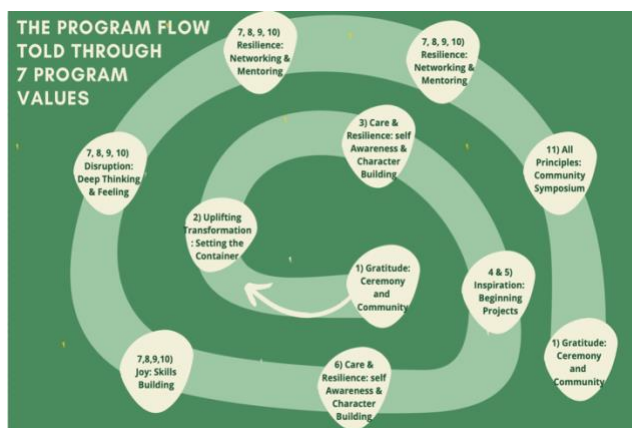


Figure 5: Rooted and Rising Values along the Spiral Curriculum

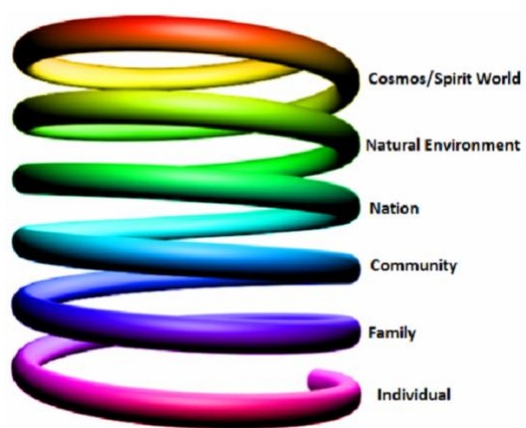


Figure 6: "Symbolic representation of Cree interconnected worldview" in LaBoucane-Benson et. al (2012).

The spiral, representing growth, change, and interconnection, offered a literal shape to R+R's pedagogical narrative of interconnecting, enabling the team to imagine the arc of values across the program and within each individual session, and to craft a learning container within which multiple levels of being are engaged – from self to climate to Spirit. I see the possibilities of spirals, explicitly and implicitly, as an aesthetic tool in re-storying education out of linearity and into interconnected and relational learning.

5.2 Attending

The second form of interconnecting is attending, and here I reflect with our opening ceremony, and the ways in which it attended to narratives of interconnecting. The program was opened in ceremony led by Ojibwe educator, and Keeper of Sacred Pipes Elder Whabagoon (Report, 2021, p.25). Under Doug's leadership, we asked with tobacco for Elder Whabagoon to open R+R, planned very little, and trusted her to lead us in a good way. Elder Whabagoon invited the students and teaching team members present that day into deeper attention, and reciprocal care with each other and land that holds us. Before this first class, Kristen, Doug, and I made a short video from the site of the ceremony for students: "This is a way for us to ground in this place that we have all been beautifully privileged to live on," Kristen shared, "and ask, how we can do that in more intentful and caring ways together?" (Report, 2021, p.25). The opening ceremony was imagined within conversations of land acknowledgements and arrivals, and our first value of Gratitude. Here, I explore how ceremony focused individual attention and the attention of the program on interconnecting, and the implications for re-storying through paying attention and centering in the heart.

The ceremony took place outside in a wooded area, around a fire with eclectic seating options of log benches and various chairs. It was in the north-end of the city, next to a river, and surrounded by trees. From certain angles no buildings were visible, though the hum of traffic persisted. The area has been increasingly tended to by Indigenous community members and friends, led in part by Doug, restoring the ecosystem and Indigenous governance, holding many ceremonies before us. Sitting in circle around the fire, Elder Whabagoon "gifted us with songs and teachings" (Report, 2021, p.24). She invited each of us to introduce ourselves and to speak "intentions into the fire and in front of the birds and trees" (Report, 2021, p.25). Linda Hogan (1995) describes ceremony impeccably: "We speak. We sing. We swallow water and breathe smoke. By the end of the ceremony, it is as if skin contains land and birds. The places within us have become filled...the land merges with us" (in Narváez & Jacobs, 2022, p.395). This aptly describes how our opening ceremony proceeded too; we also consumed strawberries. To accommodate COVID-19 public health restrictions on outdoor gatherings, we held the ceremony in three rounds: 12-2pm, 2:30-4:30pm, and an online group 7-8pm. Within the circumstances of pandemic, "our first session was a unique opportunity in [a] distanced and digital time to meet together on the land, in a ceremony dedicated to expressing our gratitude" (Report, 2021, p.24). Once the second group completed the

ceremony, and there was no need to hurry along, people stayed a full hour socializing together afterwards (Report, 2021, p.26).

(a) Why Open In Ceremony

The opening ceremony was conceived with(in) a conversation of land acknowledgements and arrivals. Land acknowledgements are increasingly expected to open gatherings across Canada, and with this practice comes a critique on depth of engagement – are these just placating words or are they connected to relational, behavioural, material, and structural changes for reconciliation? We (the R&R teaching team) wanted to open R+R with inquiry into what it means to come into good relationship with Indigenous people and with land, seeing truth, reconciliation, and decolonization as interconnected with living well in and responding to the era of climate change (Report, 2021, p.24). Everyone in Rooted and Rising relates to this inquiry differently based on their social location and lineage – some students and teaching team members are Indigenous, others, like me, have settler lineages, others are racialized and/or first or second-generation newcomer. But together as a new learning community, it began our shared conversations with Indigenous perspectives, tradition, and Elder Whabagoon’s guidance.

(b) Paying Attention

I felt very refreshed after that opening ceremony. I felt it’s not just about the environment, we’re not just talking about the environment. When we were all sitting around in that circle and listening to that Indigenous Elder who was talking and sharing their wisdom, I kept seeing connections with my own spirituality and faith. It’s just a reminder of some of the things we don’t give enough attention to. I like the word attending, and attending to each other, and attending to the fire. And to the strawberry – when we ate the strawberry with the leaves, that was also like something that I’ve never done before – Sarah (i1)

Here, Sarah describes the way in which Elder Whabagoon led us in paying attention to the world around, us, attending to each other, the fire, the strawberry in particular ways that bore witness to our interconnections. Sarah reflects on interconnecting spiritualities and faith and the ways in which spirituality calls on us to pay attention to the world in particular ways. With each element of the ceremony, Elder Whabagoon called us into deeper conversation with and spiritual awareness of our interconnections with the living beings around us, telling us to ‘look up from of our phones and

notice the trees, the birds' (personal notes, Sept. 27th, 2020). As a starting place for a climate leadership program, ceremony worked to root us in a spiritual awareness/attention of and attending to interconnection. As Tu'itahi et al. (2021) reflect, spirituality offers pathways, alternate to techno-scientific information, to engage with nature and climate change, as spirituality creates "pathways to re-engage with humanity's deep connection with the natural world and to foster environmental awareness, activism and wellbeing...From an Indigenous perspective, spirituality is central to holistic wellbeing" (p.77). Beginning in ceremony disrupts and deviates from Western educational narratives that story education as separate from spirituality, and Western colonial narratives that de-value Indigenous knowledge systems in which spiritual connectedness and knowing are deeply intertwined.

Elder Whabagoon also focused attention on elements of nature present with us in ceremony, and one student shared their experience of paying attention in this way:

I felt very connected to nature. I remember the Elder saying the birds and nature will speak to you. And then Kristen was talking, and the birds just started going crazy. And I've never experienced that in my life. And I felt like that was my moment – Anonymous Student (Report, 2021 p.26).

Elder Whabagoon opened this student to the possibility of conversing with birds and life around her; and, when she turned her attention to the birds, they filled her senses (Logan, 1995 in Narváez & Jacobs, 2022, p.395). There is an empowerment here in communing with nature, and a re-storying of knowledge as residing not just in reason, but in birds and other nature beings too; of learning as, in part, a practice of paying attention to what the natural world has to share. It opens to climate narratives of learning from and collaborating with nature to thrive together, in contrast to a narrative of some humans saving nature from other humans. I had a related experience of nature-awe earlier in the day as we walked to the ceremony site before students arrived. I was behind Elder Whabagoon and her partner and wrote about it the next day:

It was blissful to walk behind them and witness the fascinated way they noticed life along the trail. Just like my partner and I do on our walks together downtown, they pointed out the wonders of the world to each other, "look at that tree," "wow do you see that bird?". They were paying joyful attention to nature, and in my observations of them, so was I. I felt like it was my own moment of centering in joy and connection with life before hosting everyone else. I felt centered in myself, land, and purpose after that. Later, I walked back to meet students at the meeting point and began to receive a lot of texts about people running late or needing to shift to the Zoom call because of COVID exposure. I almost forgot about the whirl of unpredictability that happens when people physically gather. A couple students who signed up for the first round were so late that they were even late to the second round. I could have leaned into anxious and controlling thoughts of ruined schedules, but I chose

instead to be present with what was, to trust the leadership of others holding the fire space without me, and to accept the changes as good. And of course, reflecting back, I can see it. The late students and I chatted and enjoyed getting to know each other while waiting on the final student to arrive. After the ceremony – which of course began fine without me – I noticed the three of them found each other again, temporarily stepping into the forest to hide while they shared a smoke. They formed a relationship and that was a big purpose of the day! - Personal Notes (September 27th, 2020).

I share this rather mundane description of my experience as an exploration of what it means to learn through attending to nature. It was not information I gained on that walk, but like the student quoted before me, I learned affectively, feeding a sense of awe, and an interconnecting orientation to the world that felt supportive and joyful. This fortified my ability to welcome and coordinate students. A simple walk with role modeling mentorship offered me an attentional shift out of logistical thinking and towards the beauty of the world around me that supported me as an educator in hosting a learning experience accountable to students' needs and R+R's values.

(c) Heart

One thing that the story-data has shown me, is that while this opening ceremony happened in a particular location, the true 'place' that it centered us in as a learning community was the heart. I reflect on the heart as home, and as a "portal of profound interconnectedness" (Mercurieff, 2019), and think with education that attends to the heart as such. Before the ceremony, Doug sent along an Isaac Murdoch (2020) video for everyone to watch. In it, Murdoch (2020) narrates the COVID-19 pandemic (when R+R happened) as a time to go back to the land, to go back home. In our accompanying video to students, Doug contextualizes it like this: when Murdoch says, "go home," "all it means, even if my family is not from this treaty area – wherever you are, you're home." (Report, 2021 p.24). This narrative of 'home wherever we are' evokes for me an interconnected sense of belonging to land as a global concept, and simultaneously that I can connect with land, spirit, and home within myself, through my heart. And also, as Doug further explains, "an essential part of living up to treaties and respecting the traditional territories of any Indigenous nation means connecting with that territory and its Original People through the heart – that this heartfelt connection is also how we can really feel at home" (Doug, post-interview additional comment). Another line in the report drew me to heart too: "We hoped that beginning in ceremony could centre us into our hearts during this time of chaos, allowing us to listen to the guidance that is always with us, and that has brought us together as a community" (p.25). The heart connects to so

many aspects of climate leadership: the fire/hearth we sat around, home, compassion, passion, anxiety, anger, grief, love, desire, joy, integrity – all part of living aware of climate change and leading within it. But, as I sat down to write about it, I began to wonder, what does it really mean to center in the heart?

I found a passage from Ilrian Mercurieff's (2019) collaborative book *Perspective on Indigenous Issues*. Ilrian Mercurieff is one of the last Unangan people of Alaska to “experience a fully traditional childhood” and holds many titles, and his writing has helped me understand what it is to be heart-centered:

When Unangan Elders speak of the ‘heart’, they do not mean mere feelings, even positive and compassionate ones, but of a deeper portal of profound *interconnectedness* and awareness that exists between humans and all living things. Centering oneself there results in humble, wise, connected ways of being and acting in the world. To access it, you must ‘drop out’ of the relentless thinking that typically occupies the Western mind. Indigenous peoples have cultivated access to this heart source as part of a deep experience and awareness of the profound interdependence between the natural and human worlds.

If heeded, this portal provides the inner information that keep us in “right relationship” with all of life, thus ensuring our long-term survival and wellbeing, individually and collectively. When guidance or information comes from the heart, it can be relied upon and has impeccable integrity, whereas our fallible thought processes regularly deceive us. Listening to the heart gives us access to an even deeper source of wisdom, “the Womb at the Center of the Universe”.

I imagine the opening ceremony as a “dropping out of relentless thinking” and attending to this deeper multi-species heart-portal. In it, is an educational story of climate change: that the knowledge needed to create well worlds exists within, in our profound interconnectedness with all living things. I can't know if each person sitting around each circle experienced this heart-portal opening, but a number of us certainly did. One student memorably shared:

the opening ceremony brought me a lot closer to myself. The dedicated space to think without distraction in a different way than I do in my day-to-day life made me realize some things with my current situation and I was really grateful for that” – Anonymous Student (Report, 2021, p.25).

I see this student connecting with the deeper source of wisdom within themselves of which Mercurieff (2019) speaks. Sarah (i2) also spoke about climate change education needing to drop out of cognition/thinking alone, and embracing the heart as another key place of learning:

I was talking to Kate the other day, and she reflected on something, and I feel it's very relevant to me. She said, “look at science education, because this is where I'm looking at, and the curriculum: the emphasis is usually on knowledge, attitude, and skills, but you don't hear anything about relationships, right?” It's not to say that knowledge, attitudes, and skills are not important, but the fact that we have been emphasizing so much those three terms that we

have lost the more relational way of connecting with each other, connecting with the more than human. ... Knowing that everything that we do is so much in the mind, in the cognitive, knowledge and understanding. We use this term 'thinking', and so it's even the language that we're using, it's so much detached and doesn't allow us to really be in those relationships with others. So, it has to come from this different space and place, which is the heart. – Sarah (i2)

I appreciate how Sarah emphasizes that to turn to heart in education is not a negation of knowledge, attitudes, and skills, but rather an opening to relational forms of being and learning that have otherwise been part of the null curriculum (Eisner, 2002) of schools and education. Sarah also seems to have centered in the heart during the opening ceremony, and I can read in her experience of the day, the “humble, wise, connected” results of doing so (Mercurieff, 2019):

To witness the participants, I'm amazed by listening to them and hearing how committed, how ethical of beings they are. And so, you constantly feel humbled. This is what I felt. I felt I really was nothing. You know when they tell you, 'you are a grain of sand'. This is how it felt. And at the same time, it felt empowering which is weird. – Sarah (i1)

I find it important that Sarah describes the combination of humble and empowered as ‘weird’, as it signals a moment of re-storying. Within foundational narratives that see humans and nature as separate, to be humble evokes an image of being lesser than someone or some expectation, within which it would be unusual to feel empowered. But within an interconnected narrative, the concept behind the term ‘humility’ shifts, and becomes instead about acknowledging one’s existence within the Earth and the vast web of life on which we depend and accepting responsibility to appreciate and care for the parts of the whole, including self. In this interconnecting narrative of self/world, there is an empowerment, an awe, a sense of being cared for, and an opening to possibilities as vast as life itself.

5.3 Sustaining

Finally, I reflect with R+R’s sustaining narratives of interconnecting over the course of the program. While valuing rooted our program in the practice of interconnecting, and in interconnected values, and the opening ceremony focused our attention us as a learning community on our interconnectedness with all of life and gave attention to our hearts (portals of profound interconnection), each time class/meetings ended, we re-entered the everyday. Outside the container of R+R and other similar spaces students and teachers may be a part of, we are collectively inundated by and inevitably a part of reproducing systems and narratives that are decidedly not interconnecting. In this final section, I explore interconnecting as a pedagogical narrative over time,

asking after practices that re-set and re-attend to interconnectedness each time we gathered. Specifically, I will explore a third opening practice in R+R, the five-to-ten-minute weekly opening that began each class, described in Box 3. The three elements of this weekly opening can be understood as three iterative narrative forms of Interconnecting. Collectively this practice offered a moment of re-connection with self, nature, and community, and I'm drawn to label it a shared spiritual practice. Not, as Thich Naht Hanh (2011) distinguishes, a Spiritual Practice from one of the many traditions we might have pulled from, but a spiritual practice that "can be there any moment, as we cultivate the energy of mindfulness and concentration" (p.9). Below, I explore each element of the weekly opening, and the possibilities and tensions they offer to re-storying education through interconnecting.

Box 3: Weekly Opening Practice (Total time: 5-10 minutes):

Each class was a little different. It was not a scripted practice but followed a consistent pattern.

Breathing: It began with a short exercise of mindful breathing. Some version of: *'Get into a comfortable position. Put your feet on the ground. Close your eyes or soften your gaze. Take a deep breath in, and out. Notice where there is tension in your body, and with each breath send love there, softening the muscles...'*

Sometimes there was more body noticing and stretching, other times more mindful breathing. But always, bringing loving attention to breath and body.

Gratitude: The facilitator would then offer a statement of gratitude and appreciation, including to water, air, animals, the Indigenous nations who care for and have sovereignty with these lands.

Welcome: Finally, one of us would welcome students to do what they needed to stay focused and connected – *walk around, lie down, draw, camera on or off, but preferred on*. We would often thank them for choosing to be there. For showing up to class, for choosing to face the climate crisis, and offer their unique gifts and personal transformations into the emergence of a better world.

(a) Slowing Down

Here I reflect on how R+R's weekly opening practice activated interconnecting by collaboratively shifting the tempo and slowing down. As we collectively took deep breaths, and attended to gratitude and welcome, there was a felt temporality of slowing down, raised by students and teaching team members as they reflected on the weekly opening. As I move through each of the three elements of the practice below, slowing down comes up repeatedly, and so I wanted to take a moment to contextualize this slowing down in contrast with the hurried temporality embedded in the systems and narratives of colonialism-capitalism-white-supremacy. Tricia Hersey (2022) writes on this hurriedness, calling it the hurried culture of productivity. Hersey (2022) explains that this

hurried culture has left a legacy of exhaustion that “resides somewhere in all of us”, but also clarifies that this exhaustion “specifically resides in the bodies of those” who are descendants of enslaved and colonized people, “and those marginalized” (p.26-27). Schools are key sites of this hurried culture (Hersey, 2022). Dominant pedagogical narratives hurry children along the school day and a linear path of development, and those who cannot keep up are judged as lesser than. Hersey (2022) explores how hurrying in schools trains children to close down their mind’s connection with their bodies, encouraging students to ignore bodily needs, and work to exhaustion. For example, class schedules with pre-determined breaks outline when a child *should* go the bathroom, training them to hold it until given external permission rather than interrupt instruction.

A hurried temporality also dominates educational narratives of climate change. Young people are so often oriented to climate change through the urgency of scientific data, that things are changing rapidly, that we are running out of time to prepare for or prevent global disaster. This hurried urgent temporality of accelerating change spurs concern and speaks truth, but it also triggers anxiety, exhaustion, and overwhelmingness that can be disempowering. Clemi offers an insight on this: she shares a distinction her therapist helped to draw between importance and urgency that she applies to the climate crisis. In contrast to climate narratives that encourage the public to act like it’s an emergency, Clemi focuses attention on what’s needed not just to respond, but to respond well:

Urgency makes us feel like there’s a rush to address something and we lose our capacity to make compassionate mindful decisions ... [Climate change] is not an urgent problem, it’s a very important problem. It does require everyone to shift, but it’s a consciousness shift that’s required and that’s not something I think you can do with a sense of urgency. – Clemi (i1)

Rooted and Rising’s weekly opening practice contrastingly offered a pedagogy of slowing down; a pedagogical narrative that intimates, as Báýò Akómoláfé (n.d.) says, “times are urgent, let’s slow down”. As Clemi describes, it is a slowing down in order to act more precisely and effectively; but also, a slowing down to remember ourselves through our intimate relationships with self, others, and nature, as will be explored in Breath and Gratitude. I like the way Doug explains it in the first video we sent out to students ahead of the opening ceremony, which also invited a slowing down:

We want the course to begin by slowing down and proceeding from this point. Slow down...we have a lot of work to do, but we don’t want people, including ourselves, to go into that heightened level of responsibilities without feeling safe and comfortable, so it’s really important for those of us that’ve been struggling (and for me that’s everyone I know). I want us to feel like, let’s take care, and slow down and think about it together. – Doug quoted in Report (2021, p.24)

I notice that Doug does not use the language of ‘urgency’ either, but rather evokes the ‘heightened level of responsibilities’ that is responding to and in climate change. Doug’s guiding invitation to slow down and take care is an invitation into interconnected wellbeing, that slowing down, and self-care are necessary interconnected capacity builders for collaborative efforts.

(b) Breathing

You would think oh breathing is breathing, but no, breathing is breeaatthiing. For me, it’s really just...I don’t know how to say it but it’s breathing!
– excerpt from Samantha’s closing leadership statement in program (i2)

Here I explore the simple and profound narrative of interconnecting through breath. Tom Chi (2016) explains how, scientifically, we are interconnected with life through breath. Around three billion years ago, cyanobacteria developed photosynthesis and began to slowly, over millions of years, transform the contents of our atmosphere: breathing in carbon dioxide and breathing out oxygen until the ozone layer was formed and Earth was able to sustain complex organisms such as humans. Today, the descendants of cyanobacteria – chloroplasts – continue to photosynthesize in the plants that we eat to survive; and “every out breath of a plant is mirrored by our in breath” and vice versa (Chi, 2016). Through breath, humans are in constant reciprocal relationship with the plant world, and all breathing organisms on earth, interconnecting health and wellbeing.

Climate change can also be seen as a story about breath and the changing chemical balance of the air we breathe. However, it is important to note that in this era of climate change, climate change, and the associated anxiety, forest fire smoke, rising CO₂, etc. it brings, are only some of many factors impacting student breath. Samantha, Clemi, Claire, and Field each shared in their interviews about how they variously arrived to class, carrying different combinations of post-traumatic stress disorder, trauma-induced brain damage; the mental and physical illnesses of loved ones and their own; feeling isolated and disconnected in the pandemic; feeling alone in their pursuit of climate justice; feeling the stress of school, of expectations, of work and money – all of which can physiologically and/or psychologically constrict breathing. One of them shared the anxiety she was experiencing that year was indeed making it hard to breathe – “why can’t I breathe? Is this a medical issue?”. The polluted city air doesn’t help:

The air in the city is literally toxic. It hurts me to breathe. When I go to the West Coast, where there's more trees around, breathing the air is medicine; you don't need to drink as much water. And my friends who have horrible respiratory issues - they're always in the hospital – we went to the West Coast for like a second, and they're like ‘all my respiratory

issues cleared up, I could breathe clearly, I was running around' and all of that. So that's climate justice, right. – Field (i1)

Climate justice as breathable air can also be extended to interconnected social justice, as, Dr. Joseph Smith (2020), R+R team member, explores:

It can be hard – nearly impossible – to breathe when your life is lived under the thick blanket smog of systemic anti-Black racism. The tragic endings to the lives of Ahmaud Arbery, Breonna Taylor, George Floyd and our own Regis Korchinski-Paquet reveal that the smog of anti-Black systemic racism is so enveloping, so omnipresent, so menacing that it often transforms Black life into a fatalistic Greek tragedy (Smith, 2020).

Pollution, racism, deforestation, anxiety, access to care, justice, freedom to live and to live well are all entangled in the breath and breathing practice of those arriving in R+R week to week; in a global pandemic affecting people's lungs; and in a climate crisis characterized in part by more toxic air.

The distress impacting breath can also trigger the stress response in the body in which cortisol and adrenaline trigger muscle tension, heart and breathing rate quickening, and immune and digestive systems, creativity and emotional control, and other functions to essentially pause while we deal with the real or perceived threat. Operating from a stress-response is not where creative, adaptable, collaborative climate leadership thrives; nor what sustains life-affirming, joyful desired futures.

In response, breathing offers an opportunity tune into one's emotional state and take control: offer some calm to the nervous system and observe and assess the world from a more whole place within oneself. Kristen (i2) spoke about the rest and digest state as an alternative to the stress response. In rest and digest, regular life-sustaining activities like digestion resume, and breathing becomes more easeful. When in a rest and digest state, one has “more access to the source that you are and that's around you” Kristen posits. Two student accounts explore the possibility for this shift offered in breathing:

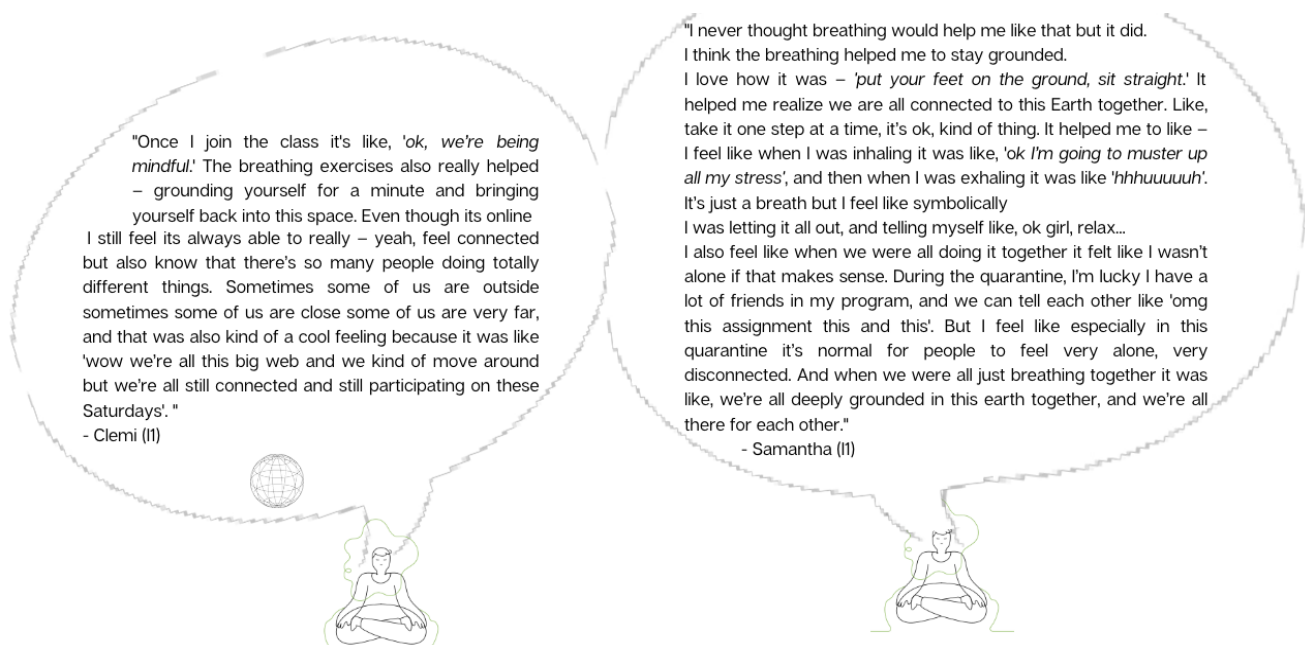


Figure 7: Student Reflections on Breathing

Breathing offered a moment to recenter, and I notice how Clemi and Samantha both engaged internal narratives of interconnecting to amplify that recentering. Samantha used it as a moment to connect with herself and offer some self-soothing, visualizing a release of stress, and reaching for a rest and digest state. In class, breath was used pedagogically this way too: for example, after a discussion on what is climate change, a teaching team member led a breathing practice with audible exhales, and facial expressions to process out the negative emotions the discussion may have left in the body (personal notes, September 27, 2020). Both students took the breathing practice as a moment to tell an inner story of connection with others in the learning community, and engaged their breath as an opening to and remembering of deeper connections with:

- Earth
- Self and self-soothing
- Sense of belonging to a bigger web of 'wonderful humans'
- Belief in collective efficacy
- Sense of wellbeing or inner peace
- The present moment

I'm left thinking about breath as a medicinal pedagogy at the intersection of climate justice and belonging, and of re-storying education as nurturing re-connection and restoration. When we sat together for our final interview after the program, Kristen and I spoke on breath. She had been thinking about it too, and back and forth we asked a series of questions for pedagogical considerations of “breath as pedagogy” (Kristen, i2):

1. How can we think about breath as an anchor for teaching?
2. Breath helps us align with natural rhythms and cycles, including the cycles of the seasons. How can we arrange course content to be more aligned with the seasons?
3. How might we bring more layers of breath into class and into how we structure the curriculum? Into the micro-spiral of each class? Might we think about the in-breaths of deep nourishing and the out-breaths of release as a frame for how we design classes?
4. When we think of systems change too: what are we trying to breathe in? What is in our lungs that we need to cleanse? What do we have to detox? Exhale?
5. How do we speak to ourselves? Our bodies? Each other? What would it look like to truly follow the spiritual laws, like those of the Buddha, that say speak no harm?

(c) Gratitude

After breath, we turned to gratitude, another practice of interconnecting that both created connections across our learning community as we engaged in shared gratitude and generated awareness of individual interconnection with the whole web of life. Ojibwe Elder Lillian Pitawanakwat (2006) shares that gratitude resides in the East, in the Four Sacred Directions teachings. Sitting in the direction where the sun rises, this represents the importance of gratitude first, before all else. Gratitude brings attention to “the gifts of the natural world around us” that we “cannot live without”, and our shared responsibility to care for it in reciprocity (Pitawanakwat, 2006). Gratitude inherently opens to interconnecting “because it requires us to see how we’ve been supported and affirmed by other people” (Emmons, 2010), places, Spirit, and many forms of life. Here I explore two openings and three tensions of gratitude as a pedagogical practice.

Sarah(i1) observed the weekly gratitude practice has “this specific ability to slow us down”, and that in this slowing down, is a moment to remember oneself. Sarah reflects that interconnectedness is

something we talk about a lot in academia, but it was still very much dry. I feel that you brought it alive [with gratitude], like you’re trying to take us in a different direction from

what normally happens when we start any meeting [and class] ...I feel like behind the screens all the time, in the busy-ness of everything, we forget ourselves. We forget where we are in relation to other things. So, [gratitude] is helpful in that sense. It's a way to connect. I feel like lots of times when you look at people's faces after the gratitude, people are much more composed and relaxed, and it adds some sort of energy that opens possibilities for discussion that maybe would not have been if we didn't have that as a starter. – Sarah (i1)

I love the way that Sarah talks about gratitude as an opportunity to connect and remember oneself *in relationship* to others – naming it as a relational remembering of the many ways we are interconnected. Sarah also observed students' composure, relaxation, and energy alchemize with gratitude. Affirmed by growing clinical studies demonstrating the psychological and physical health benefits of gratitude including improved moods and reported levels of happiness, reduced inflammation, stronger relationships, increased resilience (Greater Good Science Center, 2018), Sarah (i1)'s observations point to the potential of gratitude to open into a greater sense of personal and relational wellbeing that impact the depth and direction of dialogue possible after it.

Clemi also spoke on how gratitude inspired/opened a compassionate orientation to herself, land, and others. Gratitude was the most consistent feeling Clemi left with every week, and because of Rooted and Rising, she was practicing it more consistently outside of class as well. Through this consistent practice, Clemi came to see gratitude as opening “gateways to compassion”:

I felt that every time we held space with one another that it would be rooted in this gratitude and in this like growing compassion for one another and compassion for what we're doing that ties into everything we're talking about. When you really feel like you have so much to be grateful for, you're recognizing the importance of what exists in your life-realm of the universe. To realize that I am really grateful to have a connection to the land; and I am really grateful for the people who highlight the importance of that connection; and the people who also prioritize that importance. I'm even grateful to the people who are really screwing that up right now, because I feel like there's a lot of opportunities when we do start from a place of being grateful to everyone and everything to again and come from a place of heart centeredness and care. People respond a lot better to care than they do to shame or guilt or frustration or expulsion. I think that being able to be like 'oh yeah, we are a really compassionate community and we're a community that really cares and wants to extend that care to all our relations'. That is what really makes a difference and what I was really able to center on each time we gather.
– Clemi (i1)

Clemi offers gratitude and compassion as an orientation and tool for change-making in the era of climate change, developing a theory of change that cultivating caring and compassionate relationships opens greater possibilities than shame-and-blame approaches. When I researched compassion after sitting with Clemi's reflections, I found compassion is also associated a slowing down and feeling good – slowing the heartbeat, and secreting “the ‘bonding hormone’ oxytocin, and

regions of the brain linked to empathy, caregiving, and feelings of pleasure light up” (*The greater good magazine*, n.d.).

Gratitude is not, however, a practice without tension, and three such tensions emerged in teaching team interviews: gratitude outside of a specific tradition, the tension of bringing spirituality into education, and clashes with social norms and tradition. Outside of R+R, Doug (i1) hosts fires that gather people to dialogue in relationship with self, each other, fire, Spirit, and Natural Law. He explained the purpose of the fires in relation to climate change and its connected problems:

We're not seeing any clear path to having an integrated system-wide, but also population-wide and popular and in the fullest sense of the word, shift. We're not seeing it, and the attempts to address these things politically are limited. This is why I'm lighting these fires. Because I think it has to be referencing something that is more than human/material and has a grounding in some tradition. And that systems need to come to those fires and surround them rather than having people have their ceremonies, and then go to those systems outside of the fire and not have that as the central focus. – Doug (i1)

In some ways, our opening ceremony around the fire, and gratitude practice moved in this direction of bringing dialogue for change to the fire. “What I saw [in Rooted and Rising] was something that's good. I feel, over time, if we can sustain, the course could gradually begin to become one way of demonstrating how that can be done.” But there is tension here too - R+R offered a gratitude practice that might be thought of as existing in a liminal state in between spiritually-disengaged and engaged education; and in contrast to Doug’s stance that we need spiritual traditions “in order to return to some kind of stable order”, R+R’s practice was not tied to a particular tradition. “But at least it was informed by people with a good heart, it's a start” (Doug, i1). Sarah (i1) described R+R’s gratitude practice as more horizontal, less focused on G-d/Spirit and more focused on nature, and everyday things for which to give thanks. In both complement and contrast, Doug asks:

how do we ground it in some kind of centering process, and lift it? So that it's elevating our spirit and giving us a connection to something that for me has been assaulted and desecrated to the degree that we can't even see anymore that it's the root of what we're doing to destroy everything... [Without a sense of the sacred] anything can be desecrated. – Doug (i1)

There is ambiguity here on if and to what extent Rooted and Rising was able to lift our practice vertically along the spiral of interconnected being towards Creator/Cosmos. Ambiguity and tension exist too on the question of relatability of the practice for students who may not be interested in engaging with the spiritual side of life in a climate course. Doug speaks on this in relation to a class he co-led, in which he explicitly talked about spiritual law/tradition:

what I wasn't totally clear on was if that's what all the students were open to, or needing, or if it was reaching them or not. I could sense when I started to talk about higher laws, sacred laws,

that there was a significant resistance from [a few] students to the notion that there can be principles that are higher than human principles, and that aren't just material, scientific laws. And I wonder...if a course like this is offered, and I'm really struggling with this, if young people who are looking at this constellation of issues and crisis points, and not knowing how to effectively connect them all in popular ways, [and the course] doesn't at least provide an option for a spiritually centered approach, then we're missing something. – Doug (i1)

This is a point for deep consideration for educators re-storying education in the era of climate change – how and to what extent to offer spiritually-centered approaches in education that has been storied as a-spiritual for so long in Western institutional schools, and where students practice a multiplicity traditions and non-traditions? And yet, as explored in my literature review, this narrative of climate change as a spiritual problem is one of importance alongside scientific or constructivist frames, and foundational to exploring if we are to follow Indigenous leadership and knowledge systems. And as Doug(i1) said too, foundational for engaging the still majority of the world's population who follow a specific spiritual/religious tradition in climate change dialogue and action. These reflections make me aware of how much more unraveling and re-storying work there is to be done in the dis/re-entanglement of spiritual tradition, education, and nature-human relationship mending. Doug's response challenges future R+R's pedagogy and the overall re-storying of education to engage with the question: “how do people change the world by having a spiritually grounded process?” (Doug, i1).

Sarah (i1) raised another tension with gratitude. While she observed gratitude opening up possibilities as described above, she also felt discomfort in the practice. As an educator, when it was her turn to lead the opening practice, instead of a gratitude statement that felt too far outside her comfort or stretch zone, Sarah shared a poem, offering her gratitude to the poet and poem, and to the R+R learning community. In her interview, she talked more about this:

I don't know, I feel like gratitude is something that, I feel like it's my own Muslim faith. We do [practice gratitude] a lot, but it's much more private. You do it in your own prayers, it's very personal. So, you might say *Alhamdulillah*, saying gratitude for God for whatever you have. You're sitting at the dinner table you say *Alhamdulillah*. It's a very word we commonly repeat all the time. *Alhamdulillah*, we have a house. Or *Alhamdulillah*, we're in good health. If someone is saying, how are you, we say *Alhamdulillah*, first ... That's how much publicly we are able to express our gratitude...

And sometimes it's just...it's a different form of gratitude [than] what [R+R does], thinking about nature and the things around us. It's not just about your relationship to God, it's much more horizontal I would say... and getting us to think about and appreciate the little things. I'm sure my faith, we do the same, and there are very similar connections. However, it's just that we're not used to verbalizing it in such a way, and also saying it in public, in front of people in the very first stages - I have no idea who are these people around me and now I have

to start with gratitude that's something I feel is very personal and private and then be directly open about it. So, I think that was the discomfort. – Sarah (11)

Sarah experienced R+R's gratitude as jarring, not relaxing, highlighting the vulnerability of speaking gratitude aloud with relative strangers. Specifically, she was jarred by the contrast to her own faith, spiritual and cultural traditions that make up her norm when it comes to gratitude. Again, there is a tension of tradition, non-tradition, multiplicity of traditions in/for education attempting to offer at least an option for spiritually/heart-centeredness. As a facilitator myself, I always feel nervous beginning in gratitude, it feels like such a break from everyday ways of relating in education, organizations, and my cultural upbringing. After speaking with Sarah, I worried about how many others felt uncomfortable too. Was it the right practice to begin with? Is it alright that discomfort and relaxation co-exist in this opening moment? Within this tension, I'm reminded that re-storying through interconnection is not always an easeful task, but that it confronts and disrupts as well, bumping up against personal, cultural, and spiritual practices and norms as well as colonial narratives of education and knowledge. Gratitude as a collective opening practice jars and relaxes, offering a moment for inward connection, but also possible dissonance.

(d) Welcoming

The final element of the weekly opening was to welcome students. This welcome came in two parts: first, inviting students to take care of their bodies throughout class, to go to the bathroom when they needed to, walk, draw, lie down, or otherwise move around in ways that help them maintain focus. Second, it acknowledged students' choice to be present in class, and with the climate crisis, thanking them for their presence. In the background, I would also text students who were not in class and ask if they were going to join. Sometimes there would be no reply or students would say they couldn't; but other times a student would share that they were embarrassed to show up late, or worried about joining when they didn't feel up to talking, and I would encourage them to come anyway – that they were welcome late, or quiet, or however they were, and most of the time that student would join (personal notes from throughout program).

The welcoming practice carried the pedagogical narrative of interconnecting in two parts: first, in emphasizing a connection and listening to the body often ignored in educational settings; and second, in emphasizing the intrinsic value of all life and every student, just as they are. Here are two excerpts from two students on their experiences of this welcoming:

I feel like there should be more classes with this type of learning style, I really like it. Especially when you guys were talking about – it's ok if you zone out or you need to do something to get back to attention. I struggle with that, sometimes I – k, not diagnosing myself, but in the back of my mind I'm like, ok do I have ADHD? I heard about it in class and my professor talking about the characteristics and I'm like, that's me, that's me! That's me too! I sometimes have trouble focusing... In my childhood, there were some teachers that would be like, Samantha, come back. Even in university, I had one prof who was like, Samantha, you good? Come on! I was like, sorry! Then I feel kind of embarrassed – they're calling on me, where am I? Oh no! So then when you guys are like, it's ok to da-da-da, we understand that. I was like, wow, I feel so welcomed. So simple. Things like that, wow I really love it. Because I do sometimes zone out. – Samantha (i1)

Today, talking about healing and disability justice, Clemi kept mentioning that anyone can become a disabled person. And this was really healing for me too because going through trauma literally gave me brain damage. And acknowledging that I exist in this world now was a lot, to see how many different people I've been. I've started doing math problems and that's helped my brain recover so much... But whatever I went through gave me brain damage, so acknowledging my capacities have changed but also having people tell me to work harder was a lot. So being in this space where if you want your camera off that's fine, if you need more time to take care of yourself, take it. That was really jarring to just get permission to not be perfect. – Field (i1)

Samantha and Field open up about the educational and social pressures they feel to be perfect, to work harder, contrasting R+R with institutional learning experiences that disassociate from the body's needs (Hersey, 2022). I am reminded how the separation of nature and human in Western thought extends to the separation of mind and body (Lehtonen et al., 2018), and how schooling reproduces this separation, ignoring bodily needs in the uneven race to finish (Hersey, 2022). It's interesting to note that these are two students that are excelling: each completing a university degree, working a part time job and/or completing activism projects and doing this certificate; and yet, they still feel uneasy in their bodies at school. It is also interesting to think about the contrasting experience for student and teacher. As teachers, we did worry and wonder about camera use (Gia, i1) – we asked students to come on camera, but also with a disclaimer that they should do as they needed – and typically about half would turn it on. We worried – is this a sign of disengagement? How can we tell if the material is connecting with all of them? And more worries typical of online teaching (Gia, i1); and yet for Field, it was precisely this welcome to not have the camera on if needed that helped them to feel supported and engaged in the learning space. Though it is also true that a student's decision to be off camera has an impact on others in the learning space, particularly the teaching team who cannot read body language or gauge engagement as well, Field's experience offers another important 'student off camera' narrative. It makes me curious about various

expressions of ‘feeling supported’ and ‘disengaged’ and how these might be better understood to support both educators and students.

Rooted and Rising’s welcoming practice encouraged students to tend to their bodies and embraced students as they are, offering an educational narrative of body-mind connection. In their account, Field (i1) references disability justice too. Just before our interview took place, we had had a class on Death, Grief, and Disability Justice in which my teaching partners presented Disability Justice as a lens for thinking about climate justice, interconnectedness, and the care work of climate change in ecological and human communities. Discussions in that class reinforced interdependence, and the vulnerability and power of our complex bodies. Mia Mingus was quoted saying “It is from being disabled that I have learned about the dangerous and privileged ‘myth of independence’ and embraced the power of interdependence” (Mia Mingus, in Report, 2021, p.31). A piece of the Disability Justice Framework by Patty Berne (2015) was shared too: “All bodies are unique and essential. All bodies have strengths and needs that must be met. We are powerful, not despite the complexities of our bodies, but because of them. All bodies are confined by ability, race, gender, sexuality, class, nation state, religion, and more, and we cannot separate them.” Field and Samantha experienced R+R’s opening welcome as a reinforcement of this idea, that their bodies’ needs were worth tending to, and that they were valued not in spite of but wholly with their bodily abilities, needs, and confinements. Field labels R+R as a “gentle” space where students are encouraged to take it easier and tend to these needs, and I wonder after education as gentle, aware of and responsive to the complex lives and bodies of everyone involved.

The welcome also tells a story of ‘enoughness’. Clemi spoke with me about how the welcoming nature of Rooted and Rising helped them unlearn the question: “am I enough?” It’s a standard question of institutional schooling: are you good enough? Smart enough? Hard working enough? Conforming to norms enough? It is also “a very shared sentiment in activism spaces: are we doing enough? Is this enough? Will we ever be enough?” (Cleml, i1). It’s an easy narrative to slip into: we are living with global, wicked, entangled problems that have been brewing for many generations and sometimes our own efforts seem so small, like they are not enough. It’s a question that focuses on separate parts versus the whole, closing down narratives of change as spiraling, metabolizing (Machado de Oliveira, 2021), emerging (brown, 2017) in interconnected efforts small and large across time and space. As Cleml said, it’s a colonial question that needs to be dismantled. They shared more on its consequences:

When you have this view, am I enough, and you are constantly in this egoic thought, you lose out that ability for consistency because suddenly everything becomes measured by ‘oh what will I accomplish next? What did I accomplish last?’ And that makes it very challenging to show up every day, because if you don’t feel like you’re making progress or if you have a very skewed idea about what progress means to you, then you very quickly lose motivation. Whereas if you are in a space that holds you and says please show up. Please show up if you’re depressed. Please show up if you’re anxious. Please show up if you are on the frontlines. Please show up if you haven’t left your bed in three weeks. We just want you to be present in this space, it totally shifts the narrative of what consistency looks like and what practice looks like. And I think one of the things that Rooted and Rising did very well in my opinion is having this reassurance that people showing up is the work. Every time you would log in, even if your camera was off, even if you couldn’t share your leadership statement because you’re very emotional and you’re apologizing for crying, all of that was so beautifully held, and was totally taken out of this egoic framework and was just like you’re here that’s what matters. It matters that you’ve chosen to be here, and I think putting that choice as the framework of what gives people power is what shifted for me throughout the course a lot of what it truly means to be an activist, and what it truly means to be a catalyst for change. I don’t have to do everything and in fact it’s probably better that I don’t. – Clemi (i1)

In teaching climate change leadership, there is a tendency to emphasize the weight of the problem, and what students and people in general need to be *doing* about it. Here, Clemi describes how a welcoming practice disrupts this instrumental narrative heavy with the weight of the problem, and instead opens a different narrative path that begins in inherent self-worth/value and follows the power of agency/choice. Clemi speaks positively about being recognized for her choice to attend to the climate crisis, and in her comments, I read a relief in the awareness of the many others doing the same, which means she doesn’t have to do it all, and can rest when needed.

CHAPTER 6

Social Action

This chapter focuses on narratives of social action in and through Rooted and Rising, exploring counter narratives for re-storying education as highly social and collaborative in the era of climate change. While narratives of ‘collaborative education’ and ‘world-building’ education are increasingly popular, they often become eclipsed by narratives of learning framed as individual performance, heavily influenced by education measurement industries, and neoliberal policies in which “thinking and acting for oneself” is prioritised. Active and well-funded resistance against climate change education in formal schools have further influenced a narrow pedagogical focus on the individual (see literature review): it is the individual who learns (or doesn’t) *about* climate change, the individual who takes action on their (often consumer-linked) carbon contributions, and the individual who convinces others to care. In this chapter, I explore counter narratives of social action that ask after what it means to de-privatize and re-socialize climate change education. Here, I take up climate change as deeply social in which we as a species, and across many species, are living in/through existential crisis, undeniably influencing, and impacting each other’s lives, however unjustly and unevenly. I also take up climate change education as a deeply social endeavour in which students and teachers grapple with existential crisis and improvise *together* (coming together and being together) as they seek to live well and preserve liveable futures. I am curious about the narratives in R+R that brought people together to act and focus here on amplifying three narrative dimensions of that social action: processual, social, and planetary. First, I turn to processual narratives of improvisation, tinkering and iteration that resist a positivist narrative of climate change as a set of knowable scientific truths to be understood and acted upon by the individual. R+R alternatively embraces pedagogical narratives of unknowing, figuring it out together, listening and adapting, and iterative design with one foot in the old and one foot in the emerging system. The second section takes up social narratives of collaboration, collectivism, community building and organizing. It offers counter-narratives that re-assemble the climate change education social towards collaboration and looks at four narratives of collaboration in R+R: leadership, teaching and learning, teaching team as collaborators, and uneven student teamwork. Third, I turn to narratives of planetary healing that expand climate change education beyond an anthropocentric scope, bringing all living things into the narrative of collaborative social action. I reflect with two student projects that engage elements of nature as collaborative healers and teachers of people and planet. Both of

these projects created short-films, and I am interested in the language and frames students use, and how narratives of planetary-and-human healing *with* strawberries, and *with* clay offer openings into interconnected and collaborative ways acting together. This chapter offers narratives of collaborative social action, challenging the dominant individual-centric narratives that often overshadow collective efforts and collaborative pedagogy needed to live well and act in existential crisis.

6.1 Processual Narratives

Despite an awareness that it involves chaotic weather patterns that have chaotic social consequences, climate change is often storied educationally as a defined set of objective scientific truths that have an associated set of predetermined (often technoscientific and consumerist) solutions. Students are positioned as individuals who lack these truths and must acquire them from teachers/ institutions; and in this, education becomes positioned as both having and being the answer. R+R resists narratives of climate solutionism, and educational solutionism that exclaim if only students could learn the science of the problem and solutions, climate change could be solved. Rooted and Rising took up counter-narratives of education as improvisation, tinkering, and iteration, within, and part of, an era of mass uncertainty, and in the midst of systems change. Narratives of improvisation open to an awareness that, as Vanessa de Oliveira Andreotti and Sharon Stein (2022) write, there are no feel-good perfect solutions to the climate crisis, “only partial, provisional, contextually relevant possibilities for imperfect interventions that have to be continually reassessed and revised” (p.1). I offer this as a processual narrative that positions education with, in, and as social action that is continually being tinkered with, reassessed, and remade. Resisting educational narratives of individualized “learning outcomes”, static truths, and ‘right’ solutions (backward design), narratives in R+R invite an active agential relationship of educator and students who are each and together improvising in a world of rapid change. In interviews, teaching team members reflect on improvisation, and what means to teach in and with uncertainty and I engage these reflections to probe into education in an era of mass uncertainty. I am curious how the teaching team speaks about education as improvisation, and how different members thrived and struggled to embrace an educational process of improvisation and iteration. Finally, I reflect with suggestions for better support student projects, and contemplate pedagogical structures that stifle or empower collaborative flow between students and the teaching team.

A narrative of improvisation might be said to begin with an attentiveness to mass uncertainty:

One of the pressing challenges for education now is to know what you don't know, because uncertainty is such a large part of the world, always was. In my view, we're now understanding the speed with which things shift, the speed with which things change...[and] being open to this mass uncertainty is an important concept. I think that the kind of pedagogy that you opened up for Rooted and Rising allows that...I remember [one teaching team member] saying this: "ask me questions, if I don't know the answer, we'll try and figure it out together". These kinds of things, or you know "we'll go back to the drawing board and see where that takes us". That's an authentic thing to say as a team, right? – Kate (i2)

In this interview excerpt, Kate challenges education to accept to the vastness of that which we do not and cannot know, thereby resisting a solutionist narrative that students can learn predetermined answers to solve climate change. It is an existential positioning that strips 'education' as an all-knowing force, and a processual positioning that invites teachers and students into collaborative and curious explorations of and in the unfolding. Kate highlights how this narrative positioning is done in simple ways, such as explicitly telling students they might not know the answer, and that "we'll try and figure it out together". The old narrative of the educator as 'knower' and students as lacking 'knowledge' is cast aside in such moments in favour of an invitation, an opening to students to join educators in collaborative inquiry.

There was another moment in the program when Kate improvised. To many, it may read as a mundane moment, and it is its very mundaneness with which I'd like to reflect. Kate was set to lead the next class, the only class that she designed and would lead in R+R, but she noticed students were struggling with their projects. Kate and I had a phone call a few days before class, and she said, "let's just pause that curriculum and give them the whole class to focus on these projects", and her curriculum was offered as a bonus class instead (me in interview with Kate, i2). It was a small thing, something Kate does regularly in her teaching as do many others, and she shares how she came to the decision after checking in with student project groups in the previous class:

I was in the smaller breakout rooms with just one group and then another. It was clear they were just having trouble: great in the bigger group, but they were just having trouble finding the time and energy to gel in some way. And you put that in the pandemic context and what's going on in the lives of young people at the moment, and I just thought, we can do this. We're not in a state-run school structure...and most educators will tell you that's the real problem with the state public education system, is that you're always driven by these outcomes and measures. So, I think it was both the space that had been created there in Rooted and Rising to be really an exploratory pilot, and just reading where these young people were. It was a suggestion - maybe we just don't need to give them any more content for a week and that's happened to me a number of times before. In some ways it's intuition and listening deeply and closely to where they're at, and then you just toss stuff or bring new stuff in. For me that's one of the more inventive creative artistic ways of being as a teacher. – Kate (i2)

Kate's narrative frames R+R as pilot, a pedagogical experiment. What struck me both in that phone call, and in Kate's account here, is the ease with which this pedagogical decision is made as a creative teaching process. As an emerging educator, I found myself struck by this, journaling on this pedagogical choice and attitude. We had chosen 12 topics for the program, twelve out of so many possible others, and they felt important. Admittedly, I had gotten attached to the plan/strategy, just like Blake warned in the last chapter, and I struggled to reconcile our curriculum plan with students' needs. There is a necessary balance of structure and agency. Kate, however, was able to keep focused on the intention of the program and adjust the curriculum plan to the circumstance. She did so through presence and deep listening to students: though Kate didn't lead other classes, she attended most, and actively listened to students. It is an everyday pedagogical account of education as improvisation: being present, listening, processing, and changing *with* students' needs and world circumstances. To make plans but then, like a willow tree, be flexible in the changing winds rather than be snapped apart. Kate orients to education as a process, resisting accountability to fixed learning outcomes and measurements, and instead pins educators' accountability to students' authentic learning.

Kate's way of seeing the curriculum as adaptable facilitated my own ease-full improvisation as an educator-coordinator. In other moments in the program however, I felt distress related to my emotional attachment to outcomes and plans. As Kate noted, R+R took place during COVID-19, adding emotional and physical distress to all our lives, and limitations to project work. The end of R+R also coincided with the end of the school semester, and so as our project deadline neared, the majority of students were also nearing deadlines in their secondary and post-secondary studies.

Kristen remembers this

Looming kind of awareness of midterm season, and oh yeah, they have their lives that are demanding of them a lot. I felt this kind of underlying stress as to whether we were asking them too much, or whether they could get the things done that they intended to get done within the time. – Kristen (i2)

My own notes throughout the program are filled with similar and familiar educational worries: will they accomplish anything? Was it asking too much? Will project-learning end up being disempowering if students don't accomplish their goal? These worries were, in part, justified and necessary. Students were feeling overwhelmed with their projects; our collaborative support structure as a teaching team was partial, unclear, and in need of improvement. Constructively, these worries were simply noticings of student needs and circumstances got our attention, and enabled

curriculum adjustments; privileging R+R's vision of educationally supporting (not overwhelming) youth climate leaders over the strategy.

Another aspect of these worries, however, might better be labelled attachments and projections that resisted narratives of improvisation. Personally, I worried about student projects in part because I worried over my own social action project, creating R+R. I wanted a successful pilot program, and I projected my worry onto students' abilities to succeed in their projects. I was partially stuck in old educational narratives of objectives and outcomes that resisted the very narratives of improvisation I myself had co-set up in/for R+R. Kristen also had a set of projected worries that impacted her ability to support one particular student project attempting to self-publish a children's book (see [Appendix E](#)). Outside of R+R, Kristen was publishing an arts and culture magazine and was in an uncomfortable relationship with the work (which is now published, and brilliant):

I held this kind of anxiety around projects where I felt distanced from it because in my personal life... Specifically, the magazine was the work that I was doing in that moment, and it was really tense work because I knew that something needs to be ended. And I just was in this moment of judging myself for not ending it. So yeah, I felt this kind of anxiousness around the project portion, and then that way, I think I just didn't show up in the way that perhaps they needed. – Kristen (i2)

The students' book and Kristen's magazine became affectively and socially entangled for Kristen, and she felt unable, paralyzed, avoidant in her commitment to support students. There is an attachment to outcomes here too – Kristen's perception of her own magazine's lagging timeline and lack of an end-product impacted her confidence to support another group striving for a publication-outcome. Though the teaching team intentionally framed the 'goal' of projects as practicing collaborative social action, not a completed output, both Kristen and I experienced moments of judging self, program, and students on end-products/tangible outcomes. It is not to say that these outcomes don't matter – they do – R+R, Kristen's magazine, students' project work – do matter, and our commitments to them matter too. But is to notice the ways in which narratives of outcomes and creative improvisation restrain, allow, and impact educator interactions with students.

Narratives of improvisation acknowledge that educators are also navigating deep societal and personal shifts, still figuring it out together, still confronting, and unlearning narrative frames that confine social educational practice. There are important pedagogical experiences here to acknowledge for teachers as they navigate worries, and feelings of loss, especially loss of certainty. Teachers do need strength in these moments as their craft has a tradition of having the right answers

and associated authority. As Stein et al. (2020) propose there is a shift here “from education for sustainable development to education for the end of the world as we know it” (p274). It is important to recognize that education for the end of the world as we know it and for emerging worlds is complex and layered emotionally and narratively for educators too. Blake helped me to work through another layer of worry I experienced in the program, again leaning into processual narratives of improvisation and iteration. In our interview, I lamented to Blake about a tension I felt between our team’s desire for R+R to be participatory and co-creative, and some pedagogical decisions I perceived as slipping back into old top-down instruction models. In response, Blake shared that this:

...comes with the terrain of the liminal spaces we’re inhabiting, right? We have one foot in the old and one foot in the new and where we’re improvising and where it’s going to look very different with each passing year, not only based on our cumulative experience, but the changing world around us. So, I don’t hold up any kind of pre-conceived notions of perfection that we measure ourselves against. That’s actually the old paradigm. I think the improvisational nature of this is so important, and to be gentle with ourselves and kind and understand that, of course, having a foot in the old and the new, which is the only way actually to make this kind of work possible right now, necessarily implies those tensions. And those can be creative tensions, right? They’re not just problems to be fixed and resolved. – Blake (i2)

Blake caught me in the act of attaching to a pre-determined outcome of ‘a participatory program,’ and guided me to a narrative of improvisation: that we were discovering the program through the experimentation of it, which inherently includes creative tensions between old and new, contrast between that which we do and don’t want that helps to refine future iterative practice. To let go of the idea that our pedagogy can and should be perfect, and instead embrace an iterative, ‘failing forward’ attitude. Echoing de Oliveira Andreotti & Stein (2022), Blake frames R+R pedagogy, like all social climate action, as only ever temporary – changing year to year with circumstance and iterative development – partial, and experimental. Blake’s framing of one foot in the old and one foot in the new paradigm embraces imperfection, partial and provisional experiences of desired futures/paradigms/pedagogy. Here I read this as a processual narrative of learning within creative tensions that are always evolving and changing, as opposed to storying these imperfections as solvable ‘gaps’ (in learning, in climate solutions) that are then endings, closed. It opens to iterative pedagogy, and to a narrative of education not as something that teaches how to fix the problem of climate change, but as a collaborative and creative container for shedding an old paradigm and figuring out a new through the practice of it, *with* the creative tensions that are/exist within and

between these twin processes. I find a lightness in Blake's account: it is playful, process not product focused, emphasizing learning and responsiveness to changing contexts, dynamics, and needs.

Improvisation, however, does not mean education without structure, it is the nature of the structure that matters. Gia and I spent time in our second interview talking about how the teaching team could have better supported student projects. As I sat with these proposed tinkering afterwards, I began to contemplate what pedagogical structures invite improvisational learning, and which impede it. While we have much to be proud of as a team, there was a lot of support offered and creative improvisation practiced; and our internal structures of support as a teaching team were unclear, and this limited the team's ability to engage with projects. Once student groups were created, I assigned two teaching team members to each student group as the core mentor-collaborators. However, we did not have a standard set of expectations for what that role entailed, nor how to introduce ourselves and our experience to students (Gia, i2). Lack of clarity and clear structure impeded our ability to engage with students. On the other hand, where there was structure, it was too rigid, expecting teaching team members to take on the same support roles and responsibilities with their assigned group. While we taught students to see the value of people holding different strengths coming together (see the next section in this chapter), the way we structured ourselves as a support team did not necessarily honour this – expecting each of us to do the same type of work shaping ideas, connecting networks, etc. which may or may not match up with our individual strengths. And, while some of us had time and capacity to actively reach out to students, many did not, and this unevenness was not accounted for either. This unrealistic structure impeded the team's ability to provide improvisational support.

All of this, alongside the newness of our collective practice, led to confusion on how, when, and how much to support student projects that was felt by the whole teaching team (Kristen, i2).

Box 4 Tinkering for Future Practice:

- Teaching Team:
 - Establish guidelines for supporting role in student projects.
 - Meet after student projects are chosen to brainstorm and coordinate support.
- Curriculum
 - Class time for students to hear about each other's projects, bounce ideas or challenges off of one another.
 - Once projects have been chosen, give space for teaching team members to introduce themselves to students and what they can contribute.
 - Explicit training in project planning and management.

Summary of points raised by Gia(i2)

Improvising can be messy; and, in our second interview, Gia named pedagogical choices we could have made to mitigate the mess, summarized in Box 4. The confusion, and subsequent suggestions offer practical tinkering for future iterations of R+R, and for other educator teams improvising social action projects. Gia's suggestions outline an active process of discussion and co-creating support that is responsive to students' particular projects. While guidelines can and should be in place, support structures are imagined as only semi-formed, emerging in process with students, and through improvisational practice.

6.2 Social narratives

In Rooted and Rising, such narratives of improvisation also position education as a profoundly social process, a collaborative and experimental practice in the social-ecological context of uncertainty. In this next section, I focus on the social narratives of collaboration in R+R that I purposefully position as counter-narratives to a largely 'individualized' climate change education, epitomized in such popular narrative frames as "reduce, reuse, recycle", and "the carbon footprint". In the individualized and dominant narrative, climate change is understood (for the most part) as an increasing atmospheric problem to be solved through individual resource management, and technological innovation. R+R took up an alternative narrative of global climate change as a deeply social context in which we breath, live, exist, flourish, struggle, resist together, and climate change education as also deeply social. I purposefully dwell on social narratives of collaboration, thinking with: (1) leadership as collaboration, (2) multidirectional teaching and learning, (3) teaching team as collaborators, (4) uneven contributions. I am curious how participants were invited into collaborative and collective responses within climate change, how these narratives were taken up in practice, and the language used in retellings of that practice. Collaboration seems ubiquitous in narratives of climate change action. Stakeholders, sectors of society, governments, citizens are all called on to collaborate, and analogously climate change education is also often characteristically storied as collaborative (though curriculum is largely individualized). From the very first article on climate change education, educators regularly collaborate with each other and scientists in climate pedagogy (Holman & Henderson, 1993), and students are increasingly engaged in collaborative, often project, learning with each other and/or experts (e.g. Monroe et al., 2019; Karsgaard & Davidson, 2021). Yet, there remains little reflection on collaborative pedagogy, including critical reflection on what structures and root narratives of dominant institutional education resist and disable collaboration. What curricular content and pedagogical approaches facilitate collaboration?

In this section, I explore social narratives of collaboration in R+R: which narratives brought participants together, eased and supported collaborative action, and which brought tension and resistance? Which re-assembled the climate change education social?

(a) Leadership as Collaboration

I begin my examination of R+R’s social narratives of collaboration and collectivism with a turn to leadership. As a leadership program, R+R explicitly pursues certain, collaborative, narratives of leadership over others, and this is exemplified in an explicit curriculum activity, Leadership Traits.

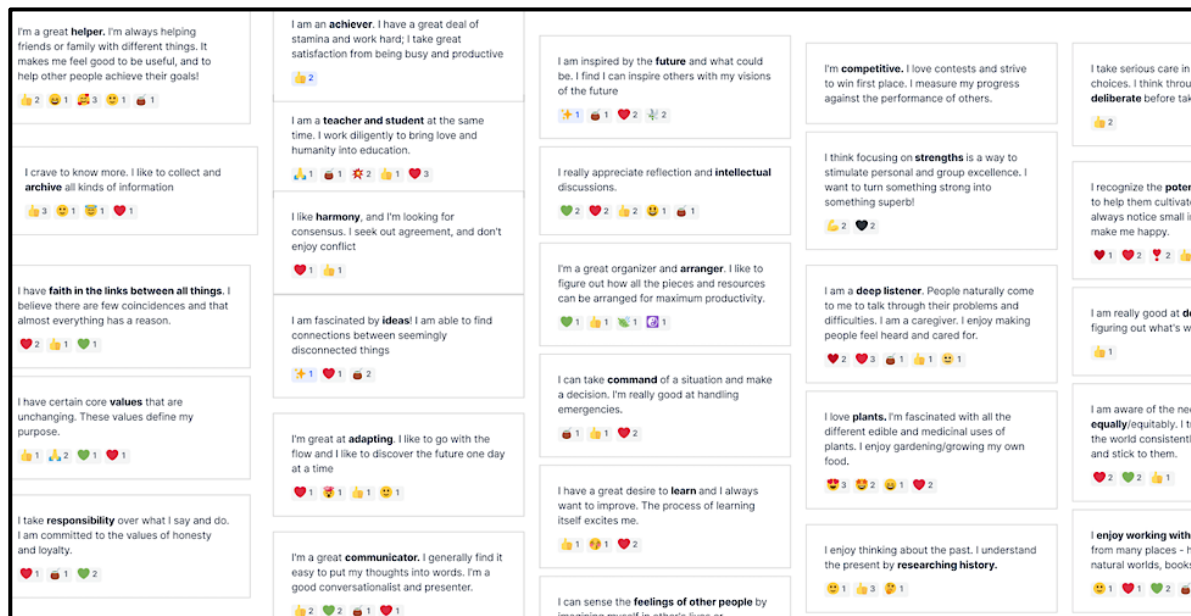


Figure 8: Portion of Leadership Traits MilaNote Board (Report, 2021, p.29).

In ‘Leadership Traits’ (Figure 8) students were introduced to a MilaNote board with over 40 different leadership qualities/strengths on it, adapted and greatly expanded from the leadership strengths test StrengthsFinder (Gallup, n.d.; personal notes). They were given time to read the list and put a publicly visible emoji reaction on the qualities they felt they had, followed by a robust discussion on what students thought and felt about the activity. The list was labelled ‘incomplete’, and students were invited to add to it, which they did (Report, 2021). Across the activity, leadership was re-storied as a social and collaborative practice in two ways: (1) from leading others to leading together, (2) from adhesive learning to self-discovery within a collaborating social.

Leadership as collaboration stands in contrast to dominant individualized narratives of leadership as control over others. Joseph C. Rost (1997), futurist and leadership scholar, wrote on what he saw as an emerging change from an industrial to a post-industrial narrative of leadership.

The industrial leader is a great individual (not ordinary), who possessing certain preferred traits, leads others to achieve excellent goals with high-order effectiveness (p.8). This narrative

...accepts a male model of behaviour and power...; it articulates utilitarian and materialistic ethical perspectives; it has been enveloped in a rational, technocratic, linear, quantitative, and positivist epistemology; and it asserts a managerial perspective... Leaders are active; followers are passive. Leaders are dominant; followers are subordinate. Leaders are in control; followers are submissive... Leaders are the elite; followers are the sweaty masses (Rost, 1997, p.9).

Add personability to the list ('the friendly empathetic leader') (Rost, 1997, p.9), and this can equally be labelled a neoliberal narrative of leadership as managing individuals for maximum productivity. Popular narratives of climate change heroes are still most often assembled within this frame, such as the brilliant scientific innovator and the exceptional outspoken activist who rallies the masses and speaks truth to power in public and confrontational way. This narrative of leadership are heroic reifications (often aligned with Hollywood-style fairy-tale endings) that also project fairy-tale climate narratives of "stopping climate change". Climate change leadership education too often reproduces this leadership narrative, assembled either as 'educating as leading' which seeks to 'educate the masses' and produce individual quantitative carbon-reducing action, or as 'educating leaders' which seeks to train individual leaders to inspire/direct/save the masses (human and other).

Rost (1997) argues that the industrial model of leadership is on its way out, and a post-industrial paradigm of leadership is emerging in which leadership is "a relationship" between leaders and collaborators who collaborate on "real intended changes" that reflect "mutual purposes" (p.14). Rooted and Rising's Leadership Traits activity aligns with this social-relational narrative of leadership. The activity was framed in a collective storying of climate change as 'all of our responsibility', and needing, as the popular saying goes 'all hands on deck' (personal notes). We reflected afterwards how students were "surprised and excited to see gifts that they had never thought of as possible leadership traits" (Program Report, 2021). The activity was presented with a list of celebrated traits that includes but also extends well beyond those ascribed to the industrial/neoliberal leader, to emotional, social, spiritual, and intuitive strengths oriented to care, community building, and collaboration (Figure 1).

The wide range of leadership traits were positioned within an already existing global and diffuse movement collectively seeking liveable flourishing futures. One student reflected:

I feel like I've learned a lot about myself, in terms of how I feel I fit into a movement. I don't necessarily feel like I'm the best person delegating or doing things like that, but I do

feel that communication is a stronger point for me and so learning how to use that in an effective way I think is really important. – Anonymous Student (Report, 2021, p.30).

It is a significant narrative turn that this student yearns to ‘fit into a movement’. It is not her communication skills alone that make her a leader, but rather adding to collective strength that could be used in collaboration with others who can say, delegate, towards mutual purposes. In my youth, I remember asking the leadership question “how do I start a movement?” in response to climate change; and here there is an important social shift to “how do I fit into a movement?” This is both a testament to the growth of the climate movement in the last thirteen years and an associated collective narrative shift towards collaborative leadership. Leadership as a collective, relational, and collaborative process works to re-assemble the climate change education social from individuals learning standardized skills towards a pre-determined end goal (carbon reduction), to an education social in which students are supported as they explore, grapple with, and cultivate their own unique leadership for and through social action. It shifts a narrative of changemaking too, from a saviour narrative (the individual who saves an endangered species or convinces the masses to change), to swells of individuals coming together in collaborative social action at and across multiple scales, within and alongside an already existing global movement.

This shift in narrative leads to a shift in learning processes too. Industrial leadership narratives invite adhesive learning, wherein students learn to become like the fixed image of ‘A Leader’ by developing a standardized set skills/qualities (in competition with others, to prove they are better/elite). Here, students are treated as objects of change rather than subjects *in* change (Alsop, 2019). Shifting into a relational and collaborative narrative of leadership invites a shift from adhesive learning to self-discovery alongside others, from object to subject. Samantha reflects on how her own narrative of leadership shifted in this activity:

I feel like, as with any process, we always want it to go from here to here, like ding, oh now I’m leader. I feel like I took a leap in the puddle... I always saw leaders as this cool club, and then this is me in the little club and I’d be like wow it looks so pretty. I feel like during the session, I saw it more together. I’d always be like, I want to be just like Roxy, she’s so inspiring. I want to be just like this whole teaching team, it’s just like wow, wow. And then, not to say that you guys went down, but I feel like it’s more like ‘oh ok it’s not separate’. I can be my own version... I always thought leaders had it perfect, but then I realized that – I think even – I don’t know if this sounds mean but even leaders need to think about their process and work on it if that makes sense... And I feel like having those conversations in R+R made me feel like we’re all trying to be leaders in this world, and I feel like our world is so strange. I feel like we’re grass. Some people grow like wiiisshh, and some people grow like wiiiiisshhhh, and we’re always like oh man that person is so tall. That’s how I feel, I’m like

the little grass that needs more food, like come on man. But then I realized we're all in the same field. – Samantha (i1)

Samantha conceptualizes leadership as an ongoing process of learning and growth, rather than a static achievement or a status to be reached. Her description disrupts the industrial/neoliberal narrative as she breaks from a yearning to be like particular role models to exploring her own unique version leadership. Samantha describes it visually as a re-assembling: leaders coming down from a pedestal she saw as separate and above/better than herself, to being in the same field, growing to different heights at different rates. In this new imagined social, all leaders are in a continual learning process; and Samantha can also story herself as a leader, growing at her own rate, collaborating, and learning with others. In this activity leadership is storied as a social collaboration in which an individual contributes their unique strengths, not as something an individual does to/over others.

(b) Multidirectional Teaching & Learning

In interviews, students offered their interpretations of Rooted and Rising's pedagogy, and how it differed from their institutional schooling experiences. One key difference named was Rooted and Rising's attention to multidirectional teaching and learning that resists traditional teacher-student binaries. Clemi (i2), for example, reflects:

I do think R+R inverted that structure, and it felt very much like we're not being talked at, this is very much a teacher-student symbiosis where we are both learning, and we are both teaching each other, and I really felt that in this course... There were so many moments in class where it was encouraged for people to have open conversation and for people to share how they're feeling, ...a lot of opportunities that really went back and forth. – Clemi (i2)

I love the language of symbiosis that Clemi engages to reflect a felt two-way process of teaching and learning. Symbiosis was felt in the everyday invitation for open dialogue in class that conveyed the teaching team's interest in learning from and with students. Samantha (i2) shares her perception of the student-teacher dynamic in Rooted and Rising too:

You know how we're all a circle and it's not like usually in the classroom where teachers are up here, and students are over here and facing them. The fact that we got to face each other each week, it made me be like 'oh hi', and it made me think about how beneficial learning is when it's done collaboratively, and I really appreciate that... when we're all in a circle, facing each other being real and just sharing collaboratively, I felt so trusted. Not trusted, I felt so – I guess trusted. Like we're all in this together, high school musical type thing. I never had a class distributed like that, and it was really cool. I wish more classes in school would be like that, or even work or whatever. – Samantha (i2)

Samantha's account highlights the affective learning of this pedagogical approach: she felt trusted. This is significant in the context of a dominant Western educational frame that positions students as needing to prove themselves to instructors. It is also significant in the context of leadership, in which feeling trusted as an emerging leader builds self-confidence and self-trust. Pedagogically, trust – as in any collaborative effort – further enables students to feel safe in expressing their thoughts and ideas, taking more creative risks, and trying more innovative approaches without fear of judgement or negative consequence. Samantha's description of the R+R classroom as a circle is an aesthetic storytelling of this felt trust and collaborative approach; because for the most part, the actual arrangement of people was facilitated by Zoom, that presents people as square images in a grid (though there is also no hierarchy here, all images are equally sized and grided together). We arranged students into a circle only a few times in the opening ceremony, and a few early classes where an image was displayed with everyone's name in a circle to facilitate discussion in which each person has a turn. So that Samantha describes R+R as a circle is significant both as a marker of the effects of early program arrangements, and because it reveals the affective and implicit assemblage of the program as experienced by Samantha. No matter the seating arrangement, students and teachers were pedagogically arranged in circle, in which each had something to share and learn.

Clemi (i2) shares that she learned from her fellow students too, suggesting multidirectional learning encompasses teacher-to-student, student-to-teacher, and student-to-student. Student-to-student learning can take the form of direct instruction, but it can also take the form of witnessing – another collaborative form of learning experienced and storied in R+R. In student interviews and interactions, I became more aware of how students were learning and re-imagining social narratives of self by witnessing their fellow students, and the different perspectives, experiences, and ways of approaching climate change they carried. All four students interviewed spoke with me about how they learned with/from each other in class, whether from hearing about vastly different life experiences with death, reading a classmate's political theory, or witnessing other students choose projects that they themselves never would have thought of (Field i1 and i2; Samantha i1; Clemi, i2; Claire, i1). Field (i2) shares:

I think diversity is one of the most healing things. So being in a group where it was really dynamic and just seeing so many different versions of how we can be alive, and how we interpreted the project prompts, and the directions that you are leading us in and feeling us through in so many beautiful and aligned ways that were so different. A real diversity of tactics there and just witnessing other people do things. I totally would never have done something like that, that's really bizarre, and also, I accept that's how you are. And then I see myself with more compassion. And then that makes me realize, oh how I do things is very

valid too, even when it's something I've never seen before, if this is just how I move. And I think this is probably one of the biggest healing ways we can combat in capitalism, which is like you need things to be copy-paste for capitalism to work. – Field (i2)

Witnessing others helped Field to expand their imaginative capacity for what else is possible as they encountered other ways of living already being activated and lived by fellow students (Field, i2). For example, Field (i1) shared how listening to other students who have experienced a small fraction of the death that they have in their life, stirred a recognition that this is a possibility, that there could be a future in which their communities were healing, and death was more infrequent. There is another aspect of witnessing too: in witnessing and extending acceptance of others, Field was able to extend that acceptance back to themselves. Reflecting a design principle of nature that diversity is key to any healthy ecosystem/biome/community, Field declares that 'diversity is healing'.

Students and teaching team members also reflected on what it was like to witness others on the second last day of class, when students presented on their projects. These presentations took place within a program that repeatedly and explicitly emphasized social narratives of collaboration and collectivism. They were also supported by implicit social narratives: projects were not graded, nor were they pitted in competition against each other for funding; and I believe this set the stage for supportive witnessing in project report-backs. Samantha (i2) shares:

When we got to share our projects, even though some, like mine, wasn't done yet, but that's ok. Everyone was so passionate about their projects, and I found that so beautiful because it started from a map and then it actually became a physical thing – I think that's so crazy, that's so cool. And the fact that we don't all personally know each other like that but we were able to create something beautiful I think that was really, really cool. – Samantha (i2)

While Samantha's group didn't succeed in creating a finished product, she still experienced that day with curiosity and excitement. Her account focuses on the students' collective process from meeting for the first time in the program, to creating, or at least working towards creating, something tangible. I can't help but notice how different this reaction is to social comparison, negative self-talk, and jealousy that would have been a likely reaction within a dominant root educational narrative of individualized competition. Samantha instead celebrated and drew positive affect – a sense of possibility and collective efficacy – from witnessing the efforts of her peers. Kristen (i2) too recalls that the presentations felt “almost more important for them” than completing their project:

They just came alive when they had the opportunity to talk about what they're working on ... Whether completed or not, I just remember that magic of witnessing them talk about what they were working on and being so proud; and being so blown away that my own expectations just didn't matter in that moment. You were just witnessing them, activating,

and thinking, and having the opportunity to speak about something that they were championing. That was really cool.’ – Kristen (i2)

Kristen’s account of her own and students’ awe during presentations privileges the process of collaborating in projects over the end-result. My own notes from the day reflect that students were not just witnessing but actively celebrating each other in the Zoom chat: lauding each other’s efforts, offering statements of awe and motivation. One student group had pursued a political advocacy campaign and really didn’t get very far in their efforts; but, in presenting back to the group, they reported on a meeting they had with a politician where one of the youngest students in the program challenged the politician in a powerful and policy-backed statement that shifted the politician’s approach to the proposed campaign. The other students were in awe at what this student had done (“wow I can’t believe you said that to him!”), cheering and celebrating his efforts. This project group could have been labelled a ‘failure’ when examined as an individual project; but students did not leave this project lingering as a private endeavour. They actively socialized it into the collective, drawing inspiration from the story and collectively co-creating the meaning and significance of this project. Witnessing was a form of social learning for students, a learning that supported them in part to re-configure their own self-images. In the context of project-learning, it provokes inquiry into re-socializing project learning and its assessment.

(c) Teaching Team as Collaborators

The teaching team also collaborated with students in their social action projects. This pedagogical choice contrasts with an approach to project learning in which students self-organize, conduct their project-work almost exclusively outside of class time, and present their work back for assessment by the teacher. It also contrasts with what is found in some social-enterprise style climate leadership programs, in which individual students develop an idea over the course of the program and then present their project ideas to a panel at the end, who select 1-3 projects to receive funding for implementation. Both models have clear separation of who is doing the action – and it is not the teachers. Rooted and Rising took a different pedagogical approach that, following processual narratives, orients to the collective context of climate change and the liminal space of learning in the midst of systems change. Below, I re-search for how the teaching team collaborated in these projects through realistic re-imagining, connecting community, and coordination assistance.

(1) Realistic Re-imagining: the teaching team offered a collaborative intervention during students’ project ideation phase. Preserving students’ vision and leadership but offering pathways to

more realistic social action, the teaching team recommended refinements to student ideas that accounted for the short one-month action timeframe of the program, and the capacities of busy students in a pandemic. Gia(i2) reflects on the need for such an intervention:

I remember especially having this problem in university. I just don't understand the scale of a project because I haven't done it before. And so, I'm liable to bite off a lot more than I can chew. I think maybe that's really a big thing actually that may be needed for young people. I mean, there's a balance, because...the climate crisis is a big problem. I want to say, "take it in manageable, bite-sized pieces", but I don't know if it ever is going to get broken down into manageable bite sized pieces, right? But, acknowledging that, even without leaning into some kind of cynical pragmatism, we can be strategic in the choices of what we undertake in any given moment. – Gia (i2)

They highlight the educational need for realistic re-imagining in the era of climate change as two-fold: first, the simple fact that young people tend to dream big but have limited experience with which to conceptualize the scope of their ideas; and second, that within the vastness of interconnected global crises, and the large-scale changes activists envision, it can be challenging to focus in on small-scale strategic ideas that still contribute to the larger vision. Clemi tells of her experience collaborating with the teaching team through realistic reimagining. Their project – a short film documenting an afternoon spent with two artists conversing on clay-work and healing – was born from a much larger idea. At first, students thought to form a partnership with a ceramics museum and create a new arts program for BIPOC youth. Kristen and I met after they first imagined this project, and brainstormed a possible smaller-scale version that could be completed within the timeframe and capacity. We suggested it to the students, and they embraced the idea, adding the film component (Clemi, i2). Clemi shares:

It felt very natural. It didn't feel like we were radically shifting our approach, it just felt like we were super big picture, and we had no idea the magic of 'here's a steppingstone'...It went into this space of, yes, sometimes being present is better than getting glued to an idea. If we had gone ahead and tried it, I'm sure we'd have accomplished something...but maybe we wouldn't. This felt like we had actually accomplished something by physically feeling what that connection would be in the future. Because we were there, we experienced it. And we know for a fact now that that feeling of being in that space is something we want to share with others. It was 2 pronged: 1) we got something out of it that was doable and a deliverable that put us on our path, but 2) we also really just solidified that it was something that was meaningful, that was important. – Clemi (i2)

I like Clemi's description of 'steppingstones' as attending to students' visions in practical and affective ways, creating a realistic goal that also gave students the opportunity to feel into their larger social vision. There is also a provocation for education as a practice and an embodiment of desired social action, ways of relating, and futures, which is explored in the next chapter.

(2) Connecting to Community: Second, the teaching team collaborated in student projects by connecting students with our community networks who could actively support their actions.

Kristen, who holds particular gifts in this form of collaboration, describes the process:

I felt like I really supported them [in] connecting community, which is choreographing like-minded folks who need to meet. Not needing to necessarily directly be involved, but just be the bridge. – Kristen (i2)

I like how Kristen stories it as a process of bridging and choreographing that brings people together in improvisational collaboration. In R+R, educators opened their own personal circles of community to students and welcomed them into a wider network of social action with mentors who can support them and collaborate along the way. It destabilizes a separation between teachers and students in a hierarchical model, and leans into a story of trusted, capable young leaders collaborating with(in) a wide network of social action. This turn to educators as collaborators aligns with Verlie's (2017) argument that educators' role in climate change is "assemble entanglements in which students might become more response-able to create different futures with the world" (p.27). R+R's teaching team worked to assemble, to choreograph students with community connections who could collaborate, extend, and support students' response-ability to act. The Clay group's experience is one expression of connecting community in which students were introduced to individuals who held aligned visions, and could offer their knowledge, craft, and space to further student learning. Field acknowledges how different this was than typical school project work, sharing "you and Kristen really pulled through with your connections ...and making sure it – well people can do amazing efforts – but making sure it goes above and beyond, and plugging in exactly what was necessary for it to sparkle" Field (i2). Field's experience mirrors Kristen's description above, it was not about directing students, but about bridging then to the right supports to 'make it sparkle'.

The Strawberry group offers another example of a student project that engaged the teaching team's community connections. This group planted 40-50 strawberry plants for their project, and created a time-lapse video documenting the strawberry teachings they gathered along the way (see [Appendix E](#)). The strawberry planting was not an isolated act but contributed to a community-led land restoration and Indigenous-sovereignty project that one of the students and a teaching team member worked on together outside of R+R; and as such, these students' social action was embedded in a community collaboration co-led by a teaching team member. After the students planted, they were interested in exploring public signage to document their efforts, and another

teaching team member, Sarah, brought a scholar in from her network to talk with the group during an in-class project work period. Sarah describes the conversation as “generative”: “I remember that they had a time where they could take a break, but we just skipped the break because we were talking so much” (Sarah, i2). The visiting scholar challenged students to re-imagine a ‘sign’, offering insight into the colonizing ways in which signs have been used to convey information and ownership. The discussion led to students creating the time-lapse video – orienting their public awareness piece not to what they did but to the wisdom held in strawberries, and to their own personal search for connection with ancestry, the land, and Indigenous peoples (Sarah, i2). Sarah’s connection deepened personal significance and critical reflection for students, suggesting that the pedagogical role of connecting community is about deepening reflexivity as well as bridging students to individuals that can fuel their tangible action.

(3) Coordination Assistance: Third, the teaching team offered coordination assistance in student projects. I took on the majority of this role, coordinating with multiple groups and the overarching project process that mirrored my role of coordinating the teaching team, alongside student support throughout the program. My notes from October 24th when projects began until the end of the program are filled with my own to-do lists and notes from student-project meetings. I texted students to encourage them to meet, attended multiple group calls outside of class time, and reached out to other teaching team members to check on the groups they were supporting. I completed project administrative work too, reimbursing receipts and e-transferring honoraria.

Kate(i2) reacted:

I can only imagine the amount of work that went into it for you, but that's also a beautiful commentary on the student-teacher relation, right? It is a collective response and you're there and supportive... Although it's exhausting, like although you're taking a lot on. – Kate (i2)

It is undeniable that the personal resources and time commitment I contributed along with other members of the teaching team went well beyond what is typically expected from a course instructor. It opens a very practical inquiry into re-resourcing education and educators as a part of the re-socializing of education as/in a collective response to climate change. Through realistic re-imagining, community connecting, and coordination assistance, the teaching team stepped into collaborative roles in student projects, not leading, but guiding, connecting, and assisting youth’s collective social actions.

(d) Uneven Contributions in Student Collaboration

Particularly within an education system structured by individualized and comparative assessments, group projects can be stressful, frustrating, resentment-building. In climate and social justice organizing spaces too, collaborating is an inherent element of social action (McKenzie, 2021), and yet the minutia of collaborating with others can unravel into destructive conflict. It was part of why I was first drawn to education, as I saw (and contributed to) interpersonal dynamics collapse multiple organizations and collectives of which I was a part. Upon reflection, I can see that we were reproducing in our actions and the way we came together as a social, the very narratives of competition, social comparison, hierarchy, and individualization that we resisted with our words. And so, when Clemi shared with me in our interview how they collaborated with their project team, it felt both personally and practically significant. In her retelling, Clemi did not reproduce competitive narratives, but rather collaborative narratives of leadership and action that were emphasized in R+R. There were four students who made up this particular team, and like so many student projects and collaborative endeavours, not everyone put in the same amount of work. When I asked Clemi if it was a challenge, she shared:

I think that the team was solidified through Field and I, and Field really made a conscious effort to schedule calls with me. In the beginning, we both reached out via email to all our teammates, but I think at the start they weren't able to hop on. And then there was 1 or 2 brainstorming sessions where Melissa would come on. And her role was really like, 'I'm here, here's what I have to say', and Field and I would be like, 'that's awesome, integrated, thank you so much.' And it goes back to presence. I think it's shifting my perspective on what team dynamics actually have to look like. Not everyone needs to be doing what we ideally think about being an equal workload. Because it's actually very important to have people that when they show up, and they're like 'here's what I have to offer, and here's what I'm able to do'; and be very forthcoming about that. There wasn't any expectation that Melissa would be able to send out all these emails ... because she said, this is my passion this is what I'm able to do. So, when Melissa would show up, we would listen. And then, when I asked her to provide a written piece to include in our email, she did. So, it was a very transparent relationship which made it so easy to work as a team because there weren't any expectations... And then with Claire, when they showed up to talk with you it really helped solidify what our options were, and they were able to help out more with the email side...

And I think that's why the team dynamics worked out so well, because that's the environment that's been fostered through the Rooted and Rising program. It wasn't like any of us were struggling to incorporate ourselves or there were doubts of am I doing enough. Or someone would reach out and be like 'oh I feel so bad' and I'd be like 'no, there's no need for that because we are all doing what we can, and some of us have more time than others and that's ok'. It's ok to let people who have more time do a little bit more. That's totally fine and in fact that's what allowed the project to come together so well, was just everyone showed up within their capacity and didn't overextend themselves. We worked

through whatever feelings of guilt or shame that arose. – Clemi (i2)

It was a joy to hear about Clemi's experience, and her interpretation of the collaboration that happened in her team. I find it important that Clemi identifies how a narrative of 'equal work' does not support collaboration. She resists a popular educational narrative that 'students *should* be contributing equally to a project' [to justify getting the same grade] and offers instead that 'a project works in part because some people have more time to commit to it', and collaboration works when 'everyone shows up within their capacity and doesn't overextend themselves'. Students navigated the emotional aspect of this re-storying, helping each other work through negative emotions of guilt and shame that came up. Clemi's account of team dynamics pushes beyond the binary of a hierarchical or equal-work social assemblage and leans into an embrace of whatever individuals have to offer towards a shared purpose, with one or two individuals who can maintain the momentum and direction of the group. This is a popular arrangement in grassroots collectives as well that is often chastised – there should be more equality, more power sharing – and yet Clemi re-stories this assemblage not as unjust but as just within the chaotic, uneven, and unjust world in which we act. Clemi chose to guide and understand her own team through R+R's social narratives of collaboration using the language of contributing individual gifts into collective social action to effectively navigate uneven contributions in her group.

6.3 Narratives of Planetary Healing

In the previous chapter, I presented narratives of interconnecting, pursuing the various ways that interconnecting was valued, attended to, and sustained in and through Rooted and Rising. Here, return to narratives of interconnecting again, specifically the interconnectedness of human and planetary healing and wellbeing. I turn to two student projects who worked with clay and strawberries respectively to explore how narratives of interconnecting were taken up as social action by students in their projects, which I refer to here as narratives of planetary healing. The term 'planetary health' has gained prominence in health scholarship, offering language for sectors of public health to engage with climate change – embedded in the term is a recognition that human and planetary health are interconnected. While there is overlap, here I focus on the unique context of Rooted and Rising, and I engage 'planetary healing' to specifically address narratives unfolding within this educational program. In broader terms, planetary healing as engaged in this text is different to 'healing the planet,' which decentres the planet, and instead centers the healer and the

healing (and human agencies). Agencies of healing can't precede or exist outside of planet but always – of course - take part within/as the planet. Both student projects, Strawberries and Clay, worked with Earth/living beings in the explicit pursuit of planetary-human healing, re-storying their social world to be inclusive of land/water/nature/all living beings. Their projects, which both produced films documenting their experiences, actively resist an ontological narrative of human/nature separation.

While recent discourse acknowledges that this divisive narrative of human/nature separation is a root narrative of Western thought and of the climate crisis, educational narratives of environment and climate change often remain ensnared within this storied divide (Bowers, 2001). This root narrative of separation shapes environmental narratives and subsequently environmental education narratives of conservation and restoration. Espoused in such popular sayings as 'save the planet' and 'save the bees', narratives of conservation and restoration largely maintain a story of autonomous humans acting on nature, with nature storied a non-agential resource or public good for human survival and wellbeing, and/or as a victim of human action (Bowers, 2001; Hulme, 2011). Student projects with clay and strawberries offer counter narratives of human and nature collaboration; of planetary healing *with* the natural world that symbiotically contributes to the healing of people and planet. The strawberries group began with an intentional action of planting strawberries to heal the local ecosystem which extends to personal and collective human healing (spiritual, ecological, psychological, social, and political). The clay group sought to create space for youth to work with clay and heal from intergenerational trauma, evoking a conversational relationship with clay as co-creator, and co-healer. Student projects avoid conceptualising humans and strawberries (and humans and clay) as independent healing entities. The healing that emerges - significantly - doesn't pre-exist the project entanglements but emerges during these entanglements. So, within these projects healing is togetherness, thereby offering opportunities to reflect on and move beyond human-centred-climate. So much climate change education prioritises climate action in unquestionable humanistic terms. In contrast, these projects invite narratively reconsidering climate change and responses as entangled humans, more-than-humans and climatic processes, whilst being clear about human agency and responsibility for the climate crisis. The politics of this shift are complicated. Across both projects I am interested in how students talk about and present strawberries and clay, and how they story their relationships to them, the wisdom and perspectives students draw from these living beings, and the aesthetic choices made in their films.

(a) Planetary Healing with Strawberries

For their project, Nasir and Zara planted 40 to 50 strawberry plants along the Humber River, contributing to an existing ecological restoration and Indigenous sovereignty collective (Young Lives Research Lab 2021). As explained earlier in this chapter, the collective was co-led by a teaching team member, Doug, and Nasir was already a contributor; and so, for his project, Nasir invited classmates to join him in a specific action that contributed to this ongoing collective work. Doug joined them on their day of planting and shared knowledge about the strawberry; and afterwards, Nasir created a timelapse video of himself drawing and talking about the strawberry teachings they gathered that day and in their own research, connecting it all to his own ancestry. As shared in the last section, the film was intentionally focused on the strawberry, not on the action students did on the land (a.k.a. ‘saving the ecosystem’ by reintroducing strawberries as a natural ground cover). The film put the strawberry at the subject, exploring its many meanings and ecological offerings, and students were positioned more as helpers – they helped the collective, the strawberry, the forest, by planting the berries, but it was *odei’imin* (strawberry) that was the agential hero of the story, healing people and land. It was a reciprocal collaboration between students, strawberry, and forest that co-created healing – students plant strawberries, the forest supports their growth, community and strawberries support the forest’s long-term health, and the strawberry offers humans (and other creatures) sustenance, medicine, and lessons for a good life.

Their action was also deeply political. Though founders of conservationism and national parks in Western thought resisted a complete annihilation of nature in the new world, they still maintained an Enlightenment premise that “mankind’s mission was to subdue and domesticate nature” (Lowenthal, 2000, p.6); national parks were very much a tool of the colonial political project, serving as a means of taking land from, and attempting to erase, Indigenous peoples. Modern ecosystem restoration efforts often maintain this Enlightenment narrative, pushing an image of the restored and conserved ecosystems as the absence of human culture/structures (that is only imagined as destructive or null). The ecosystem restoration that students contributed to in their project was of a different ilk: it contributed to an existing collective committed to the long-term restoration of that area of land, which includes a return of Indigenous sovereignty expressed politically through restoration efforts without colonial-government approval, and spiritually/culturally/architecturally through the establishment and use sites for consistent community gatherings in (healing) ceremony. In this context, restoration of planet and culture is

interconnected, with students' planting work contributing to a wider social action interlinking ecological, political, and spiritual restoration/healing.

In their film, students turn to the Ojibwe language and traditional stories to learn about the strawberry plant they placed in soil, and to come into relationship with it. Their short film begins:

The word for strawberry and Ojibwe is de'imín [Ode'imín]. De'i meaning heart and min meaning seed. The literal translation of the berry in Ojibwe is heart seed. It teaches us to always speak from the heart and be connected with ourselves in the center.



Figure 9: Screenshot from *Strawberry Time-lapse Video* (Young Lives Research Lab 2021)

We were also taught that the first strawberry sprouted forth after two brothers continued to fight in the woods or wrestle in the woods even though their mother had told them not to as they were growing up now and were adults in this wrestling. One brother ended up harming and killing the other. And years of mourning later, a strawberry plant grew forth from the departed brother's grave to help with the mourning of the others. (Kahn, 2021).

The film is sped up like a time-lapse, but the pace of speech and drawing still offers a sense of slow contemplation. The viewer watches as Nasir creates a collage of the brothers, the strawberry, the pollinator – storying these beings as co-existent with a shared social-ecological context. In the short introduction quoted above and the dialogue that followed it, there are many layers of ecological and spiritual-ecological wisdom that I would like to briefly reflect on here, beginning with the Ojibwe name for strawberries, heartseeds, and some of the medicinal, spiritual, and ecological wisdom contained in this name.

Like the heart pumping blood through our systems, strawberries help bring and sustain life in the woodlands/savannah/swamp. They are the first to flower, offering first sustenance to pollinators after the winter; and as the first berry and early food source, they offer further first sustenance to humans and other animals (Young Lives Research Lab, 2021). This is true after a fire too, where strawberries and other berries are among the first to re-appear and feed a scorched forest (Turner et al., 2011). The students' film hints at this ecological truth within the linguistic wisdom of Ojibwe, in which “fire connects with strawberries; they share the word for heart between them” (Young Lives Research Lab, 2021). The name, ode'imín (heart seed) also carries medicinal wisdom: strawberries are a “valuable blood remedy”, purifying and building the blood that pumps through the heart after winter stillness, long understood by the Haudenosaunee Confederacy (Cook, 2019).

The name also carries spiritual and moral social reminders to ‘speak from the heart’ and to stay connected to your inner self (Young Lives Research Lab, 2021). Remembering, as Mercurieff (2019) shared of Unangan elders, that to “speak of the ‘heart’” is not “mere feelings, even positive and compassionate ones, but...a deeper portal of profound *interconnectedness* and awareness that exists between humans and all living things.” To speak from the heart is to activate this portal, again storying human and planetary healing as deeply interconnected. The story of the first strawberry extends this interconnected awareness of healing, as the strawberries appear after years of grief, collaborating in healing the brother’s heart. The story offers wisdom on processing grief, acceptance, and reconciliation, sustenance after mourning, and on the often-difficult transition from youth to adulthood.

Nasir also weaves in narratives of personal significance, reflecting on cross-linguistic/cultural connections between his ancestral language Arabic and Ojibwe, a language of the lands on which he now lives. Nasir shares: “Ishk ode in Ojibwe is the word for fire. And Ishk is the word for true love in Arabic.” Ishk offers a linguistic bridge through which Nasir is able to story a meaningful connection between cultures, languages, lands, and epistemologies. Nasir concludes the video by sharing:

This project has taught us that there are connections between our past, and our present, and our future anywhere we go.



Figure 10: 2nd Screenshot from Strawberry Time-lapse Video (Young Lives Research Lab 2021)

Mirroring Doug’s framing that home is in the heart through which one can connect with the land and Original Peoples (see last chapter), the heart berry was a teacher in Nasir’s learning journey of connecting past, present, and future across place, through and in the heart. Nasir’s cross-cultural/linguistic learning opens provocations for education in the era of climate change: how might students and educators draw on ecological-cultural wisdom found in the languages and traditional stories that students can carry in their ancestry and in those of the Original Peoples of the territory in which learning is taking place? How might education collaborate with the strawberry in creating space and support for student grief? This project offers further provocations for reassembling the educational social to include other ecological beings that can teach and support young people in locating themselves socio-culturally, linguistically, cross-culturally, ancestrally, bio-

regionally, and within a complex history of colonialism and global migration. While this project created space for this one student, I am curious how future iterations of Rooted and Rising could/should be more intentional and thorough in supporting students to locate themselves in relation to land, ancestors, treaties, and sovereign Indigenous Nations.

(b) Planetary Healing with Clay

Planetary healing is an emergent phenomenon, an interplay of personal, intergenerational, community, and ecological healing. As expressed in Strawberries, planetary healing is not simply about healing the planet/ecosystems, or healing people/self, but rather an interconnected symbiotic healing. Healing self/people is interconnected with healing land/planet, each feeding the possibility of the other. I turn now to a second student project, Clay, that dives deeper into the themes explored in Strawberries, this time, turning focused attention to the dialogic nature of planetary healing – exploring what it means to come into healing and co-creative conversations with clay. It explores the language of clay and the nature of conversation with it, healing from intergenerational trauma, and healing from narratives of waste. For their project, Clemi, Claire, Field, and Melissa, created a short film entitled “Co-Creating in the Climate Crisis: Clay Project”, documenting a day they spent with two clay artists as they worked with clay, made incense, and had conversations on healing and climate crisis. Below, I reflect with the students’ film and Field’s supplementary comments from interviews. All quotes are from the film unless marked otherwise.

Their film stories clay as a material that is at once earth and ancestors, an active participant

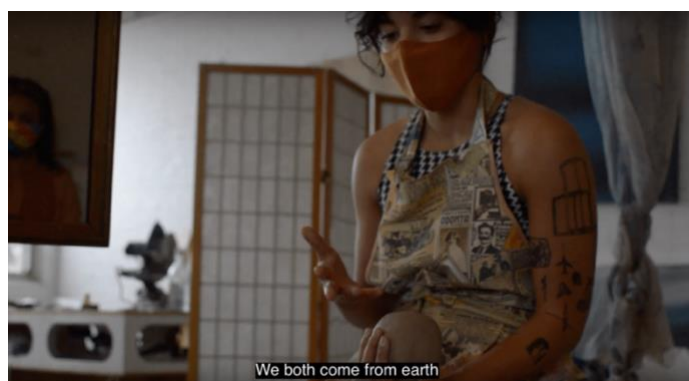


Figure 11: screenshot from “Co-Creating through the Climate Crisis: Clay Project, Rooted and Rising”, Rooted and Rising, 2020

in conversation and co-creation with the artist. Clay is described as a mix of all of the elements, “earth, water, air dries the piece, fire in the kiln turns it into ceramic.” Humans and clay are storied as kin, “we both come from earth.” This is ancestral too: as bodies once again become earth, clay is “literally the body of our ancestors that we still get to have a conversation with” (Field,

i2). Coming into conversation with clay is then also coming into conversation with earth and all the elements that make up life, and one’s ancestors. One featured artist adds an additional layer, describing clay as “a mirror...[that] reveals when you’re tense and when you’re not feeling so good,

and when you're resistant to yourself." A conversation with clay is also a conversation with self, offering a moment for self-awareness. Field (i2) elaborates:

different materials have different densities and properties. And clay speaks its own language. Watching Nadia work with clay... just like a lot of people who are super dear to me have that kind of conversation with clay and therefore have a conversation with yourself too. You really have to listen. If you're not listening, nothing is going to happen. – Field (i2)

What strikes me about these reflections is that the language of clay is not a verbal/intellectual one – though it can be (partially) verbalized. It is an intuitive conversation with clay as an embodiment of one's own thoughts and feelings, earth, water, air, fire, spirit, and ancestors, that begins with listening. But it is not just intuitive, it is a physical language that is communicated through the body. One featured artist shared when working with clay, you “lead yourself through your hands, the material, and then your intuition”. It is a three-way conversation between body, material, and intuition/self; body-to-body(earth) communication.

Working with clay invites a slowing down, and intentionally connecting through the body. Field (i2) speaks on the significance of this kind of communication as it pertains to healing: “we have our brain here but then we have our nervous system going through our whole body,” that also holds memory and pain (Field, i2). They use the metaphor of an octopus's body to explain more:



Figure 12: 2nd screenshot from "Co-Creating through the Climate Crisis: Clay Project, Rooted and Rising", Rooted and Rising, 2020

30% of [an octopus's] brain is in a donut around its head, and 70% of its brain goes through its arms, and so each arm thinks independently. Our nervous system extends into our hands and our feet, and how much do we get to engage with them in a healing forum? So that's healing too, to have a conversation with your own hands, your own limbs as materials and to really physical process that and move through it. A lot of people have cancer or excruciating unexplainable pain in their body that is a trauma passed down to them from their ancestors or earlier in their life. You can't speak that; it has to be

physically worked out. – Field (i2)

What Field offers here is a somatic account of pain and trauma held in the body that can be passed down intergenerationally. Clay, as earth, as ancestral body, is storied as an active medium that can hold this physical process of communicating – getting in touch with and processing grief, trauma, and pain from one's one life and ancestrally. The film visioned ceramic “studio space available and accessible to creators”, precisely to increase access to this somatic healing conversation; and specifically for BIPOC youth, who, as Field (i2) shares, can have more pain than can be “processed

in words”. Field’s reflections make me wonder about somatic climate change education, and how education might hold space for processing that which is stored in the body and is beyond the reach of words alone; to pedagogically consider the body as another dimension of each student, that may be storing memory, trauma, pain that the conscious brain may not be aware of or ready to process. Like in symbiotic restoration with strawberries, people, and forest, here, education and educators ought not feel alone in the responsibility of facilitating learning as healing for/with traumatized students. I am left thinking of how educators might turn to clay, and other creative materials of the earth as collaborators, facilitators, and embodiments of planet, ancestors, land, interconnectedness?

There is another narrative of planetary healing within these clay conversations that looks to a planet in need of healing from an excess of human waste. The film sparks reflection on consumerist habits and industrial production chains as colonial, naming the very concept of waste as a “colonial construct”. They resist the concept of waste, positioning it not as an objective fact or a problem that must be solved, but as a story that can itself be transformed and remade. Students propose clay work as a means of disrupting a narrative of waste and the patterns and behaviours of production and consumption it shapes. Clay-work is presented alternatively as a mindful curation of objects, referring both to the process of making clay into an object, and the subsequent relationship with that object. Field explores this more:

Every time you spend time with that object you build a relationship and reinforce that positive moment you made and spent time creating this form. I think that’s the antidote to consumerism. Right now, living in spaces where a lot of objects are just birthed without much intention other than utility and money, and that’s what capitalism is teaching people – to not even respect youth and children and elders once they have finished their productivity or haven’t reached it yet...which is gross. And so as opposed to being like, 'I have this clay. I don’t know what it will turn into but let’s just talk and listen and see how I react to it. When it’s done, it’s like ‘oh my gosh it’s a bowl, that’s how I’m feeling today.’ And then you paint it and transform it again and then transform it again and once it’s done it’s a bowl or a vase that I just spent hours with – what’s their best life? You can do that with people and everything else. – Field (i2)

Field likens the construct of waste with a capitalist valuing of humans only or primarily in terms of their productivity and profit. Their comments echo a planetary narrative described by Linda Hogan (1995:89) as “what happens to people and what happens to the land is the same thing,” and extends this to objects as well. They contrast current trends of consumerism and big-supply chain production mired in waste, pollution, and carbon emissions with intentional ceramic co-creation. In intentional co-creation, there is an intimate bond formed with the object, which comes to embody the healing conversation and co-creative relationship cultivated with self, body, earth/clay. With

each use, in the “daily sacred rituals of eating,” a sense of connection with object, intuition, body/planet, and the interconnectedness of all things is re-activated. This relationship with an object, mindful curation, disrupts the hedonic treadmill of consumerism; and offers in its place fulfilment through a daily practice of sustaining and deepening relationships, and the intergenerational and somatic healing stimulated in its creation.

Clay-work reimagines waste in another way as well. In the film, artists explain that the concept of waste does not exist in clay-work. It’s not that clay work is free from generating excess material, or muddied water; but that everything gets recycled, and remade; and therefore, nothing *is* waste. It is a re-storying of waste that Claire reflected on in our interview as well. Claire used to “go free diving in the ocean and just pick up plastics here and there”, and as an industrial designer, she found herself asking, what can be made with this? She reflects that while “some would say ‘oh that’s garbage why would someone use that?’ But if you’re able to translate it in a form that doesn’t look like garbage then maybe you can tell another story around it”. For Claire repurposing waste is a form of re-storying that transforms waste into “excess material”. Claire uses the language of ‘excess material’ and ‘new forms’ instead ‘waste’ or ‘garbage’ to enact this re-storying. Like Field asked above, Claire also interacts with waste not as an end product but as a material, asking what can be done here, “*what is its best life*”? In clay work, muddied water is not discarded, but becomes the water that sates the next clay; broken pieces are repaired or broken down and made anew, excess clay is not discarded but reintegrated with the larger block of clay, used, and molded in the next co-creation. These reflections invite a broader re-storying of waste too, not just a devastating feature of the climate crisis, but also as material that can be reintegrated back into the whole, transformed, remade, and used to co-create desired futures. They offer a narrative of healing as listening, transforming, and transforming again. I wonder how re-storying education might also be understood as clay-work, transforming narratives, unmaking and re-making. I wonder how we might be mindful in this re-storying work too, to not reproduce narratives and behaviours of waste; how we might temper the tendency to ‘get rid of the bad’ and look to it instead as material with which to enter into conversation, listen, and transform, and transform again? How might re-storying education in the era of climate change pursue the question ‘what is their best life’ in relationship with learners, people, objects, excess material, the education system, communities, (eco)systems, planet? What might mindful curation of objects as pedagogy open?

CHAPTER 7

Desired Futures

This chapter explores narratives of desired futures in *Rooted and Rising* and in so doing offers a re-storying of education in the climate change era as desire-oriented, playful, and prefigurative. Here, I am interested in students' desired futures as expressed in three educational activities that invited and sought to release associated imaginations. R+R's turn to desired futures, I will argue, disrupts dominant climate narratives in formal schooling that tend to revolve around future scenarios of collapse and continuance within a diagnostic, 'solutionist' approach that sees people and environment as a cluster of problems to be solved and fixed. Climate change is often portrayed as a threat to 'the future' (and increasingly the present), with education assigned an instrumental task of training children and youth to respond mostly through problem-solving and personal decision-making. Students are most often introduced to climate change as an impending, and implicitly inevitable, threat to/crisis of the future, and students are invited into concern, worry, fear for the future (theirs and others). This approach can create an overwhelming sense of impending doom rushing inexorably towards us.

Education for sustainable development (ESD) presents another popular narrative of the future, focusing on people and profit, envisioning uninterrupted economic (neoliberal) growth while preserving a stable atmosphere and adapting to change. However, this narrative obscures an imbalance embedded in international policies guiding ESD, which explicitly prioritize sustaining economic development over 'sustaining' Earth systems, raising political and ethical questions about whose futures are being sustained and for what purposes (Klein, 2014). In narratives of ecological collapse and systemic reproduction (sustainable development), the future appears simultaneously unknowable and predetermined: something students must learn to navigate, adapt to, and succeed within. In what follows, in contrast, I explore pedagogical narratives of desired futures and thereby resist a passive storying of the future, and a diagnostic approach that seeks sustainability of current economic-political systems or the avoidance of collapse. Instead, pedagogical choices redirect education toward the exploration of what [else] is possible and towards desires. As Hutchinson (1996) asks after, narratives of desired futures seek to deconstruct "colonial images of the future" and move "beyond fatalism" (p.61). Instead, pedagogical narratives of desired futures ask after thriving (climate) futures, and what students desire those thriving futures to look like, feel like, be like. In this chapter, while I recognize the importance of understanding climate change as an

undesirable impending present-future, a crisis in need of urgent attention, I intentionally focus on other narrative frames that are often ignored or given minimal space in education. I'm interested in how R+R narratives resist passive futures of crisis, and intentionally dwell on desirable, malleable, and agential futures. In this regard, I take up climate change education as a highly imaginative and playful inquiry into what else is possible, a seeking of desirable futures and what it means to imagine and practice them into being now.

In the first section, *Invitations*, I explore three pedagogical activities that asked students to imagine and express desired futures. These are Vision Boards, Leadership Statements, and a collective Digital Manifesto. I am interested in the underlying narrative frames of desire and play that are opened - both explicitly and implicitly - by these course activities. I am also interested in how invitations to imagine and express desired futures imply educational change and provoke a turn to prefigurative education. The second section takes up future narratives expressed by students across the three activities, examining desired temporalities, desires for well beings, and desired aesthetics. Temporally, I am interested in students' desired futures as new-ancient – drawing on ancient and ancestral desires, practices, and traditions to guide pathways forward, and reinforcing global desires for well worlds. Socially, students envision futures of well beings, offering a multispecies narrative of wellbeing that values and respects all of life. Here, narratives of sharing, belonging, sovereignty, multiplicity, and fun characterize futures of/by/for well beings. Aesthetically, students desired biophilic and artful futures in which built and natural environments are integrated in urban landscapes, and everyday objects carry cultural values that reinforce futures of well beings. This chapter ends with a reflection on prefigurative education and what it means for education to be accountable to these desired futures now, even as desires themselves are reassessed, remade, and reimagined as they are envisioned and practiced.

7.1 Three Invitations to the Future

There were three pedagogical invitations that asked students to envision and express their desired futures: (i) Vision Boards, (ii) Leadership Statements, and (iii) a collective Digital Manifesto. These three activities provoke a turn to desire and playful imagining that builds a sense of agency with the future and opens to narratives of education as prefigurative. The practice of envisioning thriving (climate) futures took a variety of pedagogical forms.

First was an activity creating Vision Boards, which took place in the second out of thirteen classes. A Vision Board is a visual collection of images, words, colours representing students desired futures, see Figure 13 for an example. On the MilaNote platform, each student was given a space to create their own personal Vision Board. Vision Boards were stored in a shared space, so while they were individual creations, students and educators could explore each other’s desired futures as well. In the instructions for the activity, students were asked: ‘if climate change is the world you don’t want, then what is the world you do want?’ (personal notes, September 27th, 2020). They were prompted to imagine desired futures for themselves, “and the human and natural communities around them”; asked to think about their core needs and how these needs connect to what they “really, really, really want”. The instructions function to story desire and core needs as interconnected in thriving (climate) futures. The provocation of “really, really, really want,” welcomes a sense of desire, fantasy, and an embrace of possibilities outside of what is.



Figure 13: Vision Board example (Report, 2021, p.54)

The second activity took place at the end of the program as a closing practice, a ceremonial graduation of sorts, in which students created a personal Leadership Statement and read it to the class. In crafting their statements, students were asked what kind of leader they are, what they learned in the program, and the kind of world they want to live in. Students were also encouraged to invite 1-3 witnesses – people close in their lives – who would listen alongside classmates as they read their statements. Many of the students joined the virtual classroom with their witness next to them in real life, creating an intimate virtual space as parents and best friends sat with students in their bedrooms and family living rooms (personal notes, December 2020). Students then read their statements aloud to witnesses, teaching team, and classmates, and as they spoke the chat space lit up

comments from their peers, affirming the commitments, declarations of self, and visions for the world students shared (personal notes, December 2020). Here I reflect only with a portion of their Leadership Statements that were gathered and shared in the program report; but Figure 14 – an enlarged section of the previous Figure 13, offers an example of a full Leadership Statement:

Statement:
My name is _____ but what some people may not know about me is that my middle name is my Chinese name which is _____. It means smile. My mom named me that because she said I was always smiling a lot as a child. My last name connects to my ancestral roots because it is generations from my grandpa on my mom's side. My mom's side of the family has a huge family that has a huge history of how they each got to Canada. To have _____ as my last name is an honour to my ancestor to remember where I come from. My strengths are that I am a great multitasker, I enjoy working with others, and I am a great problem solver. As a leader, I believe I am great at taking initiative in group works. My purpose on this Earth is to teach and help others when they need someone to lean on. I want to live in a world that we are able to respect everyone around us regardless of our skin colour, the way we look or culture. I would like to live in a world where financial money is not a problem, all be able to own land and we all are able to afford healthy food. The lesson I am taking from my time in Rooted in Rising is to remember to connect with nature, water and our earth. I will remember to connect with the land we are on _____, and the different perspectives we can learn from all generations. As well as remember to care for ourselves and remember to slow down in the world we live in. The questions I have for myself are, what are ways I can reconnect with myself and boost my confidence? As well as what are ways I can connect with nature and water in the city? I am ready to learn more about the history of Indigenous people as well as the rights we have as humans.

Figure 14: Leadership Statement Example (Report, 2021, p.54)

The space felt “electric” as students read statements aloud (Kate i2 and Kristen, i2). Kate, one of the teaching team members, described it “like the hair standing up on the back of my neck sitting in an office completely disconnected from everybody [...] through Zoom” (i2).

The final invitation to imagine desired futures was the Digital Manifesto (see Figure 15). Unlike the first two activities that invited students into individual reflection, the Digital Manifesto was a collaborative exercise in which students worked together to produce one collective manifesto. The exercise opened with a reflective discussion on the current digital world we inhabit, and its positive and negative impacts on wellbeing; and then, using current experiences as contrast, students were invited to collaborate on a Digital Manifesto. The Digital Manifesto prompts a dream-like curiosity of what could be. Kate, who led this class, invited students to co-create a list of tenets on which their desired digital future/platforms would be built; describing a manifesto as something that “challenge[s] and provoke[s],” that may be “impossible,” “unpredictable,” “embrace paradox” (Report, 2021, p.21). Students were invited to create a manifesto that is “magic (almost),” “on the cutting edge,” “a dream” presenting “fiction dressed as fact” (Report, 2021, p.21), calling on students to step into the imaginative realm of what [else] is possible.

A Manifesto is.....

- A list of numbered tenets (Sense of urgency)
- Challenge and provoke (Impossible, unpredictable)
- Are advertisements (Promote a movement)
- Come in many forms (Writing, Art? Music?)
- Better short than long- maybe visual?
- Are theatrical- maybe visual?
- Are fiction dressed as fact
- Embrace paradox
- Are on the cutting edge (Make it new and edgy!)
- Are magic (almost) (A dream!)

THE ROOTED & RISING DIGITAL MANIFESTO


POINT #1

SOVEREIGNTY

Our tools will empower us Cyborgs to


- 1: be adaptable
- 2: to form ideas of our own, "deprogram ourselves" outside of dominant programming and monolithic thinking
- 3: cultivate the beauty + strength of our imaginations!!!

POINT #2



Connecting across digital platforms to create nomadic communities that have access to one another and trade systems that exist outside of a commodification framework

Our Internet Space



We will work for a socially just internet and set of digital tools that addresses systemic racism, sexism, homophobia and all forms of hate and discrimination

The internet is a place where people have autonomy over their data, and can assert control over that data in an accessible way.

The internet - or the Mindstream - is a digital ecology that intimately connects our souls, and it should be treated as such.


We the Cyborgs demand access to free and humane internet communication spaces

There should be a myriad of ways and organizations through which we can access a free and accessible internet. The internet **must** be a rhizome.

finding ways to create the hardware for technology that is less exploitative (recycle vs. constant mining)

Finding a positive space. So much of the Internet has become negative or overwhelming. It is also addictive in its own way and many people no longer connect with the world outside of technology. It would be so beneficial to find a way to create that time away from tech

Well Beings



Principles of reciprocity and spirituality to be grounded in the design and use of all tools and ecologies.

Give everyone their own garden and all the support to care for it well.

Access to Space, the night sky, imagining, the hugeness of reality.

A space where practices of slowing down can be shared

A space where we learn to evoke our other senses (beyond visual/auditory)


Recognizing that everything is art, and everyone has not only the capacity but the drive to create

We will reclaim and build our TIME and SPACE that serves us.

Well. Being. or LIVING WELL must include all world views and cosmologies of balance with people, plants, planet and more than humans -- Inter connections matter!

We will include human and more than humans in the good use of technology for wellbeing of all species of the planet...

Shared Principles / Values Lead The Way of our Forming Digital Commons



Principles / Values First - We the Cyborgs will create a platform that gathers folks with common visions of Freedom + Justice, who share common values and principles. We will use this space to interweave our global community and strengthen the mobilization and interconnectivity of our movements.

We strengthen ourselves underground through this tool, like Mycelium!

new perspective / new possibilities

a recontextualization of our relationship with digital

a reclamation of our power - we have the ability to make the digital work for our lifestyles

Figure 3: Students' Co-Developed Digital Manifesto (Report, 2021, p.21)

These pedagogical activities activate a narrative of change that posits that in order to create a thriving/just/better world, we must first be able to imagine it. These activities sought to provoke and cultivate students' imaginative capacity for *desired* futures that leaned into play, and prefigurative possibilities. They were not practices of predicting or speculating what the future *will* be or *should* be, but rather what students *want* the future to be, evoking a narrative turn to desire. Turning away from diagnostic approaches that first seek to identify the problem and return to a baseline I offer these pedagogical narratives of desire as an alternative root question: not 'how do we get back to normal?',

but ‘what do we desire?’ and within that, ‘where is it that we want to go?’, ‘how is it that we want to feel?’, and ‘what is it that we want to experience?’ The vision board in Figure 1 is illustrative of the complex temporality of desire, as it includes photos of the student and their friends/change making groups, as well as real and imagined places the student desires to visit, co-create, learn, teach, and live in. Here, desire evokes longing for what has already been experienced, an amplification of what already exists, and longing for the not-yet real. Desire attends to “*what once was*” and “*not yet*” (Tuck, 2009, p.417). Like the affirmations on the top right of the student’s vision board in Figure 1, desiring seeks to draw these past, future, real, and imagined longings into the felt and lived reality of the present. Inviting students into practices of desiring is an invitation to envision, feel into, and draw towards them their desired futures in the here and now.

The three visioning activities were also purposefully playful, and by leaning into play, sought to re-story students as subjects rather than objects of the future (Alsop, 2019). The goal was to encourage students to engage a sense of agency and control in deciding their personal and collective future. Devoid of ‘right’ and ‘wrong’ answers, these three activities encourage wild and rampant imagination. They are not the serious climate ‘games’ one might find in other classrooms that engage scenario-play into disasters and breakdown, oriented to the greater educational goal of avoiding or managing disaster in the future; playful activities ask after possibility and desire, prompting students to feel into a “magic (almost)” imaginary world. Tejpar and Rudolph (2023), practitioners of sacred clowning, write on the power of play to disrupt and transform culture, speak the truth, and image radical new possibilities:

The play-space is the space of possibility, of malleability, invention, and creativity.... play offer[s] pathways to reconnect with more of our wholeness and who we really are with others, while remembering our need for play, humour, and imagination. They offer us possibilities in these wild times we’re in, facing big unknowns, complex circumstances, and the inevitability of our mistakes as we try new things (Tejpar & Rudolph, 2023).

Play offers pathways for envisioning a better world that (re)connect with what really matters and “who we really are” (Tejpar & Rudolph, 2023). Indulging in playful imagination with the future helps students to feel a sense of possibility and agency in bringing their imagined possibilities into being. Samantha's experience creating a Vision Board illustrates the empowering nature of play:

At first, I wasted 5 minutes of my time (*sigh*). But when I actually started to flow through the process – at first you think ‘oh, a Vision Board, it’s easy’. But ok wow, what do I actually want to put on the Vision Board? And it was funny when you said, ‘ok guys it’s time to stop’ I was like, ‘noooo, I don’t want to stop’. It was so fun to put what we wanted our futures to be. I feel like I’m very career driven, I’m instantly like, oh yes, this is the school, da-da-da. But then, I was thinking about personal values too and I was like hmmm I gotta think more

about it. On my Vision Board I want to be...that part took me a little while. I felt the way we get to put what we want to be in the future, the way you can drag [an image], you can make it overlap, or not touch. It's those very simple characteristics that was very calming to me. It was like, I'm in control of my future. That I can personalize it – oh my favourite colour is light blue, and I can make that. My future is...me, I can do it. I felt very empowered after. – Samantha (i1)

Samantha(i1) had fun making her Vision Board and found she was able to reconnect with a more whole image of herself through this play, extending her future-self narrative beyond just a career to include her personal values, and what really matters. Samantha's account reminds me of dominant schooling's tendency to create space for students to imagine their future only or primarily through capitalist/neoliberal economic interests: namely, what career will they have within existing economic systems? (Apple, 2004; Bowles & Gintis, 1976; Giroux, 2011). With little opportunity to imagine desired personal futures as an extension of desired collective futures. Here Samantha was able to pause and reflect on what else matters to her in life; and, in doing so, generated a sense of agency and possibility. As she changed the background colour of her board, dragging in selected images and moving them around, she developed an inner narrative that just like in this activity, in life she also has the agency to decide and shape her future.

Finally, these pedagogical invitations into imagined futures also imply a re-storying and re-organizing of education towards those desired futures, offering provocations of prefigurative education. Alvin Toffler (1974) asserts that all education “springs from and creates an image of the future”, preparing children and youth for success within a particular envisioned future. Educational preparation includes practicing the projected social relations and practices of that future in the structures of classroom management, pedagogy, institutions, thereby also creating/ perpetuating images of the future. Mainstream schooling remains deeply rooted in colonial-capitalist/neoliberal narratives of the future, predominantly preparing children and youth to become 'efficient, productive economic citizens' who contribute to ongoing competitive globalization, technological advancement, and economic growth (Apple, 2004; Bowles & Gintis, 1976; and Giroux, 2011). This imagined future, largely a reproduction of existing socio-political-economic systems with more technology, is storied as happening, inevitable, and students must (passively) learn the rules and adapt to it in order to thrive within it. As futurist and educator Billy Rojas (1974) wrote in Toffler's (1974) edited collection, by introducing the future into education through activities like predicting and imagining the future, there is an implication of

educational change. It encourages a re-examination of the organization of knowledge. Because it is inherently interdisciplinary, it implies or encourages structural changes as well.

And because of its open-ended character – a subject in which there are few, if any, “right” or “final” answers, it works towards a change in the student-teacher relationship as well (p.231).

All of a sudden, the future is no longer fixed; instead, it is storied as open-ended, and students are storied as having the agency to influence and decide what direction it is headed. R+R did not only engage in imagining the future, but specifically and intentionally inquired into *desired* futures, and in doing so invites deliberate improvisational inquiry towards those desired futures. Echoing narratives of improvisation, inviting students to imagine desired futures also invites a re-storying and restructuring education as improvisational inquiry into those futures - storying, understanding, preparing for, and creating them. Education is prompted to reorganize as the “informed seeking” of desired futures (Tuck, 2009); relevant and meaningful insofar as it contributes to their pursuit. I am drawn to the oft-political language of prefiguration to expand this idea. Paul Raekstad and Sofa Saio Gradin (2020) define prefiguration as “the deliberate experimental implementation of desired future social relations and practices in the here and now” (p.10). Prefigurative politics, as Trott (2021) says, is “characterized by an ethos of ‘not asking, just doing’...seeking to create a new and better world ‘in the shell of the old’” (p.305). Prefigurative education then is also deliberate and experimental implementation of desired futures in the here and now. Facer (2011) calls for future-building schools “concerned with building the capacity of its students and communities to imagine and build alternative futures” (Facer, 2011); prefigurative education seeks not only to prepare children to build alternatives in the future, but to prepare children for those futures through the *practice* and embodiment of the alternative futures now. Through the codeveloped Digital Manifesto, and students’ individual creations of Vision Boards and Leadership Statements, students were invited to turn to desire, to develop a sense of agency over their future through play; and, simultaneously, students, R+R and education at large were invited into prefigurative relations, in which educational practice is the collaborative informed seeking of desired futures. As I turn to the content of students’ desired futures in the following section, I offer an invitation to read these futures as both personal desires, and as provocations for education: images of the future from which education can both spring and co-create *with* students in relational and pedagogical practice.

7.2 Students’ Desired Futures

I turn now to the content of students desired futures collected from 7 Vision Boards, 16 Leadership Statements, and 1 co-developed Digital Manifesto. While all 22 students completed vision boards and Leadership Statements, the data here is limited to the six (sometimes partial)

vision boards and 16 portions of Leadership Statements included in the program report, as well as a preliminary analysis of common words found across statements (see [Appendix F](#) for full list of Leadership Statements). In Claire’s interview we discuss elements of her vision board as well, increasing the total to 7 vision boards analyzed here. In this reflection I seek to take seriously students recorded desired futures, reading them as prompts for the re-storying of education; and I also recognize that these are and can only ever be partial, highly contextual snapshots of desired futures captured at a particular moment in time within particular parameters and prompts. If invited to complete the activities again, it is inevitable that some root features would be the same, but that students will have also shifted, evolved, added, transformed, and remade their desired future – as desires, and narratives of desired futures are not static but living, ever evolving, and generating anew. Nevertheless, I sit with these desired futures as still relevant artefacts for guiding a re-storying of education. I first turn to *Desired Temporalities*, in which I find students desiring new-ancient futures, and a temporality of slowing down. I then turn to student narratives of *Well Beings* that articulate narratives of thriving and well futures for human and non-human beings, storied with narratives of sharing, belonging, sovereignty, multiplicity, and creativity. Finally, I sit with students’ *Desired Aesthetics*, finding vision boards filled with biophilic images, as well as artful futures in which life is experienced as artful, and aesthetics include art laden with cultural, ethical, and spiritual values inherent to their desired futures.

(a) Desired Temporalities

I start by considering the students’ responses temporally. Students describe ‘*new-ancient*’ futures in which ancient culture, tradition, and practices inform and evolve future practices. Students’ responses might also be considered temporally new-ancient within a global multigenerational lineage of desires for just, regenerative, and thriving futures for all. Second, I turn to students’ desired temporality of *slowing down* found in their Leadership Statements and Digital Manifesto, associated with a sense of spaciousness, and freedom to just exist.

New-Ancient

Kristen introduced me to the term new-ancient futures – evoking an entangled future-past temporality, an interweaving of ancient traditions and new innovations as pathways forward. It is a practice of looking forward by looking back, returning, and remembering of ancient ways “of being in relationship with the world and with Earth” entangled with the newness of modern times and

inherent in ‘the future’ (Kristen, i2). I see students desired futures as new-ancient desires – at once unique and new to them as individuals and ancient to the collective. Students also desire new-ancient futures, turning to traditional practices, cultures, and languages as pathways forward.

Students’ desired futures are of course particular to them as individuals, and to the socio-temporal-pedagogical context in which they were expressed, and the program took place. Yet, while students’ desired futures are entirely their own, they do not belong to them alone. One student, for example, replicating sentiments found in many students’ Leadership Statements, desires to live in a world:

where we co-exist peacefully, and where everyone has equal rights, and all have a sense of belonging and peacefulness. I want to live in a world where we share resources globally, and where everyone has their basic resources of food, water, happiness, shelter – Anonymous Student (Report, 2021, p. 50).

This desired world is both personal to this student and reproduces long-held desired futures proclaimed and pursued by liberation and human rights movements, peace activists, religious ideals, dreams of global governance, global aid and sharing, etc. Students’ desires are entangled with global desires for peace and wellbeing across time and space. What they desire resonates with and learns from broader global desires for just, thriving, healthy, and sovereign futures for all; their visions deeply informed by those who have come before them. For example, one student (Figure 4)

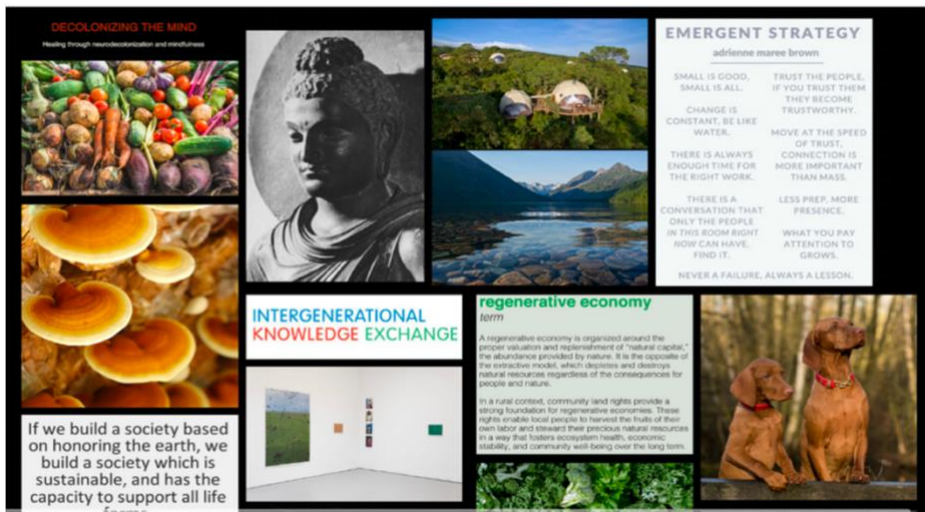


Figure 4: Anonymous Student’s Vision Board (Report, 2021, p. 5)

copied the change-making tenets of adrienne maree brown’s (2017) Emergent Strategy, and included a religious sculpture of Buddha, which holds certain values and tenets for living well in their Vision Board. This

student explicitly draws on the wisdom and dreaming work done before him with which to paint his desired future. Simultaneously, from a multispecies lens, this board contains animal, fungal, plant, and ecosystem kin who could also be understood as offering wisdom and nourishment upon which desired futures might be imagined.

The contents of some students' desired futures also call on a new-ancient temporality – dreaming their desired futures using images, language, and practices that evoke traditions as a pathway forward. While some students' Vision Boards (Figure 1, 7, 9) include high technology scenes of urban agriculture and architecture; others display a longing for *what once was* (Tuck, 2009, p.417). The Vision Board in Figure 4 imagines a future-society based on honouring the Earth, implicitly drawing on Indigenous Nations past and present who have done just that. Claire (i1) spoke about how she desires a future farm, reaching for traditional practices of growing her own food as a desired future. Claire(i1) shares that she has even begun practicing her desired future in the present at a smaller scale in her parents' garden – speaking both to prefigurative provocations to practice desired futures in the here and now, and new-ancient futures that root back into traditional practices as a way forward through crisis:

during COVID, when we were all in a lockdown, my parents were growing food in the backyard. And it was so fun for me to just harvest food. I wasn't even the one growing it. I was just the one harvesting and eating it (laughing). I think that's farming for me. Just eating, and snacking. ... It's a healing process for me. That's why I want to grow my own food. Oh, let me grab some eggplants. It tastes so much better – it tastes different, or it feels different for some reason. And I also love going downtown. I live in North York so there's a lot of ground area to grow food, but when I see downtown and they're able to grow food, like you said, in bathtubs in your area. They make it work in their own way and it's so nice! Urban farming! – Claire (i1)

Claire's desired future does not require new 'solutions' or ought-to-be-created innovations, but a return to the practice of growing her own food, at small and larger scales, connecting directly with her food and resisting chemical interventions in agriculture that have facilitated soil depletion and modern cities. Her desired future has not only been practiced in past but as Claire highlights, continues to be practiced in the city, and by her parents.

The Digital Manifesto is also exemplar of this new-ancient temporality. Students evoke the ancient intelligence of mycelial webs and rhizomes to imagine forward a life-sustaining “digital commons” that, like the mycelial webs connecting forest floors are storied to do, facilitate the sharing of resources and trade, communication, and community decision-making. New technologies mimicking ancient patterns are imagined to “strengthen underground,” and enliven new-ancient “nomadic communities” that “have access to one another and trade systems that exist outside the commodification framework.” Students chose to ground the design and use their future digital world in “reciprocity and spirituality”, and yet also lean into the language of Cyborg, a la Donna Haraway, evoking the new and the technological. Students' desired digital future still entangles human

becoming with technology; yet their cyborgian narratives do not reproduce apocalyptic tropes of human-technology merging, but rather narrate human-technology entanglements that “interweave our global community” and strengthen sovereignty, movements seeking freedom, justice, and a return to active interconnection with the natural and spiritual world.

Desire to Slow Down

The era of climate change might be said to be birthed in part from temporal narratives of hurrying towards perpetual growth; and within this context, students desire to slow down, and desire futures in which slowing down is possible and supported. Technology has impacted our sense of time: as our ability to measure time in ever smaller increments, and to complete tasks at faster rates grows, so do the impacts of hurry. Joanna Macy and Chris Johnstone (2012) write that the sense of hurry is:

spurred on by an economic system that sets its goals and measures its success in terms of how fast it is growing. For an economy to grow from one year to the next, more needs to be accomplished in the same amount of time. If we want growth every year, then our speed of activity has to constantly increase. (p.180).

While there is a place for hurry, times where urgent responses are necessary, as Macy & Johnstone (2012) point out, chronic hurrying amounts to chronic distress which takes a toll on our mental-emotional-physical-social wellbeing, our capacity to respond to long-term crisis well, and the health of our relationships. This relationship with rushing time is a contributing factor to the climate crisis, limiting individual and community capacity to prepare for healthy and thriving long-term futures. Here, the future seems to be ‘happening’, as individuals and communities rush to adapt to and succeed within it. R+R Students appear to feel this rushing temporality and resist its reproduction in their futures. One student openly laments that they’d:

like to live a free life where I have the time to be curious, and just exist, which has been like a very current issue for me. I've been feeling so trapped to go off script, feeling so trapped and stuck with everything that goes on and it just feels like - everyone has decided my life for me before I got the chance to decide what I want to do. Um, so yeah, the time to be curious, and just exist. – Anonymous Student (LS 14, Appendix F)

This student captures a sense of the future rushing towards them – a passive relationship in which ‘others’ (likely adults) are pushing a particular career/life path that youth are supposed to hurry up and complete. In their resistance, this student instead roots into a desire to simply be, to “be curious, and just exist”. In this desire is a turn to ‘being’ over ‘becoming’, offering a provocation for education in the era of climate change to create educational spaces in which students can slow down, and ‘just exist’. This time and “freedom to breath” was a repeated sentiment in students’ Leadership

Statements (LS 16, Appendix F). In it, I read a challenge to education to create learning containers in which a sense of spaciousness can be cultivated, and students can relax out of a chronic hurried state. Hurrying can limit students' ability to think through long term consequences, predict, mitigate, plan for, and proactively avoid disaster, dealing with root problems in the present moment, and amplifying a sense of meaning and purpose (Macy & Johnstone, 2012, p.181). In the era of climate change, these seem incredibly important capacities to cultivate and not hinder in the co-creation of thriving just and healthy futures; and for living through climate change and finding wellbeing in the present. Students' desires prompt educational inquiry into pedagogy for just existing and slowing down which seem pertinent to student wellbeing, and the greater collective effort for well beings.

In the Digital Manifesto (Figure 3), students further reimagine the digital world as space in which “practices of slowing down can be shared”, and young people can reclaim their “time and space in ways that serve us”. Students imagine a digital world harnessed to share practices of slowing down, granting young people the agency to reclaim their time and space in ways that align with their well-being and serve their collective future. I wonder after education as also harnessing the practice of slowing down to cultivate agency and the capacity to imagine and practice well worlds.

Collectively across the three activities, students' desires can be understood temporally as new-ancient, and students as desiring new-ancient futures, alongside a temporal desire of slowing down. In their Vision Boards and Digital Manifesto, students draw on those who have come before them, echoing global desires for justice and well beings across time and space. Some students also draw on ancient traditions, practices, and ways of living to story their desired futures, calling up specific thinkers, religious traditions, and practices in their Vision Boards. Aligned with new-ancient desires to remember and re-turn to tradition, students also desire a temporality of slowing down, (narrative) relationships with time that offer the spaciousness to be curious and to simply exist. Whether it's the return to traditional farming practices, the envisioning of a digital commons grounded in reciprocity and modelled after rhizomes, or the fervent desire for slowing down in the face of a hurried world, students' desired temporalities challenge dominant and passive educational narratives of preparing for continued rapid change and perpetual growth, and instead prompt educational inquiries into remembering, just existing, and slowing down.

(b) Well Beings

Across the three activities, students are interested in more than just personal or human wellbeing, and rather imagine desired futures of and for “well beings”. Distinct from anthropocentric climate narratives that call for action based on the need to save helpless species or preserve human wellbeing and existentiality; students instead focus on a multi-being narrative that interconnects human and animal/ecosystem wellbeing, expanding the concept of ‘wellbeing’ to ‘well beings’ which carries ethical and political questions of whose wellbeing matters. Here, I think with students’ narratives of ‘well beings’, and the sharing relations and sense of belonging imagined between them. ‘Well beings’ offers ontological and ethical narratives of interconnectedness and multiplicity, creating worlds of acceptance, sharing, and care. Here I explore the narratives of sharing, belonging, sovereignty, multiplicity, and creativity that make up students desired futures of/for well beings.

In the Digital Manifesto, students explicitly named one of their principles ‘well beings’, under which they describe a digital world rooted in ontological understandings of interconnectedness. In their Manifesto, students commit to including “human[s] and more than humans in the good use of technology for wellbeing of all species of the planet.” Here, “well beings” offers an ethical narrative, orienting notions of ethical living, learning, and digital worlds to the wellbeing of all life on earth, not just human. Under ‘well beings’ students desire access to space and to the night sky; and these desires might be read as both an individual human longing to see the stars and feel a sense of spaciousness, and as a multispecies desire for ecological space to roam, and a reduction in light pollution. Students reflect narratives of well beings in their Leadership Statements too. One student imagined forward a future in which “people can feel joyful, feel accepted, feel passionate, feel loved, feel with other living beings, plants, animals, whatever” (LS 8). In this statement, ‘plants, animals, whatever’ are conceptualized as part of community in which people find joy, love, and emotional support; and affective and connective relationships with non-human beings are storied as a part of finding social and emotional wellbeing. Many students turned to the language of equality to express a future rooted in this ontological narrative of interconnectedness. As one student said, “I would love to live on Earth where just everybody sees everything and everyone as equal” (LS, 5). Equality for all is once again extended beyond human-only understanding, stretching the imagination to see ‘everything’ as equal. This is a repeated sentiment in student Leadership Statements, with another student writing that Earth is also included in the conceptualization of equality, imagining a world “where we treat ourselves equal to the Earth, not greater than the Earth”

(LS, 4). These statements capture a desire to extend beyond human-centric stories of the future and embrace a multispecies ethical narrative, inclusive of Earth itself.

Sharing

Across the three pedagogical activities, future worlds of/for well beings are storied as sharing worlds, in which the individual is cared for and supported by the collective. Narratives of sharing are in part economic narratives of resource sharing. For example, one student desires a world “where we share resources globally, and where everyone has their basic resources and where everyone has their basic resources of food, water, happiness, shelter” (LS 2). This student desires cooperative economics where basic needs are met, and it is interesting to note that happiness is included in this list of basic resources; the Digital Archive adds free and humane internet to the list as well (Figure 3).

One Vision Board asserts a people-oriented economic narrative of the future: “people over profit”. In the Leadership Statements, four students expand on this narrative, dreaming of a future world “without immense worry of...money” (LS 2), “where financial money is not a problem”, “money becomes a tool to empower people and not a representation of power” (LS 13), and everyone can “own land and we are all able to afford healthy food” (LS 17). Students do not seek to eliminate money, but rather to re-story money as an empowering tool for community care and wellbeing. There are contradictory ideas across students’ future worlds: while some pursue ideas of the Earth as equal to humans, others conceptualize thriving futures as each human owning a piece of Earth. This contradiction speaks to the complexities and contradictions that can exist in and across desires (Tuck, 2009); and the complexities enacting these futures from the political-economic-social narratives shaping society right now. In the Digital Manifesto, students re-story money further, imagining digital platforms that connect and create “nomadic communities that have access to one another and trade systems that exist outside of a commodification framework.” Echoed in the Vision Board in Figure 4 which dreams of a regenerative economy, students are interested in facilitating resource and financial exchange that align closer with sharing and reciprocity than commodification and profit. This is particularly emphasized in relation to the food system, which is strongly referenced throughout the three activity outputs. I wonder how education in the era of climate change might collaborate with students to imagine, practice, reassess and reimagine ethical resource sharing, food systems and broader systems of trade outside of commodification? Following Shalaby’s prompts on freedom (2017), I am curious how this sharing and systems of reciprocal

exchange might be practiced as classroom management? I remain curious too about how education might prepare students for a future(now) of economic systems-change, and what it means to improvise together, still cognizant that we are in late-stage capitalism where money is a source of worry and power; how students might be supported in surfing the erratic waves of capitalism in climate change, and of emergent systems both here and on their way.

Belonging

Figure 5
Leadership Statements (a selection
from [Appendix F](#))
numbers correspond with numbers in Appendix F

"The world I want to live in is a world that's **peaceful, accepting of everyone, and fair**. I would like to live in a world where **we treat ourselves equal to the Earth, not greater than the Earth.**" (4)

"I want to live in a world where people are **loved accepted and supported**, no matter what." (6)

"I want to live in a world where everyone feels like they have a purpose in life, because everyone does have a purpose in life. " (7)

People can feel joyful, feel accepted, feel passionate, feel loved, feel with other living beings, plants, animals, whatever. Feel relaxed, feel safe, feel anger, feel sadness, I just want to create spaces like this." (8)

Figure 5 cont'd

"A world where children and young people's true selves are welcomed and encouraged, always a world that does not shame or guilt, a world of perpetual recontextualization" (10)

"I want to live in the kind of world that holds to account the **inherent capabilities of every being** to live their best life, and for their uninhabited path to lead in that way." (11)

"The kind of world I will live in is one where we all **actively look for gifts we can share with others, give freely** and accept the gifts that come to us as well. **Trusting we are here to bring out the best in everyone** without pressure, supporting each other." (12)

Some repeated key words: peace, acceptance, love, equal, joy, play, fun, passionate, gifts are honoured and encouraged, thrive. compassion, freedom to breath (16)

Integral to students' desired futures of well beings is the idea of belonging, where everyone feels accepted, welcomed, supported, and like they have a purpose. Within their Leadership Statements, many students articulated worlds where everyone is accepted and where we accept ourselves (see Figure 5: LS 4, 6, 8, 12, 16). Two students explicitly extend 'everyone' beyond the human, looking to 'every being' (LS 11) and worlds in which we are equal to the earth (LS 4) (see Figure 5). John A. Powell (2021), law professor and lead of the UC Berkeley Othering and Belonging Institute speaks

about belonging. He shares that “in the context of a world where authoritarianism, where ethnic nationalism is sweeping the globe, it sounds sentimental to be talking about belonging” but, it is precisely this context that makes these narratives of future belonging radical and important (Powell, 2021). Powell (in Bioneers, 2021) asks after a “larger ‘we’...where everybody belongs. Where whales belong, where children belong” regardless of where they are from. Students evoke this larger ‘we’ in their desired futures. One student, actively sees themselves as part of creating this world of belonging and acceptance:

I have a sustainable healing lodge up there so this space right here - a ready, thriving community is the world I want to live in. I've grown up and been able to cultivate myself in spaces where so many beautiful leaders and compassionate people have an aim to build a world that we're all going to thrive in and feel compassionate and be accepted and have the supports to reach your best self in, and we all get together - it's such a catalyst for change.
– Anonymous Student Leadership Statement (Appendix F)

This student dreams of a future in which they have not only been able to cultivate a thriving community for themselves, but that through self-development and cultivated relationships with other leaders and compassionate people, they are able to hold space for others to “thrive in and feel compassionate and be accepted and have supports”. This statement reflects narratives of belonging as healing narratives and collective narratives: healing, acceptance, and thriving does not happen alone but in community. This student also names that being accepted and supported in community in healing catalyses more change towards thriving community/futures.

Resisting (educational) narratives of proving one’s worth through hard work, talent, or accumulation of wealth/power/accolades, students turn to a reverent narrative that every child – and every being – is uniquely and inherently valuable and worthy of care, love, support (LS 6, 7, 10, 11, 12, 16). This narrative belonging nurtured in community offers a (new-ancient) root narrative in the re-storying of education that if truly integrated demands transformative structural changes to assessment and dominant teaching-learning models in schooling.

Sovereignty

Deeply connected with belonging is a desire for sovereignty – taken up here both as political collective sovereignty and personal self-determination. Students desire acceptance in exactly who they are, so that they might follow their own path, and be celebrated in their unique gifts rather than encouraged down a generic path of development and success. This is a systemic vision too, as one student dreams of a world that encourages and enables “every being to live their best life,

uninhibited,” able thrive according to their innate capabilities and aspirations (LS 11). Another student desires a future world where “everyone feels like they have a purpose in life, because everyone does have a purpose in life” (Figure 5, LS 7). These statements are not just about individual attitudes but also about systems; offering provocations for future systems, of education, governance, etc., that encourage and enable individuals to thrive in their uniqueness. Their desire for feelings and systems of sovereignty alongside acceptance resists dominant educational narratives prescribing individuals to fit into and reproduce dominant economic-political systems as success. There is a tension in these named desires which emphasize the individual’s wellbeing as opposed to collective/community wellbeing, arguably at least partially shaped by the guiding questions of the activity that also retain a centering on personal desires (though questions were accompanied by a prompt for students to also think of their (multi-species) communities). It might even be said that neoliberal subjective attitudes are apparent in these desires; and I think they also speak to deeply human desires for choice and purpose that exist within, outside of, and beyond neoliberal subjective attitudes.

Sovereignty is desired in digital worlds too, where individuals have autonomy over their data in ways that are accessible to everyone, not only those expertly literate in the legal and technical languages of digital data (Figure 3). Sovereignty is desired in food systems where everyone has the right to grow food, which is envisioned in the Digital Manifesto as having access to a garden and to the resources needed to care for it (Figure 3). Sovereignty is the number one principle in the Digital Manifesto, and under this principle, students desire “a reclamation of our power – we have the ability to make the digital work for our lifestyles.” (Figure 3). The desire for sovereignty poses questions to re-storying education: what does sovereignty look like in designing learning objectives and pedagogical processes? How might education empower young people to intentional imagine and create lifestyles that work for them (and for well beings everywhere)?

Multiplicity

Building on narratives of belonging and sovereignty, students also embrace a multiplicity of worldviews and ways of seeing/thinking in their desired futures. In the Digital Manifesto, students dream not of *a* worldview of interconnected balance, but of a future that makes space for “all world views and cosmovisions” that seek balance. In the Vision Boards, two students desire to be proud of their ancestry and to learn ancestral languages (Figure 14, Figure 6), which is significant to me. In a diverse learning community, students are choosing to lean into their own cultures, ancestries,

languages, and associated collective sovereignties, rather than trying to create belonging by focusing on their sameness with others in the program. One student explicitly names a goal of “having pride in my heritage and ancestry so that I can connect more deeply with others” on her vision board (Figure 6).

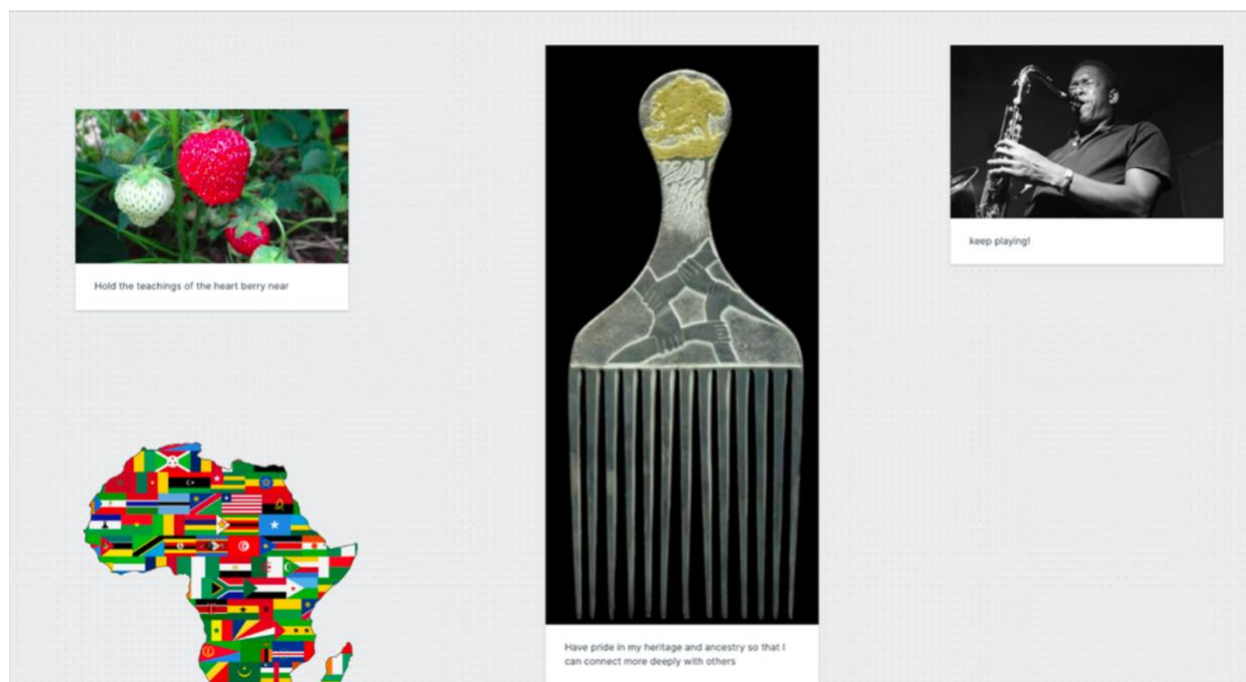


Figure 6: Anonymous Student's Vision Board (Report, 2021, p.54)

The Digital Manifesto also pushes us to “deprogram ourselves” from “monolithic thinking”, turning instead to an embrace of divergence, change, and fluidity. One student uses the metaphor of rivers to describe their desire to seek multiple meanings as they move through the world:

To remain fluid, in flux, never fully formed. And so, my world too forms and flows. It is ever changing - a world with imagination and possibility. It is full of learning. But most of all, it teaches me not to interpret the meanings too strongly, to be always open and stay true to my own meandering path. To not have only one aim and one way of looking at everything - to hold this, even through all the chaos and anxiety of now. – LS14 (Appendix F).

This statement speaks about being open to many interpretations as an inner cultivatable way of seeing and moving resiliently through a changing, chaotic, and anxious world. And I notice a connection between embracing diversity and embracing change. There is a desire for future ways of being that can flow with life’s changes, rather than resisting them (also expressed in Figure 4). Students' visions collectively imagine a future grounded in values of interconnectedness, acceptance, sharing economies and sovereignty, both individually and collectively. Their visions invite a re-evaluation of the role education in shaping a future of and for well beings in a changing world.

Fun

In students desired futures, I find narratives of fun: well beings who create, play, adorn themselves, and seek happiness. The vision board in Figure 6 for example, includes someone playing the saxophone with a caption “keep playing!” underneath. The vision board in Figure 1 includes an image of friends sitting in the dark with flashlights, sharing writings with one another as part of desired creative practices. These nodes to creative and social practices call on the importance of creative expression and play in students imagined futures of well beings. My discussions with Claire in her interview on the topic of her vision board is another illustrative example. Claire included an image of Ru Paul, American drag queen, television personality and more in her Vision Board (not displayed). I asked her more about this choice in our interview, and she explains that she included Ru Paul:

As someone I want to emulate. It’s part of my style...to still be fabulous while doing climate leadership. Even when Kristen had her own accessories, I’m like ‘yes girl, you look amazing’ and I’m sure they are all consciously sourced and supporting the local. – Claire (i1)

I love this line from Claire: “To still be fabulous while doing climate leadership.” It positions creativity, beauty, and fun as not only possible in a post-climate change world, but critical to move through the climate crisis, and as a climate response now. Claire continues to describe fun and joy as resilience skills that can carry us through crisis and creative re-organization:

I mean if you’re not having fun doing it... Well climate change is more than just saving the environment it’s also saving yourself, right. You are trying to be more in tune with your body, and if anything, the environment wants you to be happier. If you really are more in tune with nature, I think nature also wants you to be happy. – Claire (i1)

In this reflection, I notice how Claire moves from ‘more in tune with your body’ to ‘the environment’ in the same sentence, implying that both her body and the environment/Earth are two bodies with which she can become more in tune. Climate change for Claire is not about a saviour-saved/destroyer-destroyed relationship between people and climate, but of interconnected happiness and well beings – to save the environment is to save oneself. Claire’s comment reminds me of a Robin Wall Kimmerer quote that was shared with students in the R+R session on death and grief that I copied into my notes that day:

We remember that the plants have not succumbed to despair - they are growing on the mine waste - they are healing land, storing carbon and holding biodiversity. They are making food, medicine, and beauty. They give more than they take and heal the earth. Surely we can do the

same. - Robin Wall Kimmerer (notes, October 31st, 2020).

Claire and Kimmerer draw on teachings and narratives of hope, joy, and possibility offered by plants, and nature. Claire and other students call forth fun, freedom, beauty, and happiness in their narratives of both desired futures and the path to get there. Fun was a repeated word in students Leadership Statements (LS 16), as for example one student dreams of living in a world “where I can play, and just have fun.” Fun and the pursuit of happiness might also be storied as climate stories, and as educational stories in the era of climate change oriented to innate human drives to create, and to have fun/play/enjoy/find happiness.

Students collectively envision thriving (climate) futures of well beings, rooting their desired futures in ontological narratives of interconnected wellbeing. Across their Leadership Statements, Vision Boards, and Digital Manifesto, students describe their thriving futures of well beings as collective futures of belonging, in which every individual, human and otherwise, is accepted, supported, and celebrated in their inherent value and uniqueness. Students imagine well beings who share resources and support one another in healing, within systems and cultures that nurture a tri-sense of belonging, sovereignty, and multiplicity. Students crave fun and creativity too, naming play, fun, and happiness as vital elements of thriving futures, and of their climate responses now. Their storied futures provoke a re-storying of education away from human-centric competitive narratives of success into multispecies relational narratives of thriving, reciprocal care, and many ways of seeing.

(c) Aesthetics

Finally, I am interested in the aesthetics found in students’ desired futures, where many questions spring to mind. What do they describe as beautiful? What visuals fill their boards, and do these images reinforce or contradict ‘well beings’? What are the ethics and values held within their aesthetic choices? I focus on students’ Vision Boards in particular here, as it is the only activity that produces explicit visuals, however aesthetic descriptions from the Digital Manifesto are also interwoven. In their desired futures, I explore two aesthetic futures: biophilic and artful futures. I start with Biophilic.

light pollution blocking its path (Figure 16, Figure 1; Figure 15). In the era of climate change, each year brightens with increasing urbanization and artificial light (Falchi and Bará, 2023), and students desire for the night sky resists this aesthetic-ecological trend.

I see these images also as desires for more access to and time in natural environments. Educationally, they resist narratives of learning within the walls of a school building, and instead nurture visions of education with and in nature. One student explicitly envisions ‘outdoor schools’

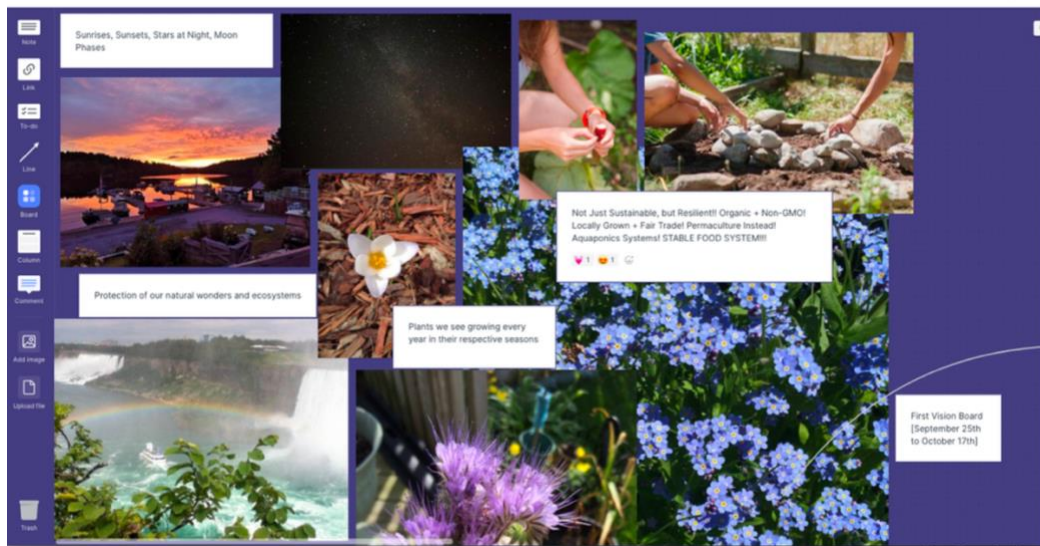


Figure 16: Vision Board (Report, 2021, p.27)

as a part of her desired futures (Figure 1). Another goes further in their biophilic imaginings. Under an image of abandoned

human spaces overtaken by nature, this student wrote:

Some people find it scary or apocalyptic how the earth could take over like this if we stopped fighting it off or lost to its power, but I find it beautiful how resilient nature truly is (Figure 7).

In this statement the student re-stories nature taking over cities from scary to beautiful, also calling educational narratives of turning to nature for lessons in resilience and beauty. The Digital Manifesto also dreams of biophilic futures in which nature is a mentor in design. The internet of their desired futures leans into its already rhizomatic pattern as students declare together, “the internet must be a rhizome!” They envision the internet as a “digital ecology that intimately connects our souls and should be treated as such” and imagine forward a digital world gathering “folks with common visions of Freedom and Justice” who together will “use this space to interweave our global community and strengthen the mobilization and interconnectivity of our movements. We strengthen ourselves underground through this tool, like Mycelium!” (Figure 15). Like the network of mycorrhizal mycelia under the forest floor, storied as the “wood wide web” (Jones, Hoeksema, & Karst, 2023), students imagine the internet to be a nourishing connector through which humans

might communicate towards collective wellbeing and share resources. Students' desired futures carry a strong biophilic aesthetic, where nature and the built environment, including the built digital environment, are entangled towards the flourishing of life. Their collective aesthetic not only envisions green urban landscapes but also expresses a deep longing for aesthetic and intimate relationships with nature. In their visions, nature is beautiful, and nature is ubiquitous with human design, inviting biophilic narratives of education in the era of climate change.

Artful

Students' vision boards also depict artful aesthetics. Students dream of worlds oriented to the human drive for creativity. According to the Digital Manifesto “everything is art, and everyone has not only the capacity but the drive to create.” In this statement, students resist an ontological capitalist narrative of humanity’s innate drive for [economic] growth and conquest and replace it with a narrative of the innate human drive to create. The statement ‘everything is art’ provokes an artful lens with which to view the world that seeks beauty, creative expression, and meaning in the everyday – what happens to the way we interact with the world, the way we teach and learn, if everything is art?

Students' vision boards display artful futures, in which art carries ethical, cultural, and spiritual narratives key to upholding their desired futures. I find the ways in which students put together their Vision Boards to be artful and intentionally curated, and three student boards explicitly feature art in galleries and religious sculptures (Figure 4), public street art (Figure 17), musical instruments and hand-crafted objects made from earth materials (Figure 6). The arts and crafts displayed hold significant meaning. The Vision Board in Figure 6 displays a hair pick made out

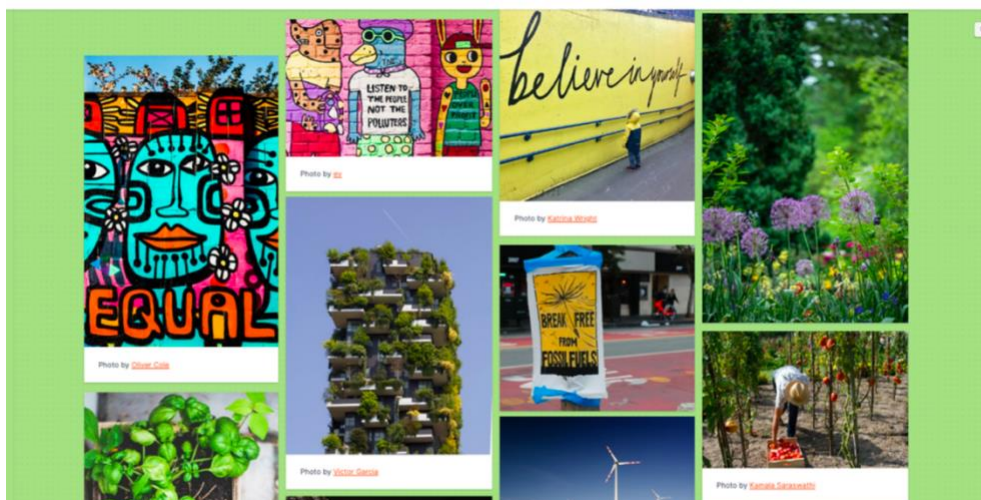


Figure 17: Vision Board (Report, 2021, p.47)

of natural materials, with a scene carrying spiritual/cultural significance carved into the handle. Seeing this image draws into my mind a future where everyday

objects are created and used with more intentionality towards desired futures, infused with meaning through artful creation, whose daily use reminds the user of their culture, values, desires. This future stands in sharp contrast with a climate-era commodified world of factory-made objects. Figure 4 displays a vision board with religious sculptures carrying spiritual narratives, and an art gallery minimally curated, evoking feelings of spaciousness – a desired feeling longed for by many students. The vision board displayed in Figure 17 intersperses biophilic images with images of public art, that hold important cultural narratives in this student’s desired future: equality, communities of support, self-belief, animals with personhood, personhood over capitalist profit. In their choice of art and objects in their vision boards students are engaging in an act of valuing, creating visions of desired futures which reinforce the values and desired relations of well beings.

The exploration of students’ desired aesthetics unveils biophilic and artful futures. The biophilic aesthetic emerges as predominant, resonating across the Vision Boards and Digital Manifesto, intertwining natural and built environments and displaying a strong love of all things nature. Students articulate a longing for urban spaces harmoniously integrated with nature, blurring the boundaries between human structures and the environment. Reinforcing well beings who share, the buildings displayed evoke a sense of natural abundance that is available to the public. Their desired aesthetics narrate not just a desire for green urban landscapes but a yearning for holistic relationships with nature that challenge prevailing urban aesthetics in which increasing urbanization looks like more artificial light and less nature. Students’ biophilia provokes educational futures for and in biophilic aesthetics: not only is education prompted to consider how to prepare children and youth to create such futures, but also challenged to create educational places/spaces digitally and physically transformed with biophilic and artful aesthetics, and to pursue learning outside of buildings and in natural spaces with which humans are in reciprocal care. Students also imagine a future filled with everyday artful objects, prompting educational storying of public art, gallery art, and everyday crafted objects that are intentional carriers of cultural, spiritual, and ethical values and traditional ecological knowledge as highly educational.

7.3 Prefigurative Education

What does it mean for education to engage in new-ancient futures of well beings, to spring from and create images of a future of sharing and caring multispecies+Earth relationships, who actively support belonging, sovereignty, multiplicity, and creativity with(in) biophilic, culturally rich

artful aesthetics? I seek to close this chapter with a return to notions of prefigurative education, and how education might be re-storied as the deliberate experimental practice of desired futures, social relations, and ways of being in the here and now, co-creating desired futures through the lived practice of them. Carla Shalaby (2017) in her book *Troublemakers*, also desires prefigurative education. Building indirectly on bell hooks (1994) who advocates for education as a practice of freedom and love, Shalaby (2017) closes her book with a letter to teachers in which she asks them to *be* love—public, authentic, accountable, political, insistent love – in the classroom. While acknowledging that “problems of freedom in classrooms are thorny and complex, and we won’t always know what to do,” Shalaby (2017) asks “can we imagine our classrooms as a place to practice these revolutionary ways of being?” (p.173). She says:

If you are preparing young people for freedom, then community is a better place for discipline than solitary confinement. It’s hard to learn freedom from inside a cage. Being love means practicing the skills required by community, *in community*. I am convinced that if we continue to prepare children for the world we have now, we will necessarily reflect and reinforce the everyday harms and assaults of punishment, confinement, and exclusion. Instead, we have to begin to prepare children for the world we want. ...first imagining the world we want – “what are the skills required for *that* world – skills demanded by the need to keep on each other safe and free – and how might we teach and learn those skills in schools as our approach to classroom management?” (Shalaby, 2017, p.175).

Similarly, here, I wonder about the consequences of continuing to prepare children for a world of continued and increasing climate/poly-crisis, and how this necessarily reflects and reinforces its continuation. In reflection with students’ desired futures, I propose instead that education re-root itself in images of desired futures that are not bound to replications of current ways of being/trading/relating/extracting. If we want thriving futures, then, as Shalaby (2017) asks, “what are the skills required for *that* world?” Can we teach them, but also, can we embody them – and *be* thriving, *be* accepting, *be* caring as the practice of education? While Shalaby (2017) presents a very human/social desire for freedom, students in R+R both echo these desires – for the time and space to just be, be curious, just exist, to play, to discover who they really are and to be supported and celebrated as their authentic selves – and extend them to the non-human too, binding together desired human and ecological futures. In *Rooted and Rising*, students dream of multispecies and Earth thriving. By inviting students into the practice of dreaming, articulating, and honouring desired futures, *Rooted and Rising* explicitly and implicitly opened to educational change, destabilizing, and remaking the images of the future from which education both springs from and creates. This pedagogical approach opens to prefigurative education which asks us to imagine

education as the deliberate experimental practice of students desired futures, and to allow those narratives of desired futures to guide our approach to re-storying education, from classroom management to curriculum to structural changes. Critical to this approach is the educational space to playfully imagine, uncover, and expand those images/narratives of desired futures (Shalaby, 2017); in conversation and relationship with classmates, more than human beings, that which once was, and those who have desired just, thriving, free, joyful (climate) futures before us. It is important also to recognize that while we actively pursue desired futures together, those desires can and will evolve, learn, contradict, create creative tensions, expand, regenerate. Prefigurative education in the era of climate change is not narrative of linear progression: first you imagine a desired future, then you practice it; but rather invites regular imaginative practices into desired futures which are in continual need of re-assessing, un and re-making, re-connecting, and re-imagining.

CHAPTER 8

Conclusion

In this study, I set out to re-story education in the era of climate change. I was interested in exploring narratives of thriving futures, and, as Karsgaard & Davidson (2021) write, what it means for education to be locally/globally, personally/socially, politically/ethically accountable to young people as they wade through crisis and pursue thriving futures now. I saw these educational narratives as coming into relationship with re-structuring education, and with storying ourselves out of the extractive and destructive patterns/behaviours, relationships, and beliefs generating climate crisis. In this chapter, I revisit the questions that initiated my research, summarize findings for each, discuss study limitations, and provide recommendations for practice, theory, and future research.

I began this study with a layered narrative problematic of climate change education. First, at the level of storied local experience, youth were feeling unprepared educationally to respond to climate change, and to find personal success and wellbeing with(in) that. Second, that education too often remains constrained by some all too familiar narratives of climate change as a future-problem largely framed through technoscientific narratives understood, communicated, and tackled through consumer behaviours and personal solutions. I argue that education is unnecessarily restricted and thereby hindered through the dominance of these familiar narratives. Education needs to pay closer attention to critical, constructivist, and ontologically-distinct Indigenous narratives of climate change as spiritual sickness, colonization, and co-imbricated systems of capitalism and patriarchy, that are critical for fulsome and locally-relevant responses. Moreover, the problem of climate change is often educationally storied as a knowledge deficit, and mechanized education as the means by which to correct this problem. Children and youth are instrumentalized in this narrative too – as either the ones who will convince adults to act now, or as the ones who will save us all when they become adults and make better choices; burdened with the truth, without sufficient educational means for agency and action now.

Education becomes problematically storied as outside the problem, narrowing the educational imaginary to education *about* climate change, rather than education *in* (the era of) climate change. This narrowing seriously risks neglecting the emotional and educational needs of teachers, children, and youth *now* as they navigate an era of juxtaposing spirals into climate collapse, poly-crisis, increased precarity, and grief, and spirals into emergent possibilities for thriving and just futures. Climate change education that is *about* climate change only, further avoids introspective

inquiry into education's complicity in the climate crisis and how educational structures and content might be understood as *unsustainable* education (Morins, 2020) that need to be unmade and re-made.

The third layer of narrative problematic lies in this introspective work, and the foundational narratives of education that are also root narratives fueling climate crisis. These narratives include humans as above nature, and nature as a set of resources to be worked upon and extracted for human benefit; narratives about the nature of knowledge as provable facts separate from context and experience discovered through replicable experimentation and rational thinking. Narratives of collective success as continued economic growth and technological advancement, and a continuation of existing socio-political-economic systems; and individually as the accumulation of money, stuff, external validation, and power over others. I entered this study cognizant that most often, climate change education is only interested in adding knowledge and curricular content to the world. It is within a lineage of literature critiquing this dominant educational approach (e.g., Jorgenson, Stephens, & White, 2019; Monroe et al., 2019; Reid, 2019; Rousell & Cutter-Mackenzie, 2020; Mbah et al., 2021; Vamvalis, 2023) that this dissertation inquires into what else is possible.

My study joins a growing body of research and practitioners calling for education to be re-storied and re-imagined in response to climate change and imbricated histories and patterns of injustice. To engage in this inquiry, I co-created a pedagogical experiment, Rooted and Rising (R+R) a youth climate leadership education program experimenting in supportive education for reconsidering the world, and doing so *with* youth actively pursuing thriving and just futures and trying to live well through crisis now. I was interested in the storied experiences of teaching team members, students, and myself as an educator and researcher with(in) R+R. I approached this study as practitioner research, understanding the students of R+R as practitioners of climate action/justice/care, each member of the teaching team as practitioners of the same and of education, and as myself as a practitioner of education in the program with which I researched. Narrative inquiry served as a helpful methodological guide to navigate this dual role as researcher and educator, as it embraces the knowledge held in storied experiences, and encourages researchers to study their own storied experiences as a part of their research (Heikkinen, de Jogn, & Vanderlinde, 2016). In this research, I offered narrative reflections with a partial, localized, imperfect practice of education collaborating with and supporting young people in the great turning.

My dissertation was driven by the question: how does the era of climate change compel a re-storying of education? And I was interested in all three layers of re-storying – local storied experience, educational narratives about climate change and education, and foundational narratives

of education that need to be re-storied as a climate response. I investigated three sub-questions for insight: (1) What was the emergent curriculum of Rooted and Rising? (2) What were significant framings and emerging narratives for the teaching team and youth leaders in Rooted and Rising? (3) And, more generally, what do these narratives offer teachers, students, and multiple other educators in the era of climate change? I gathered data through three channels: data on curriculum from the program report, public materials, and field notes; personal reflections and field notes with which to reflect on my own experiences and practices; and semi-structured interviews with six out of ten teaching team members, and four out of twenty-two youth leaders in the program, conducted mid-way and at the conclusion of the program.

8.1 Findings

My inquiry offers three sets of significant narratives for the re-storying of education in the era of climate change. These narratives re-story and re-structure education as prefigurative education around desired futures. Prefigurative education is the deliberate and experimental practice of desired futures in the here and now (Raekstad & Gradin, 2020), seeking to prepare learners for alternative desired (climate) futures through the *practice* and embodiment of them now, in and beyond the classroom. Prefigurative education reconsiders the world, relationships, and education itself through deliberate and improvisational practice and tinkering; unmaking and re-making desired futures, social relations, and systems. Climate change is not simply considered a collection of concepts to be added onto existing curriculum plans – though this does not negate the need to learn climate science! – but as an era filled with uncertainty and creative tensions in which we are currently living, teaching, learning, and leading. In many ways, a turn to prefigurative education seeks to evaporate boundaries between climate change education and the rest of education, taking climate change as a learning moment in which to re-make learning systems and spaces towards desired futures. The invitation is for education to *be* interconnecting, social action, and desired futures, in highly contextual, imperfect, and iterative ways.

(1) What was the emergent curriculum of Rooted and Rising?

I hope to have shown the emergent curriculum of R+R happened in and through local relationships and organizational entanglements. In Chapter 4, I focused on the early forming of the teaching team and organizational partners which created an ecology of accountability for the program institutionally and at the community level. I spoke about how formal partnerships were not

the only organizations informing the curriculum. The 10-person teaching team included professors, graduate students, artists, storytellers, community educators, (youth) activists, organization leaders, and ecosystem restorers who were committed to various environmental, cultural/spiritual, sovereignty, and social justice organizations and collectives, some of whom were formal partners, some of whom were not, yet all informed R+R. I wrote on the porous nature of these relationships within curriculum design, how the commitments and curiosities of other collectives informed R+R's curriculum as it sought to attend to the educational needs of youth in these same spaces. In its earliest conception, Rooted and Rising was storied as a collaboration, an offering, and an experimental inquiry into educational possibilities.

In Chapter 4, I also wrote about how the teaching team co-created the curriculum by first setting program values all together, and then self-selecting into pairs or trios to develop and facilitate curriculum for particular classes. So, while curriculum was planned pre-program at a general level, it was developed in detail often in the week or two leading up to a class; meaning curriculum was emergently developed, guided by these early values, team trust, and post-class team debriefs/reflections which enabled effective and continual tinkering as the program progressed.

The curriculum centered around collaborative social action projects, and in Chapter 4, I looked at the curriculum in four phases: opening and attuning to our situation and interrelations, intentional project ideation, active project time, and a closing celebration. Across Chapters 4-7, the most pronounced curricular approaches included personal reflection, often with nature as muse, class discussions paired with presentations sharing different perspectives, creative digital expression, and student-designed social action. The curriculum also included unlearning inner narratives like social comparison and imposter syndrome that hinder action and wellbeing. The focus was not on climate science nor learning the expected impacts of, or technical solutions for climate change. Instead, the focus was on subjective and intersubjective learning, socio-emotional skills, desired futures, and funded educational space for activating those futures in the here and now. R+R's emergent curriculum provides an imperfect example of a prefigurative approach. The teaching team approached curriculum development as a collaborative experimental inquiry, explicitly acknowledging that we too would be learners in the space, learning and adapting pedagogy with students through the practice of it; supported and hindered by online spaces in facilitating agential and collaborative relations between students and teaching team.

(2) What were significant framings and emerging narratives for the teaching team and youth leaders in Rooted and Rising?

This research question was addressed across chapters 5-7, each reflecting with a significant set of narratives in Rooted and Rising: Interconnecting, Social Action, and Desired Futures. These three narratives and their sub-stories were significant for youth and teachers in R+R and offer significant narratives towards the re-storying of education.

Interconnecting

The first significant narrative in Rooted and Rising was Interconnecting. In Chapter 5, I examined three pedagogical openings to the program that rooted and sustained R+R into foundational pedagogical narratives of Interconnecting. I collected retellings and reflection with opening practices, generating three narratives of Interconnecting. First, Valuing attended to the significance of beginning program design by first valuing the existing visions and values of partnering and external organizations connected relationally through teaching team members, and then negotiating our own series of values. These values – a collection of negotiated terms and shared meanings – were plotted along spiral timeline, becoming touchstones throughout the program. As a first step of team and curriculum building, Valuing rooted R+R into shared values and purpose, enabling the team to experiment and adapt curriculum content with greater agility and relational ease. It also importantly created a container for prefigurative planning, as the teaching team's felt experience of the day mirrored the values generated through that creative co-development and set the socio-emotional tone of the program.

The second significant narrative, Attending, told of the first class of the program, conducted as an opening ceremony. Elder Whabagoon invited students and the whole R+R learning community to open our individual and collective attention to the birds, trees, wind, strawberries as living beings and elements who are a part of our conversation. Through story, song, invitation, and ritual, individual and collective attention was focused on remembering and honouring the wisdom of nature beings and elements, and to the wisdom within us accessed through the heart as a portal of interconnectedness (Mercurieff, 2019). Attending here included noticing, listening, slowing down, heart, quieting thinking, thanking, and honouring.

The third narrative of Interconnecting, Sustaining, focused on the weekly opening practice of breath, gratitude, and welcome, that offered consistent opening into interconnecting. Students

shared that these practices helped them intentional step into the container of class, to drop out of a distress state and feel into a sense of connectedness with self, community, and Earth. While gratitude was narrated as a moment to remember who you really are in relation to others, it also brought narrative and felt tensions, discomforts, and dissonance with traditional/religious-personal practices. I also looked at the narrative significance of Sustaining in relationship to students' and teaching team members' storied experiences of distress, including from (C)PTSD, systemic racism, and air pollution, and how this distress impacted their ability to breathe, learn, and collaborate. The permission to not be perfect and to take care felt jarring and important for some students who contrasted this experience with other schooling experiences of being hurried along a standard developmental path and feeling scorned, lesser than, or embarrassed for not meeting the 'standard'. One student named this a colonial narrative, replicated in schooling, that asks students to prove their worth through knowledge accumulation; and in this context, they found R+R's alternative narrative of 'enoughness' and welcome important and healing. Across Interconnecting, narratives of medicinal pedagogies, or pedagogy as medicine emerge that not only notice student and worldly distress but attend to it; pedagogy that creates space for slowing down, noticing, and sensing back into interconnectedness.

Social Action

I reflected with the second significant narrative, Social Action, in Chapter 6. Recognizing the many ways that climate change education is often storied as individual and consumerist, I alternatively asked after what it means to de-privatize and re-socialize climate change education. R+R teaching team members grappled with and relied on processual narratives as we practiced the pedagogical experiment. Climate change was storied by teaching team members as a context of education, partially characterized by mass uncertainty, and partially by systems transformation: one collective foot in an old collapsing system, and one foot in new-ancient emerging systems yet to be fully experienced. In this context, education becomes re-structured as a process of figuring it out as we go, students and teachers together improvising, tinkering, and iterating in a rapidly changing world. I reflected with supportive narratives teaching team members used – such as teaching as a creative practice, improvisation, and naming the tensions of pursuing desired futures in pedagogical practice while still (partially) operating in old broken structures as *creative* tensions. I also reflected with the challenges of grappling with the loss of certainty and associated authority as educators, of letting go of perfect outcomes and yet still attending to worries as signals for adaptation.

Social narratives also emerged. In R+R climate change was taken up as a deeply social context, and CCE as deeply social and collaborative too. In Chapter 6, I attended to four social collaboration narratives of significance. The first is a narrative of leadership as collaboration storied through an activity exploring leadership traits. The activity widened the list of perceived leadership traits beyond only those found in dominant industrial/neo-liberal/colonial narratives of leaders, working to re-story leadership relationally as collaboration between (individuals who carry) unique gifts/strengths. One student engaged this new narrative of leadership to shift herself from adhesive learning to self-discovery, seeing herself as a leader in a field of other leaders who are all always learning at different rates and in different ways. I also reflected with how this re-storying revealed tensions and emotional ruptures for students as they confronted and re-made internalized industrial leadership ideals.

The second social narrative positions education as multidirectional teaching and learning in which both students and educators contribute to and learn from the learning community. Students reflected on how they learned by witnessing other students' strengths, perspectives, lived experiences, and project interests, which expanded their imaginative capacity for what is possible, and fostered self-acceptance as they accepted others as they were. These reflections brought my attention to the importance of social 'witnessing' as a learning practice in prefigurative classrooms. The third social narrative of collaboration reflects on the teaching team's role as collaborators in students' social action projects. I reflected on the specific support roles that the teaching team played: realistic reimagining, connecting students with community networks, assisting with team and finance coordination, and the felt experience of support and 'symbiosis' by students. The fourth narrative, inspired by Clemi's collaboration story, challenges narratives that the ideal group work distribution is equal, and instead compassionately recognizes uneven capacities in an unjust world. Clemi took up R+R's social narratives and embraced unique contributions, prioritizing presence, open communication, and shared purpose over rigid structures. As a result, uneven contributions were experienced as effective and just collaboration. R+R provided space for students to reflect on relational/collaborative leadership and practice it through educationally supported social action.

The final significant narrative of Social Action was Planetary Healing, where I learned from and reflected with two student projects that told narratives of planetary healing *with* strawberries, and *with* clay. Their projects engaged strawberries and clay as collaborators in healing, and as offering them healing and wisdom. Here, educators and students are not alone, but can turn to active creative processes with nature as collaborator to heal *with and by* Earth as a practice of planetary healing

including regenerating local ecosystems, connecting with land and plant nations, processing trauma out of the body, holding and learning with that which cannot be spoken, and cultivating an antidote to rampant consumerism through mindful co-creation and curation of objects and food. It serves as a reminder that creating thriving futures involves facing, processing, and living with irreconcilable pain, trauma, and exhaustion held in all bodies, and particularly the bodies of formerly enslaved, colonized, and otherwise marginalized people (Hersey, 2022).

Desired Futures

In Chapter 7, *Desired Futures*, I offered prompts for prefigurative pedagogy in reflection with three activities that evoked desired futures and the resultant student content. Through vision boards, leadership statements, and a co-developed digital manifesto, R+R turned to desire, play and prefiguration. Resisting diagnostic educational narratives of climate change as a problem to be fixed, or with gaps that need to be addressed, or narratives of communities as deficient, R+R turned to a framing of desire, asking after what students want the future to be, rather than what they think it will be or realistically could be. These were imaginative invitations that leaned into pedagogies of play – offering playful pauses for students to reflect on what really matters in their lives and who they really are – probing broader relational, values, and structural questions around why we are doing climate/educational work. What kind of life are we looking to preserve/enable? What does ‘thriving futures’ mean individually and collectively? In these invitations, the future was positioned as open-ended and malleable, and students reflected that the exercises did evoke a felt sense of agency and control in relation to their future. Pedagogically, these invitations implied a re-storying and reorganization of education towards those desired futures. If the future is open-ended and malleable, then education becomes an informed seeking of desired futures that includes storying, understanding, preparing for, creating those futures in the here and now.

In Chapter 7, I also turned to the content of students’ desired futures and spent time teasing out their desired temporalities, desires for well beings, and desired aesthetics. Contrasting (schooling) experiences of being hurried along predetermined pathways, students expressed desires for slowing down; for futures in which they have the time and space to just exist, be curious, and feel free. Students also expressed new ancient temporalities in their desired futures in two ways: first, their desires are entangled with, reproduce, and learn from global movements across time and space that have mutually desired free, just, thriving, and joyful worlds. Second, students long for futures that are in significant part a return to and remembering of ancient, traditional, and familial ways of

being in relationship with the world and with Earth, demonstrated through images and narratives of reciprocal thriving with the natural world, digital connections that act like rhizomes, societies that honor earth, learning ancestral languages, and leaning into traditional and family practices such as gardening, farming, and building relationships with the land. Students dreamt forward Well Beings, a future narrative of multispecies thriving rooted in a narrative frame of interconnectedness. Through Well Beings, students advocated for everyone and everything to be treated with care and dignity. Key features of desired futures of/by/for well beings included sharing economies and supportive healing relationships; belonging in which all human and non-human beings are accepted and offered support in their thriving; sovereignty, multiplicity, and creative practice in pursuit of joy and happiness.

Finally, students desired futures reflect particular aesthetics. I analyzed their desired aesthetics as biophilic, particularly expressed through visuals of fruits, vegetables, plants, forests, green architecture, and natural places that filled students' vision boards. Second, I noticed students' desired futures held an artful aesthetic. They attended to personal practices of artmaking, public art, everyday artful objects as intentionally carrying cultural and ethical narratives that reinforce desired futures. They offer an educational lens with which to read and interact with the world, asking what would happen to the way we teach and learn if everything is art?

(3) What do these narratives offer teachers, students, and multiple other educators in the era of climate change?

The answer to this final research question is taken up in the contributions and recommendations sections below.

8.2 Contributions to Theory

Together, these narratives offer a re-storying education as prefigurative in the era of climate change, defined as the deliberate experimental implementation of desired futures in the here and now (Raekstad & Gradin, 2020). Interconnecting, Social Action, and Desired Futures structure three sets of significant narratives towards this re-storying.

This dissertation contributes to arguments for CCE to refocus from education *about* climate change to education *in* climate change. R+R provides an example of attending to the emotional-mental-spiritual-physical challenges of living through climate collapse and emergent systems change. In general, this dissertation contributes to the literature that recognizes the broader project climate

change compels of education, which is to totally re-story and thereby re-make formal education from uprooting foundational colonial-Eurocentric ontological starting points all the way through; an argument that joins in friendship with existing Indigenous-sovereignty-rooted calls for the same.

I have attended to forms of learning and knowledge often left out of CCE and education in general. In Chapter 5, learning from Elder Whabagoon and traditional Ojibwe knowledge-and-practices, I followed inquiry into heart-centered learning and change-making, and pedagogical practices that can sustain, tend to, and remember felt interconnectedness through practices like breath and gratitude. In Chapter 5 and 6, I attended to distress, trauma, and wisdom held in the body encouraging CCE not only to attend to the distress of the planet/ecosystems, but also to that in the bodies of learners, teachers, and communities, the ways in which the wellbeing and healing of bodies are interconnected, and how we learn through our bodies (instead of only the mind). Across Chapters 5-7, attention is given to spiritual knowing and inner knowing, challenging CCE to pay attention to the information we need to come into right relations and desired futures that already exists within us through our interconnectedness with all living things.

In Chapter 6, I challenged theoretical CCE positionings that claim to have *The* right model or curriculum to follow, offering a messier processual narrative of education as continual improvisation and tinkering that requires emotional-mental fortitude from educators and a willingness to live and teach with uncertainty. I also contributed to literature on project-based CCE. R+R's pedagogical experiment offered micro-funding to student projects in one collective pot, and this is an innovative approach to add to the literature, alongside pedagogical narratives of educators as active collaborators in student projects. In Chapter 7, I challenged the dominant diagnostic model of CCE that seeks to identify and fix a problem, and instead offered Desired Futures as a narrative frame for education. I positioned playful and imaginative practices of dreaming and expressing desired futures as highly educational, contributing to affective learning and self-discovery. My dissertation challenges education and CCE to take seriously young people's desired futures, and to re-root educational narratives of the future and associated notions of success and meaningful education through those ever evolving and complex desired futures.

My dissertation also contributes reflections on the practice of re-storying too, as a living, highly contextual and imperfect process in need of tinkering, new-ancient remembering, and improvisation just like education itself. Re-storying is also an iterative and deliberate practice, and as desired futures are practiced and articulated more, what is desired becomes clearer and clearer, leading to deeper and more radical transformation. This dissertation contributes to an understanding

of re-storying as a practice of un-learning harmful narratives and remembering ancient narratives of interconnectedness and right relations alongside new innovations. I offer reflections that this is not easy work as there are continual (and educationally important) ruptures and disruptions, discomfort, confronting, processing, healing at the personal and collective level. Narratives in R+R offer reminders that the inner work educators and students do to know and love themselves more fully, to be more in control of their own emotional micro-climate and more deliberate in the kind of inner and social feelings they are generating, is important climate and educational work.

Finally, my dissertation contributes to the methodological theory of Narrative Inquiry by articulating a particular style of Narrative Inquiry. I conducted a *pedagogical* narrative inquiry where the subject of inquiry was not the individuals interviewed, but rather Rooted and Rising, the pedagogical experiment itself. In Chapter 3 I introduce this style of NI, grounding it in a definition of pedagogical narratives as the foundational stories that (1) a pedagogy is built upon, (2) are expressed through the pedagogy, and (3) emerge out of pedagogical practice. I turned to Eisner (2002) to identify the many forms in which pedagogical narratives can be expressed, from explicit, to implicit and null curriculum. Overall, this dissertation contributes to educational theory by advocating for a prefigurative re-storying of education, challenging prevailing Climate Change Education (CCE) approaches, addressing neglected aspects of learning, and proposing narratives and methodologies that emphasize the interconnectedness of personal, collective, systemic, and educational transformations.

8.3 Limitations

This study, like all others, carries limitations, and here I pause to reflect on the limitations of my interview sample, wider application, and positionality. First, my sample size was small. Out of twenty-two students in the program, only four contributed their storied experiences to this dissertation. The experiences of these four students can in no way be said to represent the experience of all students in the program. This is, however, a narrative inquiry that is not interested in absolute truths, but rather in intimate storied experiences. The small sample size also meant I could engage their thoughts and experiences throughout this dissertation with a consistency and depth that would not have been possible with a larger sample size.

I also recognize a limitation regarding the applicability of this study to other educational contexts. First, this was not an evaluative study, and so as much as any pedagogical practice was reflected in a positive light, this research should not be used to claim definitive methods for teaching

climate change with all students in all contexts, nor to claim anything has been proven about education and climate change. R+R took place with only twenty-two students, all within a small geographical range in southern Ontario. What took place in this program was highly contextual and specific to the place, time, and individuals who took part. It was also for youth who already care about climate change, and what works in this program is not necessarily what would work in a public-school classroom inclusive of passionate, apathetic, and potentially resistant learners. Similarly, I as researcher, and the whole teaching team, were already committed to the project of climate change action and education before co-creating this experiment. Rather, this dissertation offers an exploration into a particular localized practice of re-storying education for and with youth climate leaders, and with this, can offer prompts and inspiration for other educational initiatives. It also contributes to a growing global swell of systemic re-storying. In its distinctiveness from everyday public education, this study, and the pedagogical experiment it explores, also contributes to ‘now what’ inquiries in broader CCE; if for decades education has aimed to incite care and action; and now there are growing swells of young people who are aware, care, and want to act – now what for education?

Thirdly, it is important to again recognize that I write from my own lived experiences, passions, and contributions to the program, and I focused on certain elements of the program over others as a result. If another team member were conducting this study, perhaps they would have seen other narratives as also foundational to the program, or storied these same narratives in other ways that would offer different insights. Further, by focusing on specific narratives and their specific narrative forms in my analysis and writing, what I offer here can only ever be a partial picture of the program. First because I can only ever draw together narratives from the fragments I have been able to collect and what I can see from my particular positionality. Second, because I simply could not write about it all. For example, I do not spend time reflecting deeply with the session on dying, grieving, and disability justice – yet this was another critical session of the program that felt moving and significant for students who were interviewed. This dissertation does not and cannot give a full picture of this program or of a replicable program – it is forever partial, and the program itself is also partial, experimental, and highly contextual to the individuals, and landscapes with and within in which it took part.

8.4 Recommendations

Returning to the question, what do these narratives offer educators and students in the era of climate change, I offer a series of recommendations below. Since these are recommendations for prefigurative education they are also prompts for transformation, social change, and living in the era of climate crisis. I first explore recommendations/prompts for pedagogical practice which also apply to practices of prefigurative climate leadership and social change, followed by recommendations for educational institutions, personal practice, and future research.

Pedagogical Practice:

- 1. Slowing Down into Interconnecting:** Spend time noticing, attending to, and valuing interconnections with the natural world, community, and within self. Pay attention to openings as generative ruptures to peel away from everyday life and dominant narratives of separation, and intentionally move into alternate states of connectedness. Openings as generative ruptures tend to the distress that might be present in body-mind-spirit, facilitate slowing down, center in the heart, and offer opportunities to (re)connect with self, land/nature, body, and the learning community.
- 2. Root into a Narrative of the Inherent Value of All Life:** tend to the interconnecting and reverent narrative that all life has value, and all students already have inherent value and unique gifts walking into the classroom. I invite you to experiment with pedagogical inquiry that begins in earnest appreciation of the diversity and significance of student presence.
- 3. Planning is Prefigurative Too:** In planning prefigurative (educational) practice, tend to the felt experience of the planning. Can planning be prefigurative practice too – embodying both the desired educational/organizational space and desired futures?
- 4. Embrace Multidirectional Teaching and Learning:** What can students learn from each other? Where is there space for students to learn by witnessing each other, expanding their sense of what's possible, and their acceptance of difference, including their own. Extending notions of collaborative multidirectional learning and social action outside of a purely

humanistic framing, R+R narratives further encourage a turn to elements and beings in nature as alive, agential, part of the conversation, holders of wisdom and medicine, givers of life and sustenance, partners and mentors in healing and learning. How might nature elements and beings be embraced as teachers, healers, and collaborators?

5. **Collaborative Social Action Projects:** This research offers an invitation to re-story project-learning goals from completed outcomes to goals of learning collaboration through practice in pursuit of desired futures. I also extend an invitation to story teachers as active helpers in student-led social action.
6. **Playfully Explore Desired Futures Regularly:** Facilitate activities that invite students to explore and articulate their desired futures individually and collaboratively. Ask after desires, and spend time playfully imagining, expressing, and connecting personal and collective desired futures. Not only at the beginning as a way of setting the trajectory, but as a regular practice of clarifying, widening, evolving, and reinforcing desired futures as narratives guiding pedagogy and action. This dissertation also supports a recommendation for general pedagogical practices of play, joy, and feeling good.
7. **Prefigurative is as small as it is monumental change:** Here I echo others, notably adrienne maree brown (2017), who argue for fractal emergent thinking and change-making. A full re-storying and re-structuring education as prefigurative is a monumental task which includes radically unmaking and re-making assessment processes, foundational stories of education, pedagogy, physical spaces and virtually every aspect of schooling. That being said, schools, collectives, educators, youth collaboratives can create temporary assemblages of desired futures in moments, classroom practices, and intentional dialogue. In this inquiry with R+R, multiple students and teaching team members reflected on their ability to tap into a felt sense of desired futures within small, seemingly inconsequential moments and regulation practices such as breathing, or explicitly identifying this learning space as welcoming and accepting.

Institutional Education Practice (Universities and Schools):

1. **Re-Storying Education:** fund and encourage research-practice into re-storying education within your institution. Regularly gather, display, and engage desired (educational) futures from your students, faculty and staff, and surrounding communities.
2. **Support Social Action as Learning:** Take seriously course projects as opportunities for meaningful change-making/healing/learning. Support social action projects with funding (including the necessary teaching time), planning support, and respectfully connecting them with community networks.
3. **Collaborative Learning Spaces:** Create collaborative learning spaces that emphasize interconnecting. Support team teaching efforts and experiment with pedagogical structures that story leadership in the era of climate change as relational and collaborative between many different types of skills/knowledge/strengths.
 - a. **Interdisciplinary Climate Change Courses and Minors:** I recommend that universities create Minors in Climate Leadership / The Great Turning / The New Beautiful Everything that enable students to maintain specialized majors and apply those specializations with others in collaborative practices of interconnecting, *funded* social action, and desired futures.
4. **Foundational Narratives Audit:** audit pedagogical, social, administrative practices and aesthetics. Narrative inquiry is a helpful research framework to deepen understanding alongside more traditional audit and whole school assessment formats. What foundational narratives of reality, knowledge, climate, and futures are being told through those practices? How do these narratives align with the desired futures of your student population and institutional community? How do they misalign?
5. **Audit of Possibilities:** from an appreciative lens, audit school practices and spaces for where and how desired futures can be and are being deliberately and experimentally implemented in/as education.

Guiding Questions for Educational Institutions:

- What are the desired futures of your students and school communities?

- What does it mean to be educationally accountable to those futures now?
- What futures are you investing in? What futures are you disinvesting from (Machiado de Oliveria, 2021)?
 - Do your pedagogical narratives reflect desired futures? What about your aesthetics?
 - What policies and administrative procedures are creating barriers for staff and students to practice and iterate healthy thriving joyful futures now?
- What needs to change in your teaching, social, and administrative practices to affirm the intrinsic value of every student and all life?
- How can you prioritize educational narratives that recognize the interconnections between ecological, social, and individual (physical, mental, emotional, spiritual) health and well-being?
- How do you create and attend to the conditions for collaboration?

Personal Practice:

For educators, researchers, and youth engaged in climate (alter)activism, leadership, and education:

1. **Inner Story-work, in community:** What kinds of stories do you tell yourself about yourself and about the world? How do internalized foundational (educational) narratives at the root of climate crisis show up in your own thought patterns and perceptions, and associated habits and actions? What do you want to let die/let go/clean the wound and heal from? How do these show up in your pedagogical/changemaking practice? Where can you engage this inner work and discover self in relation to others in community?
2. **Clarifying Desired Futures:** just like in pedagogical recommendations here too is an invitation to regularly cultivate imaginative play into desired futures. What do you desire? How do you want to feel? How can you cultivate that now? Think about interconnected desires of/for self, community, earth, water, etc.
3. **Tinkering and Iterating Mindset:** Cultivate a mindset of continual tinkering and iterating in/with rapid societal changes. Embrace imperfections and continual learning, recognizing the need for ongoing adjustments in pedagogy and action. Embrace tensions as creative tensions

and teaching/changemaking as creative practice. (I'm still learning this one!).

4. **Pause to process the uncertainty and loss** associated with era of climate change and with prefigurative education/change with others (human and more than human): the loss of certainty, 'perfect' outcomes, personal projections in an era of rapid change, and of course, the (anticipated) loss of life. Embrace the uncertainty inherent in the process of figuring out education in a transforming world, acknowledging the imperfections and challenges it brings.
5. **Slowing down:** What are your practices of slowing down? Going within? How do you cultivate your intuitive knowing? Where do you make time to listen to and have conversation with nature? What would it look like for you to nourish and tend to yourself and your inner world as a microcosm of the collective and of planetary wellbeing you desire? When do you play? How can you carve out time to just exist and be curious?

Research Recommendations:

Finally, I wish to offer recommendations, curiosities really, for future research, including some curiosities I am left with that extend beyond the scope of my dissertation focus.

1. **Pedagogical Narrative Inquiries into Prefigurative Education:** This dissertation encourages future research using pedagogical narrative inquiry as a collaborative practice of re-storying foundational educational narratives of education. Narrative Inquiry is highly contextual and localized, and there is a need for more inquiry research that explores more local experiments. Pedagogical Narrative Inquiry can be a key methodological tool for prefigurative education that facilitates deeper understanding of students' experiences and learnings compared to/ in addition to traditional evaluative measures.
 - a. **Insider Research:** Reflecting on my deep immersion in Rooted and Rising and pre-existing connections with the interviewees, this research underscores that researcher embeddedness and insider status should be considered a strength of pedagogical narrative inquiry and opens doors for more (partial)insider-pedagogical-narrative-inquiry. The established rapport and trust fostered by my prior relationships with participants facilitated an openness and depth of sharing that would likely have taken a significant amount of time for an unfamiliar researcher to establish. Additionally, I

see my insider researcher reflexivity within the study as enhancing the depth and credibility of the data interpretation.

2. **Climate Change and Spirituality/Sacredness in Education:** In this study, educational tensions and possibilities were raised in the pedagogical integration of spirit into prefigurative education, and CCE more broadly, with a specific focus on Indigenous practices. I am eager to learn more from research on spiritual tradition in education, environmental connection, and climate change, and how non-Indigenous educators, and Indigenous-non-Indigenous collaborative education can respectfully incorporate spirituality and a sense of the sacred into climate education with multifaith populations. I am interested in the creative tensions, ruptures, and openings offered through these practices (both ‘successful’ and ‘failed’ attempts).
3. **Interdisciplinary Teaching Teams in Formal Schools:** R+R was designed and facilitated by a large teaching team which bridged institutional and informal learning. The study prompts curiosity into research about effective strategies for interdisciplinary teaching teams within formal educational settings, drawing insights from collaborative teaching models and challenges like the ones observed in the R+R teaching team. There is a further practical need for economic and structural analyses to explore when team teaching makes sense, and how to effectively scale it at the institutional level.
4. **Re-imagining Assessment in the Era of Climate Change:** Prefigurative education might be understood in opposition to models of teaching to/testing through standardized testing, grades, and other educational hierarchies. This prompts future research into meaningful and relevant evaluation and assessment models for prefigurative education.
5. **Pedagogy as Medicine:** Within prefigurative education, I remain interested in medicinal pedagogies, or pedagogy as medicine. I am hungry for CCE research that indulges this pedagogical narrative, and explores how education can contribute to the healing, wellbeing and unwellness of students, communities, planet. There is space for other forms of research that can understand the potential impact of medicinal pedagogical on mental, physical, emotional, social, and spiritual health, and overall learning.

6. **Desired (Climate) Futures in Education:** while there is an abundance of research quantifying and examining student and teacher knowledge deficits when it comes to climate change, and a growing collection of research on student and teacher climate emotions – with strong emphasis on negative emotions of fear, anxiety, anger contrasted with ‘hope’ – there is relative paucity of research into student and teacher desired futures in the era of climate change gathered through personal and collective practices. This research spurs more future inquiry into desired climate futures, desired educational futures, desired personal futures which should be used to birth, inform, and create educational and societal transformation.

7. **CCE & Play:** in chapter 7, I reflect on the invitation to play, not in serious climate disaster prediction games, but also joyful imaginative and creative play into desired futures. I would like to see future research that explores playful pedagogy (including existing literature on play in education) that supports students and teachers in remembering themselves and what truly matters, and in feeling joyful and free if only temporarily.

8. **Inquiry into emotional experiences of teaching as improvisation and tinkering:** This dissertation highlights the emotional and mental challenges and worries educators in R+R had to navigate in our practice of improvisation. I am interested in future research on this experience, and the tools, resources, and narratives that educators find helpful in this process; and I see Narrative Inquiry as a methodology well suited to this research.

Appendixes

Appendix A: Interview Questions

Youth Participants 1st interview – half-way through the program

What's the story of how you came to be a part of Rooted and Rising?

Can you tell me about your experiences in the program so far?

Possible Follow-Up Prompts:

Can you tell me more about...?

How do you think that impacted...?

How is this program different, or the same, as other school time you've had on climate change?

Closing Questions:

How was it for you to be talking to me in this way today?

What questions do you have for me as we end our time together?

Youth Participants 2nd interview – right after the program has ended

How do you feel now that you've finished the Rooted and Rising program?

Can you tell me the story of climate change as you see it?

Where do you see yourself in that story?

What kind of leadership do you think climate change demands?

Who do you think are leaders?

What kind of leader are you?

Read back some self-reflection content, ask how they feel about the statement they made now

Tell me about your time in the program?

Possible Follow-Up Prompts:

Can you tell me more about...?

Can you tell me about a time you felt challenged?

Can you tell me about a session that you really connected with? (and one you didn't)

Read back story participant told about climate change: Is this still the story you would tell?

Closing Questions:

How was it for you to be talking to me in this way today?

What questions do you have for me as we end our time together?

Teaching Team - Participants 1st interview – half-way through the program

What's your story of how you came to be a part of Rooted and Rising?

Can you tell me about your experiences designing and overseeing the program so far?

Possible Follow-Up Prompts:

Can you tell me more about...?

How do you think that impacted...?

Can you tell me the story of youth today in climate change as you see it?
Where do you see yourself in that story?

Can you tell me about a time when a participant(s) said or did something that really resonated, maybe made you think about something differently?

Closing Questions:

How was it for you to be talking to me in this way today?

What questions do you have for me as we end our time together?

Teaching Team – Participants 2nd interview – within 3 weeks of the program ending.

How do you feel now that the first Rooted and Rising program is done?

Can you tell me about your experience of the closing weekend?

Can you share some of your experiences around the projects? Times you talked to students and what that was like, your anxieties with it, your reactions in seeing them 'completed'?

What did your time in this program teach you about, or affirm for you, the kinds of leadership that climate change demands, or who those leaders are?

What do you think is the future for this program?

Read back elements of stories shared in the last interview:

How does it feel to read this back?
Does this still represent how you feel/what you think?
What would you add to this?

Closing Questions:

How was it for you to be talking to me in this way today?

What questions do you have for me as we end our time together?

Appendix B: Invitation Script

Email to Youth Participants from a Volunteer for Research Participation:

Subject Line: Research Follow-Up – Please Respond

Hi [possible participant's name],

Thanks for emailing to say you're interested in taking part of the research on youth education in climate change.

I have attached a consent form [if applicable: one for you, and one for your parent or guardian]. This document tells you again about the purpose of the research, what's being asked of you, and about your rights as a participant. It's important that you give this a read, and make sure this is something you want to do.

If you still want to participate, write me back to say 'Yes', and I will give your contact information to the researcher – only they and I will know about your participation.

If you don't want to participate anymore, **please write back to say 'no'**. If you don't want to anymore that's totally ok, it won't affect anything. Participating in this research is voluntary!

If you have any questions, please write back and I will do my best to answer them.

Thank you,
[volunteer's name]
[volunteer's phone number]

Follow-up Email/Text if no Reply – One Week After Previous E-mail

Hi [possible participant's name],

I'm following up because I haven't heard from you whether or not you want to participate in the research.

If you still want to participate, write me back to say 'Yes', and I will give your contact information to the researcher – only they and I will know about your participation.

This will be the last email I send to remind you. If you don't want to participate you can let me know, or just not respond to this email. If I don't hear from you in another week, I'll assume you do not want to participate, unless you write to tell me differently.

Respectfully,
[volunteer's name]
[volunteer's phone number]

Appendix C: Consent Form Example

Informed Consent Form: Youth Participant Interview

Date:

Study Name: Youth Leadership Education in a Climate Emergency

Researcher name:

Roxanne Cohen, Education, Education: Language, Culture and Teaching, PhD, York University, Principal Investigator.

Contact me at: cohenrox@yorku.ca

Purpose of the Research:

I would like to invite you to participate in my research study. Your participation will help me better understand the experiences and needs of youth and educators engaging with climate change.

For this research, I will interview willing participants and steering committee members from the Rooted and Rising youth climate leadership program during and after the program.

I'll then reflect on the stories shared with me and write my PhD dissertation (an essay or book that is available to and through the university) on what I learned and how I learnt it. This research will also be shared as published writing in journals, and I will present at conferences. I may also share sections of my dissertation as publicly accessible online articles and presentations.

What You Will Be Asked to Do in the Research:

For this research, I am asking you to sit with me for 3 interviews and share your experiences: one between week 3-5 of the program, the second right after the program's over, and a third one-year after the program. Each interview will take about an hour, and we will meet where you feel most comfortable - either privately in the location of the RaR program before or after a session; or, in your home.

In these interviews I'll ask you to share stories about your experiences in the RaR program, what led you to the program and where you want to go after the program, as well as your experiences in schools. In the second and third interviews, we might reflect on what we talked about last time and see how your thoughts might have changed.

Risks and Discomforts:

There is a minimal risk that you may feel some emotional discomfort during our interviews. Our conversation may touch on emotional moments in your past related to climate change, and emotional topics of species loss, and climate change; and, you may feel upset or angry when you speak about your feelings and thoughts related to these topics.

You may feel uncomfortable because some RaR participants doing these interviews and others are not. I encourage you to talk with me if any feelings come up. This is a voluntary conversation and is not meant to negatively impact our relationship in RaR or personally.

Benefits of the Research and Benefits to You:

By participating in this research, you will have more focused time to reflect on your experiences in RaR and your life goals for yourself and your communities in climate change; and, this practice of reflection may add to your learning started in the RaR program. This research will also benefit the scholarly community and education community more broadly by providing insight into the education that young people interested in addressing climate change need in order to feel supported and prepared to meet the challenge.

Voluntary Participation and Withdrawal:

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with me the researcher, or the nature of your relationship with York University either now, or in the future.

Your decision to participate or to withdraw your participation, and any information you share during interviews, will not affect or influence your ability to complete the RaR program.

In the event you withdraw from the study, all data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

Confidentiality:

Your real name and the real name of the program will not be used, unless you decide that you want the research to use your real name.

With your permission, the interview will be audio recorded, and I will also take some handwritten notes of themes (no identifying information will be written here), and later the recordings will be transcribed into writing.

This study will use Zoom to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Further, while York University researchers will not collect or use IP address or other information which could link your participant to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the researcher. If you are concerned about this, I would be happy to make alternative arrangements for you to participate via telephone. Please contact Roxanne Cohen at cobrox@yorku.ca for further information.

Audio recordings will be saved in a password protected file on the researcher's local computer, not the cloud-based service, and will be permanently deleted after transcription.

Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting / data collection session.

When audio is transcribed, I will remove all identifying information. Your name will be changed to a fake name, unless you have chosen to stay known, and all identifying details like names and locations will be removed or changed. The transcriptions will also be stored on a password-protected computer, in a password-protected folder; and after the research is ended, stored on a password-protected external hard-drive. Signed consent forms will be stored in a password protected folder on a password-protected external hard-drive and deleted five years after the research comes to an end, approximately May 2025. Only the researcher and my supervisor will have access to any of this information.

I will remove all information that someone could use to recognize you; however, there is a risk that someone who knows you well in the program or outside the program, and knows you are in the study may be able to indirectly identify you through the stories you share. I encourage you to keep this in mind as you choose who you tell about your participation in this study.

I will share with you any elements of your story that I plan to publish, and you will have the choice to remove any statement / information you shared in the interviews from the research.

The data collected in this research project may be used – in an anonymized form - by the researcher in subsequent research investigations exploring similar lines of inquiry. Such projects will still undergo ethics review by the HPRC, our institutional REB. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact me at cohenrox@yorku.ca or my supervisor, Steve Alsop at salsop@edu.yorku.ca and/or 416-736-2100 Ext. 20665. You may also contact the Graduate Program in the Faculty of Education at York University at gradprogram@edu.yorku.ca and/or 416-736-5018.

This research has received ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University’s Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Signatures:

I, _____, consent to participate in Youth Leadership Education in a Climate Emergency research, conducted by Roxanne Cohen, I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature
Participant

Date

Signature
Parent/Guardian, if participant is under 16 years old.

Date

Signature
Principal Investigator

Date

Additional consent:

1. Audio recording

I consent to the audio-recording of my interview(s).

Signature:

Date:

Participant: (name)

Parent/Guardian if participant is under 16: (name)

2. Consent to waive anonymity

I, _____, consent to the use of my name in the publications arising from this research.

Signature:

Date:

Participant: (name)

Parent/Guardian if participant is under 16: (name)

Appendix D: Introducing Interviewees

I also want to take an opportunity to introduce the ten interviewees who have generously and vulnerably shared their time, experiences, and thoughts with me for this research. In writing this section, I struggled with how much details to provide around their identities and personal histories, and how much to analyze what they had to share. This is, after all, a pedagogical narrative inquiry, in which the focus is R+R the pedagogical experiment, not the individuals interviewed like a standard narrative inquiry. I have decided is that it is important for you as readers to understand a little bit of who each interviewee is, and how they came to be connected to R+R relationally and through their life journey/experiences. However, it is not the role of this research to analyze their introductions; but rather, to offer them as context so that you, dear reader, may better follow their narratives across these chapters, and understand a little more about who it is that is sharing.

a) Teaching Team Members:

I was gifted the opportunity to interview six out of ten members of the teaching team:

Kristen(she/her): is Filipina artist-leader, educator, arts magazine editor, and passionate about ceremony and healing among other things, born and raised in the GTA. Kristen and I are long time

collaborators, so when I asked how she came to be involved in R+R, she had a lot to share. She reflected on how her and I first came to collaborate. We first met in an impactful university course together, and then after graduating, Kristen reached out to me over Facebook around the time she left her “very corporate desk-in-an-office style job”. Kristen also reconnected with me feeling like university had left her “full of resentment towards what was not working”, equipped with “tools to critique” but not “supported or encouraged to embody or play with or imagine what else could be possible”, and so, “I suppose, in a negative way, I was pushed towards imagining what was possible, in the sense that because I didn't receive it, I then like craved that space” (Kristen, i1). When we met up, we found resonance in that experience, and I invited her to run Conscious Minds Camp (CMC) with me, and we did that for many years together. Then,

After learning a lot together and as a community, but I think especially as the two of us together: we both chose to step away [from CMC] ... And then we both went on our own path to figure out what's next on the horizon for us. For me that meant being an artist-leader and really owning that identity. – Kristen (i1).

As we left CMC, I conducted exit interviews with all the members of the co-op and reported back to them their visions, passions, felt gaps and challenges. Kristen recalls this process revealed members' need for a leadership program, and shared that:

Creating Rooted and Rising was a response to the failures that we sensed within our own community, within the co-creation of conscious minds camp and then cooperative...and then feeling responsible as leaders of that community to level up in ourselves. And this is our version of leveling up in ourselves: being able to help others or create a space for others to choose to expand their sense of leadership. – Kristen (i1).

Kate (she/her): is a 6th generation Irish settler who had recently moved to York University. She is an established educator and tenured professor whom I had met the year prior to R+R when I got to be her teaching assistant. When I asked Kate in our interview how she came to be involved, she recalled how synergistic the timing of my invitation was:

It was a coming together of people and place. Meeting you, meeting Steve with my fairly recent entrance to York... this came and it was so grounded in the actual place and the actual people, but that also kind of a perfect life-work trajectory, that just met up with everyone's goals and visions, all at the same time. So it was just a really good synergistic moment. - Kate (i1).

Personally, Kate shares that

It's been a 30-year movement. I've always been interested in how societies do or do not, first, understand, and secondly, treat and support it's young. For me, the adage ‘the way that we treat our children and the generations to come makes a big difference’. So, it's always

been an area of interest. And then of course, with education, I'm a teacher by profession and love really, and it seems to me that one can't teach as fully as one would want to without understanding who the children and young people are. So, takes me back 30 years in terms of like the coming together of who are young people? What are their social developmental things? - Kate (i1).

Doug (he/him): is Bungee (Scottish Métis, distinct from French Michif Métis but from the same original Métis nation in Manitoba) and has been an educator and author for over 30 years. I met Doug a couple years before *Rooted and Rising* in my Master's program when my class took a field trip to the Indigenous-led land-restoration collaborative he co-created, and we stayed connected. When I asked Doug how he came to be involved in *Rooted and Rising*, he shared some of his personal history from his time as a youth activist in the 1980s. He said of *Rooted and Rising* and why he took up our invitation to collaborate, "it's personal":

When I was 18, or 20 in the early to mid 80s, I went to university and dropped out, because I had a very strong sense of how things were really endangering us as a human species...I was in political science at University, and that was eye opening in some ways, but most of the eye-opening stuff was in activist circles...

I went back later and got an undergrad degree in literature and theater. But I really feel very strongly about young people today being faced with what's coming and having an awareness of some degree of what some of the catastrophic outcomes are going to be, and not really having any people in systems who are able to respond to it rationally.

And I'm not saying I can, and I'm not in these systems anymore. But if there's a university course designed for them, I'm on that because at least it's sort of part of a system and there's a little bit of a response to their concerns in ways that are more meaningful than what they're usually going to get. So that's why; I've been there as a young person and actually just left the activist world after a certain period of time. – Doug (i1).

Gia (they/them): I had sent our initial invitation for collaborators to a past collaborator who thought of Gia and forwarded them the invite. Gia remembers the program was not fully formed when we first met:

You knew it was going to be a program for youth leaders who were interested in climate justice, but otherwise it didn't have much structure. So, I was interested, and I reached out. At that point I had very recently gotten involved in climate justice organizing in Toronto. I had always been interested in doing that kind of organizing but I hadn't known how to connect or get involved. I'd been on the West Coast for university and had done campus organizing but hadn't really been involved in anything outside of that. When I first contacted you, I wasn't really sure what I was going to be contributing to this project because I really felt like in many ways, I was probably more like the one of the youth leaders than I was the other people on that teaching team who seem to have much more experience in their various fields. But, I don't know, we talked and I was just excited about the possibility of doing some facilitation which is something I'm passionate about but don't always do, and about

connecting with other people who were thinking about how to address climate change and create climate justice and especially how to support young people in doing that work. I was grateful to be invited into that. – Gia (i1)

Blake (he/him): is an established professor of public health, and we have known each other and collaborated for many years. When I asked Blake how he came to be involved in Rooted and Rising he began further back in his personal journey:

It was probably 2006 that I had an ‘aha’ that it was time to shift... I'd always wanted to do environmentally related stuff, but for some peculiar reasons during the PhD, having to do with departmental politics at the time... I ended up not. Then feeling increasingly like I was mid-career and a little late to change topics... But I just woke up at 5am one morning in the midst of writing a grant proposal and decided I was done with tobacco research. And I was going to be doing environmental stuff instead and let everyone in my network know. It was a learning curve from there, but I gave myself two years to re-tool. And it wasn't actually very long after that I found myself heading up this environmental justice research group. And that was about the time that you and I met. – Blake (i1)

Blake had invited someone from the Occupy Movement to come and speak to his master’s level Community Development class, and that happened to be me. A couple years later, I took his Resilience course, and from there he invited me to join a research study of his.

But I also chair a National Committee on Educational Reform, on the Ecological Determinants of Health. There, we're thinking through what needs to shift in the curriculum for schools of public health and training programs ... I feel like there's a huge gap between where mainstream, especially health training programs are at the moment, struggling to even provide a basic course on epidemiology of climate change, and where we need to be, which is educational offerings that are much more rooted in land-based learning, Indigenous ways of knowing, and Global South epistemologies, arts based approaches, engaging the whole person and being much more skillful about the affective and spiritual components of this work.

So, when you launched this project and invited me in, I was pretty keen on it because it really seemed to be well positioned to do a lot of the things that seem to be lacking in mainstream education, and not only lacking but also difficult to accomplish in a neoliberal colonialist institution that is academia. – Blake (i1).

Sarah (she/her): like Gia, I came to know Sarah through the Rooted and Rising experiment. She was in Toronto completing her PhD. Sarah shared:

Yeah, it was very unexpected, I think. It just happened very, coincidental, like a sequence of events that brought me here. I really look at it like I was channeled into this program in some kind of force, so that I’m with you and listening to all those amazing conversations.

I guess it all started with my thesis work, and then I was trying to apply for a post-doc, and then of course York U and maybe Steve would be a person I'd be working with if I was going to get a SHRK post-doc. I remember I sent him a proposal, and one of the questions in the proposal was how can we think about emotions, and how can we use emotions in more productive ways in climate change education? So that maybe resonated with Steve that 'oh Roxy, she has this group that are gathering people to speak about this.' And then we had the teach-in about climate change that you were also organizing. That was the first time I got to know you, and even back then Steve said, 'do you mind if we bring Sarah into the group?' So yeah, those were the sequence of events, you never plan for them, but they just align. – Sarah (i1).

b) Students Interviewed

I had the honour of interviewing four students in the program as a part of this research:

Samantha (she/her): was born and raised in Toronto, and shares on her lineage: "I don't have a super clear idea of where all my ancestors come from, but I am pretty sure it's somewhere in Asia. ...I've always wanted to find that out... But I do know that from my mom and my dad's side, my grandparents immigrated to Canada from Hong Kong". Samantha attended and then participated in organizing Conscious Minds Camp (R+R partner organization's summer camp that I co-founded); so, I knew Samantha for a few years prior to R+R. Samantha is in the process of becoming a teacher, and connects this personal dream with how she came to participate in R+R:

I've always wanted to be a teacher. I've always felt, yes, I really want to help the world, and have a role, but I didn't know where to start. That's why I'm really grateful J. showed me Conscious Minds. Because I was just like I need at least a start. So, I went to Conscious Minds for the first time and it just really opened my eyes ... now I could do more! I loved that I got to meet – Carmen and Winona – because I never really got to hear things about policy regarding climate justice. I never got to hear a direct Indigenous perspective, so it opened my eyes. I hear about it in schools, but when you hear about it in person, or if you personally get to know them, it's so much more meaningful, it's just so much deeper and more rooted. Also, like I said I wanted to get involved, but also, this sounds kind of weird, but there's a lot of terms – like decolonization and climate justice – that I don't really know like what they mean. I feel like when I talk about this, I know what I'm talking about, but I also don't know what I'm talking about if that makes sense. So, I really wanted to get more educated in terms of that. – Samantha (i1)

Claire(she/her): grew up in the Philippines and is a product designer with a love for re-purposing excess material. Her passion for climate change grew through experiences as a free diver in the Philippines coming across plastic, picking it up, and finding herself curious about what to do with the material. In the duration of R+R, Claire was also pursuing an entrepreneurial product of re-

purposed material and missed several classes due to the clash of class time and weekend markets. A friend told Claire about the program, and she chose to apply because:

I always wanted to be part of a group of people – of climate change leaders in general, because that’s kind of what I’ve been doing on my own. To have people supporting me, and like, to have like-minded individuals engaged in the same thing rapidly develops and grows faster for me and for everyone else. To be bouncing ideas together, it’s better than doing it alone, for sure – Claire (i1).

Field (they/them): is Mohawk from the Six Nations Turtle Clan, born and raised in downtown Toronto and raised as culturally Huizu (Muslim-Chinese). They have been across the continent responding to calls to action for Land Back and Indigenous Sovereignty movements, as well as doing harm reduction street outreach and community support at home. Field is also a queer community artist. Field shares in their interview:

Ok, my story of how I found myself to be in R+R is: there was so much going on – the time I get to spend at [university] is so amazing, and I don’t know how to make all the meaningful changes to the world that I want to, especially as an artist, and not as an activist. And even just the name, Rooted and Rising that’s exactly what I was looking for, instead of just floundering around. I wanted to root my feet, and absorb some nutrients, and get grounded, and connected like that and feel strong so nothing can knock me over. And then rise and keep going. I just. And then, yeah. I think also ... that’s when I was considering going to Wet’suwetn’en. And having a program like Rooted and Rising kind of guiding me into the future made me feel more confident applying to Wet’suwetn’en as well and thinking that I could go there and then use my experiences there to make some sort of meaningful contribution too. But I think I just saw it on Facebook or something.

Field also shared:

Last month I got better, after quite a while all my communities disintegrating, and experiencing a lot of key members of our communities passing away or taking their own lives, and then the leadership in our communities was just gone. And I don’t know what was happening it was really freaky.

So, then I went elsewhere to find that. And honestly what I found was a lot of substance use and that wasn’t a culture that was sustainable for me. That really took over my life last year. So, when I saw Rooted and Rising, I was like, I see all the issues that have happened, they come from a specific place. And it was mostly I was searching for a healthy culture that wasn’t avoidance via substance use and was more regenerative and community based. But not in such a...activist circles are so depressing, and so heavy. And the frontlines are also – they’re pretty joyful because we’re all comrades there together. But seeing industry right there in your face... so [Rooted and Rising] is a lot more gentle. - Field (i1)

Clemi (they/she): is a second-generation Uruguayan, born and raised in Toronto. They are an artist, researcher, facilitator whose undergraduate degree focused on environmental science and geo-

science (Clemi, i1). Clemi shared with me that in the year leading up to Rooted and Rising, they had been processing a lot of trauma and healing from C-PTSD. Since they were young, Clemi found that being out on the land, and helping others to fight for their rights to access and protect the land, offered a sense of purpose even while moving “through some really painful stuff.” They shared: “at least I am able to ground myself in a purpose that keeps me here a little longer so that I can keep trying to connect with myself again”. But Clemi shares:

The moment I saw Rooted and Rising I was like ‘wow I really want to participate in this because I definitely can fight, I’ve been doing that for a while. And I really care passionately, but I struggle to find that care for myself. And to really extend that passion and yeah, compassion towards myself.

The way Rooted and Rising was framed to me was really like, I’ll get to connect with other people who are probably also facing similar things. And I think with a lot of young activists, it’s hard not to feel angry. It’s really really hard not to feel angry...I think that’s really what I was looking for. Like first of all am I worthy of being with a group of people that are also really passionate? And if so, can I believe in myself for long enough to really try and take these lessons of what other people are trying to show me, and knowing I’m not alone in this.

...That’s what really drew me to the program, was just many, many years of trauma and trying to navigate that from a perspective that was just very much like fight or flight but mainly fight. And then trying to turn that into something that was actually sustainable for myself. Because I think I realized like I could spend my whole life like this, but it probably wouldn’t be long, and it would be really hard. (chuckling) So like I should probably find a more sustainable way of treating myself. – Clemi (i1).

I am forever grateful to the time, experience, and wisdom that Kristen, Kate, Blake, Doug, Gia, Sarah, Samantha, Clemi, Claire, and Field gifted to me and this research. To highlight the distinctiveness of their voices as contributors to this dissertation, I have chosen to colour all direct quotes from interviewees green.

Appendix E: Summary of Student Social Action Projects

“Students self-organized into projects, activating a project together in the final month of the program. Expanding into the many ways leadership is embodied, students were supported in identifying their personal strengths, gifts, and passions and develop projects from there.

After hearing from our partner organizations in a panel they were encouraged to dream. In a 2- hour brainstorming sessions over zoom, students self-organized into project teams. Each week students had 45min in class to work on their projects and connected both in and out of class with teaching team members and our networks to help refine, network, and accomplish their ideas.

The range of projects were beautiful, with many connecting to the work of our partners: one team took up Mike Schreiner's invitation to policy work and developed arguments to push for a youth council on climate change at the provincial level, as agreed to in the 1992 Rio Declaration. Another group, inspired by Yannick (DSF)'s sharing on systems thinking, started to develop a simple computer simulation that helps people see the systemic connections in food system issues. A third group made up of artists, aspiring teachers and CMC (@conscious_minds) members, developed a children's book on respecting water.

Group 4 created a journalism series featuring youth climate activists who do and don't identify as activists. Group 5 created three stickers with illustrations of corn, caribou, and a canoe, to be plastered around the city calling attention to the life-forms and ways of being that used to thrive where the city stands now and could exist again. Group 6 focused on intergenerational healing through clay work in a private workshop with Filipina artists Tamara + Hilary, creating a video on the power & importance of making studio spaces accessible for BIPOC youth to create with Earth for healing. Group 7 worked with one member of the teaching team in their land restoration work outside the program – they planted 70 strawberry plants along the Humber River, and created a stop motion video with a voice-over detailing strawberry teachings they received as they planted.”

(Young Lives Research Lab, n.d.)

Appendix F: Declarations from Student Leadership Statements:

1. “A world where people have the time to just breathe without the immense worry of time or money or persecution. A world where people are free and equal and making that future possible is what I'm focused on next.”
2. "I want to live in a world where we co-exist peacefully, and where everyone has equal rights, and all have a sense of belonging and peacefulness. I want to live in a world where we share resources globally, and where everyone has their basic resources of food, water, happiness, shelter."

3. "The world I imagine is so complicated that I had to create a new political ideology."
4. "The world I want to live in is a world that's **peaceful, accepting of everyone, and fair**. I would like to live in a world where **we treat ourselves equal to the earth, not greater than the Earth.**"
5. "I would love to live on Earth where just **everybody sees everything and everyone as equal.**"
6. "I want to live in a world where people are **loved accepted and supported**, no matter what."
7. "I want to live in a world where **everyone feels like they have a purpose in life**, because everyone does have a purpose in life. "
8. "People can feel joyful, feel accepted, feel passionate, feel loved, feel with other living beings, plants, animals, whatever. Feel relaxed, feel safe, feel anger, feel sadness, I just want to create spaces like this."
9. "I have a sustainable healing lodge up there so this space right here - a ready, thriving community is the world I want to live in. I've grown up and been able to cultivate myself in spaces where so many beautiful leaders and compassionate people have an aim to build a world that we're all going to thrive in and feel compassionate and be accepted and have the supports to reach your best self in, and we all get together - it's such a catalyst for change."
10. "**A world where children and young people's true selves are welcomed and encouraged**, always a world that does not shame or guilt, a world of perpetual recontextualization"
11. "I want to live in the kind of world that holds to account the **inherent capabilities of every being** to live their best life, and for their uninhabited path to lead in that way."
12. "The kind of world I will live in is one where we all **actively look for gifts we can share with others, give freely** and accept the gifts that come to us as well. **Trusting we are here to**

bring out the best in everyone without pressure, supporting each other."

13. "The kind of world I want to live in is one where I can **play**, and just have **fun**, where **money becomes a tool to empower people and not as a representation of power**. That's a world that I'd like to live in, where **everyone's more in tune with nature and more gratitude**."
14. Rivers hold power, sustenance, and strength, and mine has given me the best parts of myself. Each day I dive into my river I connect to people. I wash over others with warmth, and **I remain fluid, in flux, never fully formed**. And so my world too forms and flows. It is ever changing - **a world with imagination and possibility**. It is **full of learning**. But most of all, it teaches me not to interpret the meanings too strongly, to be always open and stay true to my own meandering path. To not have only one aim and one way of looking at everything - to hold this, even through all the chaos and anxiety of now."
15. "I'd like to live **a free life where I have the time to be curious, and just exist**, which has been like a very current issue for me. I've been feeling so trapped to go off script, feeling so trapped and stuck with everything that goes on and it just feels like - everyone has decided my life for me before I got the chance to decide what I want to do. Um, so yeah, the time to be curious, and just exist."
16. Some repeated key words: peace, acceptance, love, equal, joy, play, fun, passionate, gifts are honoured and encouraged, thrive. compassion, freedom to breath

(Report, 2021, p.52, 53, 55).

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