The Role of Emotions in Generating and Sustaining Climate Action for Youth Climate Champions: An Exploratory Study in Northern Ontario

Aynsley Klassen

A Thesis presented to
Lakehead University
in partial fulfillment of the
thesis requirement for the degree of
Master of Health Science
With specialization in Social-Ecological Systems, Sustainability, and Health

Thunder Bay, Ontario, Canada, 2022

Declaration of Originality

I hereby declare that I am the sole author of my thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Anthropogenic climate change is a wicked problem resulting in complex and compounding health impacts at multiple scales and across timelines. While there is a solid base of empirical evidence documenting the physical health impacts of climate change, less is known about the mental, emotional, and spiritual dimensions of maturing in a climate-altered world, where extreme events and doom-and-gloom messaging are increasingly prevalent. Despite contributing little to rising greenhouse gas emissions, young people are at heightened risk of experiencing mental and emotional health impacts of the climate crisis because they are at a critical stage of physical and psychological development, and because adverse childhood events have a strong impact on mental health into adulthood. Qualitative research exploring the lived experiences of youth across diverse places is underrepresented in the literature. This thesis explores the ways in which youth climate champions in Northern Ontario, Canada, are experiencing the mental and emotional dimensions of the climate emergency and explores the emotions, supports, and experiences by which they are motivated to engage in climate action. Through purposeful sampling, 12 young people ages 15-24 across six communities participated in both semi-structured interviews and asynchronous letter writing to explore their emotional response to climate change and climate action. Thematic network analysis revealed three global themes, including *making meaning of climate change, climate emotions,* and *motivations and supports for youth climate action*, supported by 11 organizing themes and illustrated through 31 basic themes. The findings of this research suggest that youth climate champions in Northern Ontario are experiencing a constellation of climate emotions which are both problematic, negatively impacting their mental, emotional, and spiritual wellbeing, and generative, motivating engagement in climate action. These findings indicate that swift, transformative action to mitigate the climate crisis is the foremost way to protect the mental, emotional, and spiritual health of young people in the face of climate breakdown. Simultaneously, this study suggests the need for policy and practice in health and education spaces to support and fund accessible, safe spaces for young people to come together to recognize, share, and explore the emotional dimensions of climate change and climate injustice and to create pathways for young people and allied adults to engage in community-based collective climate action.

Acknowledgements

Thank you to my supervisor, Dr. Lindsay Galway, for generously sharing your wisdom, compassion, and humanity throughout this Master's research. I am so grateful for the opportunity to learn, grow, and be challenged with and alongside you. You have shaped me deeply.

Thank you to my committee members, Dr. Helle Möller and Dr. Thomas Beery, for your insightful feedback, your appreciation for this work, and for your ongoing encouragement and support.

Brigitte Champaigne-Klassen...my love, awe, and appreciation for you run deep. Thank you for seeing me.

The support of my family has made this research possible. Thank you to my parents, for showing up in every way possible. Thank you to Jonas, for seeing this through to the end. A very special thank you to Selma and Aina for laughing, playing, feeling, and growing alongside me.

I am grateful to many inspiring thinkers whose voices have helped to shape this work, especially Prentis Hemphill, adrienne marie brown, Resmaa Menakem and Bayo Akomolafe.

Thank you to the McIntyre River. Your waters continue to hold me, ground me, and inspire me.

Finally, an enormous thank you to the participants of this research. I am incredibly honoured that you have trusted me with your stories.

Table of Contents

Chapter 1: Introduction

Background

Anthropogenic climate change is a wicked problem resulting in complex and compounding health impacts at multiple scales and across timelines (Cianconi et al., 2020; Romanello et al., 2021). Global temperatures have already warmed 1.2 °C since 1850-1900 and are projected to reach or exceed 1.5 °C of warming within the next 20 years (Intergovernmental Panel on Climate Change, 2021). United Nations (UN) Secretary General Antonio Guterres has called the sixth report of the Intergovernmental Panel on Climate Change a "code red for humanity", noting that ongoing greenhouse gas emissions (GHGs) are "putting billions of people at immediate risk" (UN, 2021, para. 2). Climate change is a major threat to individual and population health, with high rates of morbidity and mortality already directly attributed to climate change and rates are anticipated to increase in the future (UN, 2020; World Health Organization [WHO], 2021).

There is now a solid base of empirical evidence documenting the physical health impacts of climate change. The mental, emotional, and spiritual (MES) dimensions of climate change and health, however, are less researched and poorly understood (Hwong et al., 2022). For example, the Lancet Countdown tracks 44 health indicators in relation to climate change (Romanello et al., 2021) yet does not include an indicator to measure the effects on mental health. The conceptualization of mental, emotional, and spiritual health varies across peoples and places, and the ways in which different regions and cultures acknowledge, accept or stigmatize, and treat mental health makes it particularly difficult to capture the scope and scale of the ways in which climate change is affecting mental health (Romanello et al., 2021). It is difficult to demonstrate causality between climate change and mental health and challenging to measure and monitor the

ways in which the changing climate intersects with MES health (Romanello et al., 2021). Despite these challenges, there is growing consensus among the academic community that climate change is significantly impacting MES health and that further research is urgently needed (Charlson et al., 2021; Cianconi et al., 2020; Middleton et al., 2020; Ojala et al., 2021).

Mental health is widely recognized as an important dimension of health. The promotion of mental health and wellbeing is included in Target 3.4 of the UN Sustainable Development Goals (UN, 2021). Recognition, however, does not always lead to action and improved health outcomes. The global burden of disease attributed to mental health has risen steadily since 2007 (Patel et al., 2018) and the Covid-19 pandemic is contributing to accelerating rates of morbidity and mortality attributable to mental health (Torales et al., 2020; UN, 2021). Mental health professionals have been called to action to address the MES dimensions of health in the face of climate change and other intersecting and concurrent crises. The Lancet Commission on global mental health and sustainable development urges immediate action to protect and treat mental health (Patel et al., 2018). In 2019, The World Psychiatric Association endorsed the InterAction Council's Manifesto to Secure a Health Planet for All. In 2021, the Royal College of Psychiatrists declared a climate and ecological emergency, recognizing not only the importance of climate action but also key role that thoughts and emotions play in guiding and motivating us toward action (Royal College of Psychiatrists, 2021). In Canada, research and action around the MES dimensions of climate change remains limited. Government support for MES health in the face of the climate emergency is reactive, with federal funds being allocated primarily to deploy mental health practitioners to communities in the aftermath of climate-related disasters (Hayes et al., 2019). Health authorities across the country are engaging in climate change and health vulnerability and adaptation assessments (CCHVAAs) as a tool to capture place-focused health

impacts and interventions related to climate change, yet these documents prioritize physical health and pay minimal attention to MES health (Hayes & Poland, 2018).

In recent years, the climate action movement has seen burgeoning growth, largely attributable to the leadership and participation of young people. Around the world, young people have been filing lawsuits against various levels of governments for failing to protect their rights to a healthy environment (Feasby et al., 2020). In Canada, youth-led climate lawsuits are underway both nationally against the federal government of Canada and provincially against the government of Ontario (Feasby et al., 2020). Since Greta Thunberg caught media attention with her solitary school strike in August, 2018, youth-led climate strikes in more than 218 countries have attracted more than 16 million participants (Fridays For Future, 2022). Across Canada, 1366 climate strikes associated with the Fridays For Future movement have been recorded, including 718 strikes in Ontario (Fridays For Future, 2022). The youth-led climate strike movement is unique in its global reach and engagement of young people.

While my research is focused on youth involved in the current climate movement that has burgeoned since the inception of Fridays For Future (FFF) in 2018, I acknowledge that this climate action movement has gained traction – and media attention - because of its origins in the Global North and that this movement largely mirrors the white, middle-class history of many environmentalist spaces (Gibson-Wood & Wakefield, 2012; Mock, 2014). Mass media coverage of the youth-led climate movement has perpetuated the on-going erasure and delegitimization of activist voices from the Global South (Rafaely, 2021) and fails to recognize the long histories of black, Indigenous, and other people of colour in resisting colonialism and capitalism, the root forces of environmental degradation and climate change (Whyte, 2017).

Rationale

Despite contributing little to rising greenhouse gas emissions, young people are disproportionately impacted by climate change (Watts et al., 2019). Young people are at heightened risk of experiencing mental, emotional, and spiritual health impacts of climate change for two key reasons:

- They are at a critical stage of physical and psychological development (Burke et al., 2018).
- Adverse childhood events (e.g., disasters attributable to climate change) have a strong impact on health, including mental health, into adulthood (Felitti, 2002; Harvard T.H. Chan School of Public Health, n.d.).

Research focusing on the MES health dimensions of climate change experienced by youth is a rapidly growing field (see Hickman et al., 2021). Qualitative research exploring the lived experiences of youth across diverse places is underrepresented and urgently needed. There is a dearth of research exploring young people's experiences of climate change in Canada, and there is virtually no research on the experiences of young people living in Ontario. My investigation responds to this research priority by exploring the ways in which Northern Ontario youth, ages 15-24, are experiencing the MES dimensions of climate change, and how these experiences intersect with climate action. My research study, nested within a larger research project titled "Exploring the lived experiences of climate emotions in rural, remote, and mid-sized communities in Canada" led by Dr. Lindsay Galway, Canada Research Chair in Social-Ecological Health, focuses on a subset of young participants who self-identify as climate champions.

While this thesis is broadly oriented to the mental, emotional, and spiritual dimensions of climate change, my focus will be on emotional impacts and responses to climate change. Emotions are "a complex reaction pattern, involving experiential, behavioral, and physiological elements, by which an individual attempts to deal with a personally significant matter or event" (American Psychiatric Assocation, 2020, para. 1). Challenging emotions such as anger, fear, worry, or anxiety are not necessarily unhealthy responses to climate change and need not be pathologized (Middleton et al., 2020; Pihkala, 2020). In fact, negative emotions are considered an appropriate response and can fuel constructive response to climate change (Ojala et al., 2021). For some people, emotions can become harmful, prompting the necessity of culturally appropriate and place-specific supports (Cianconi et al., 2020). Many scholars have suggested that negative climate emotions such as worry, anxiety, or fear may help to generate climate action (Galway et al., 2021; Ojala et al., 2021; Stanley et al., 2021), and that climate action may in turn lead to improved MES health outcomes (Kleres & Wettergren, 2019; Cattell, 2021). Charlson et al. (2021) have issued a general call for more research into the intersections of climate activism and mental health outcomes. Relatedly, Galway et al. (2021) have issued a more focused call for timely research to identify "when, where, for whom, and under which conditions" (p.14) climate emotions become either activating and generative or harmful. Understanding the intersections of climate emotions and action will be critical if we are to narrow the climate action gap and limit global temperature rise to 1.5 °C above pre-industrial levels (Galway et al., 2021).

Research Goals and Objectives

The overarching goal of this research is to explore whether and which emotions, supports, and experiences are generative and supportive of climate action for youth climate champions in

Northern Ontario. Youth climate champions are understood to be community members ages 15-24 who are dedicated to idea and knowledge sharing, relationship building, and innovative action in response to climate change. Specifically, this study aims to:

1) Describe how youth climate champions in Northern Ontario are experiencing the MES dimensions of climate change.

2) Explore the emotions, supports, and experiences that motivate youth climate champions in Northern Ontario to engage in climate action; and

3) Identify opportunities to support ongoing youth engagement in climate action.

I used unique a combination of digital interviews and asynchronous letter writing in this exploratory study.

Chapter 2: Literature Review

The purpose of this literature review is to outline the existing knowledge of the MES dimensions of climate change and to explore how these dimensions of health intersect with climate action. In this review, I look broadly to the literature on climate change and MES health and specifically to the emerging conversations on ecoanxiety, solastalgia, and ecological grief. I also look to the youth-focused social movement literature to explore the ways in which emotions are understood and discussed in relation to youth climate activists. Finally, I review the literature exploring how concepts of place are located, understood, and emerging as a useful way in which to ground climate change research. A record of my search strategy is outlined in Appendix A.

Mental, Emotional, and Spiritual Health Dimensions of Climate Change

There is consensus that climate change impacts human health in complex and compounding ways (Forster et al., 2020; Watts et al., 2019). To date, climate health research has focused largely on the physical aspects of health and less is known or understood about the ways in which the MES dimensions of climate change traverse health and wellbeing (Hayes & Poland, 2018). That said, there is a rapidly expanding pocket of research focusing on the MES health dimensions of climate change and our understanding of this field is growing quickly (Charlson et al., 2021).

Climate change is reported to interact with the MES dimensions of health through direct, indirect, and overarching/vicarious pathways (Clemens et al., 2020; Palinkas & Wong, 2020). Direct impacts result from experiencing acute events (e.g., storms, wildfire, flooding, etc.) and most often include psychological and psychiatric conditions, such as PTSD, depression, suicidality, and increased aggression (Cianconi et al., 2020). Research on the direct impacts represents much of the climate change and mental health literature, perhaps because of

temporality and because the direct impacts are more easily measured and monitored than indirect or overarching impacts. Indirect impacts result from the ways in which chronic environmental changes (e.g., prolonged drought, sea level rise, etc.) disrupt ecological, social, and economic systems (Palinkas & Wong, 2020). Ecological systems are understood to include interconnecting aspects of ecosystems, land, and place and often operate in relation to social and economic systems. Overarching experiences related to the changing climate, also referred to as vicarious experiences (Leger-Goodes et al., 2022), include ongoing media exposure and climate change education, and tend to be discussed in terms of emotional or spiritual dimensions including existential crises (Pihkala, 2020).

In addition to the challenging MES dimensions of climate change, some researchers also report 'positive' experiences evolving from extreme weather events (Hayes & Poland, 2018). Feelings of altruism, compassion, sense of community, and sense of life meaning are those commonly reported following a climate-related disaster such as wildfire or flood (Dodd et al., 2018; Hayes et al., 2019; Middleton et al., 2020). Other literature illustrates generative outcomes like pro-environmental behaviour (behaving in ways that intentionally seek to minimize one's environmental impact) may be motivated by worry or anxiety caused by the overarching experience of climate change (Clayton, 2020; Cunsolo et al., 2020b; Galway et al., 2021; Whitmarsh et al., 2022). While these 'positive' outcomes are sometimes mentioned, they are rarely explored in the literature. Overall, more research in this area is needed in order to better understand and respond to the complex and multifaceted ways in which climate change affects MES health (Hayes & Poland, 2018).

While no one is immune to the MES dimensions of climate change, the distribution of health impacts is neither equal nor equitable. Vulnerability to climate-related mental health

outcomes is commonly conceptualized through three pathways: differential exposure, sensitivity, and adaptive capacity (Buse, 2015). These pathways are often mediated by the social determinants of health (Buse, 2015) and intersect with social, cultural, and political factors (Kipp et al., 2019). As the Northern Ontario Climate Change Health Collaborative (no date) notes, "no population chooses to be or is inherently vulnerable to the impacts of climate change. Rather, populations are made vulnerable by systemic and structural forces, such as poverty, marginalization, racism, and colonialism, which must be recognized when addressing climate change" (p.2). Populations at heightened risk of experiencing climate related impacts to mental and emotional health include those living in geographically or ecologically sensitive areas, those with livelihoods closely connected to the land, those with pre-existing health conditions, and those who are inequitably made vulnerable through systems of marginalization (Hayes & Poland, 2018; Middleton et al., 2020).

Children and youth are also considered to be at heightened risk of experiencing the MES health impacts of climate change (Cianconi et al., 2020; Hickman et al., 2021; Palinkas & Wong, 2020). Despite having contributed very little to greenhouse gas emissions, young people will experience the cumulative and compounding impacts of climate change over their entire lifespan (Watts et al., 2019). Increasing climate awareness and doom-and-gloom messaging is particularly impactful to children and youth as they mature through critical stages of social and psychological development (Hickman et al., 2021; Wu et al., 2020). Finally, studies also report young people struggling with complex layers of confusion, betrayal, and abandonment as they witness adult inaction to the climate crisis and feel their own concerns are dismissed or patronised (Hickman, 2020; Hickman et al., 2021). Climate-related mental health consequences will be felt more severely by children who struggle with intersecting and compounding factors,

including those with limited social support networks, those from families with low socio-economic status, those affected by pre-existing mental health challenges, and Black, Indigenous, and other children of colour who face systemic racism (Clemens et al., 2020; Patel et al., 2021).

Evidence of young peoples' heighted risk to the mental health impacts of climate change has recently emerged in the largest youth-focused study to date. Hickman et al. (2021) surveyed 10,000 young people ages 16-25 across 10 countries (representative of Global North and South populations) to better understand the ways youth are feeling, thinking, and functionally impacted by climate change. The authors also explored correlations between climate-related distress, perceived governmental responses and moral injury (Hickman et al., 2021). Canadian youth were not included in this study. Overall, nearly 60% of respondents said they felt "very" or "extremely" worried about climate change and 45% reported that their emotional response to climate change was impacting their daily functioning (Hickman et al., 2021). This reported level of worry among youth (60%) is significantly higher than the level of worry found among adults in the US, where only 35% of respondents indicated being 'very worried' (Leiserowitz et al., 2021). The most common reported emotional responses included feeling sad, afraid, anxious, angry, powerless, helpless and guilty. These findings illustrate a constellation of negative feelings and emotional impacts among young people globally. Negative thinking patterns were associated with feelings of government betrayal, and almost half of participants reported feeling ignored or dismissed when talking to others about climate change (Hickman et al., 2021). Young people who live in poorer countries in the Global South and who experience more pronounced direct impacts of climate change reported both higher levels of worry and impact on their daily lives (Hickman et al., 2021). The disproportionate level of worry and impact on young people in the Global South is further evidence of the inequitable burden of health felt by people who have

been made vulnerable through oppressive systems and who are most silenced or erased from climate activism spaces and discourse (Adams, 2021; Rafaely, 2021).

Additional empirical research on the ways in which children and young people across a diversity of settings experience climate change is critical (Burke et al., 2018; Clemens et al., 2020; Ojala et al., 2021). It is important to focus on this demographic for multiple reasons:

- Despite contributing least to greenhouse gas emissions, young people will experience disproportionate health impacts attributable to climate change (Watts et al., 2019).
- Young people are at heightened risk of experiencing MES health impacts because they are at a critical stage of physical and psychological development (Cianconi et al., 2020).
- Adverse climate-related events experienced in childhood have a strong impact on mental health throughout the lifespan (Felitti, 2002; Harvard T.H. Chan School of Public Health, n.d.)
- Given that young people experience climate change differently from adults, youth-focused research is needed to inform a proactive and effective response to the mental health challenges of climate change (Hrabok et al., 2020).

Trends and Gaps in the Climate Change and Mental Health Literature

A growing number of systematic and scoping reviews synthesizing the mental health outcomes of climate change have been published in the past few years (see Cianconi et al., 2020; Hayes & Poland, 2018; Kipp et al., 2019; Palinkas & Wong, 2020). Most recently, Charlson et al. (2021) completed a scoping review to consider the ways in which climate change and mental health literature is addressing the WHO's five research priorities in relation to climate change and health. The results indicate that this field of research is heavily skewed toward assessing mental health risks related to climate change and gives little attention to the WHO's other four

research priorities which include identifying interventions, guiding health-promoting intersectoral mitigation and adaptation decisions, improving decision-support, and estimating the costs of protecting health in the face of climate change.

The scoping review by Charlson et al. (2021) perpetuated a key trend in the climate change and mental health literature while also revealing significant gaps in the research. First, the search strategy of this review purposefully excluded concepts of 'emotional health' to obtain a reasonable size of results. This search limitation continues the trend of considering mental health through a narrow biomedical lens rather than a broader understanding of psychosocial wellbeing. Excluding emotional health in scoping reviews also suggests that climate change is intersecting with mental and emotional health in broader and more complex ways that cannot be accounted for in a single review. Hayes and Poland (2018) argue that our understanding of mental health must exist within the larger discourse of psychosocial wellbeing. In many Indigenous health frameworks, we see more holistic conceptualizations of MES health that are embedded in specific places, cultures, languages, and traditional ways of being and doing (see Yukon First Nation, 2015). By employing a holistic conceptualization of mental health, we can begin to understand the true scope and scale of climate related mental health impacts and thus respond with appropriate place-specific prevention and support (Palinkas & Wong, 2020).

Exploring the gaps in the scholarly climate change and mental health literature, Charlson et al. (2021) identified that this body of research is largely quantitative, uses a cross-sectional design, and is focused on high-income countries (primarily Australia, Canada, and the United States). These gaps are echoed in the recent work of Ojala et al. (2021) who conducted a narrative review of the climate emotions literature. Charlson et al. (2021) and Ojala et al. (2021) also both identify the need for further research on the mediating and moderating factors

regarding mental health outcomes related to climate change. The consistent identification of gaps in both reviews suggests that the research trends of both the narrow (e.g., biomedical) and broader (e.g., psychosocial) understandings of mental health related to climate change are following similar trajectories. Finally, additional gaps identified by Charlson et al. (2021) are consistent with other reviews that recognized a dearth of qualitative research that listens to and explores lived experiences of various populations, especially youth (Ojala et al., 2021), rural and remote populations (Kipp et al., 2019), populations outside of Northern Europe, North America, and Australia (Ojala et al., 2021) and Indigenous peoples (Galway et al., 2019). In responding to these gaps, it is important to note that many people and communities are exploring, documenting, and sharing their lived experiences of climate change outside of academia, including through social media and online platforms (Climate Awakening, n.d.) and in the grey literature (Indigenous Climate Action, 2020).

Despite contributing little to the climate crisis, Indigenous peoples are also at heightened risk of experiencing climate-related mental health outcomes due to existing disparities perpetuated by the legacy – and intensification - of colonialism (Middleton et al., 2020; Truth and Reconciliation Commission of Canada, 2015; Whyte, 2017). Within the published scholarly literature, there is little research exploring the diverse, complex, layered, and often intangible MES health outcomes that Indigenous peoples experience (Johnson et al., 2021; Middleton et al., 2020). Similar to overall trends in climate change and MES health research, studies focused on Indigenous populations are based primarily in North America and Australia, and Indigenous voices from the Global South are vastly underrepresented (Galway et al., 2019; Middleton, 2020). There is also a notable gap in Indigenous-led research in the published scholarly literature on climate change and MES health (Galway et al., 2019; Middleton et al., 2020). In a systematic

scoping review of literature on Indigenous mental health related to climate change, Middleton et al. (2020) found that while Indigenous peoples were more often engaged in the data collection, study design, and analysis stages of the research, only half of the studies reviewed reported Indigenous engagement in project conceptualization (Middleton et al., 2020). As noted above, however, that academia is only one arena in which knowledges are housed. This gap of Indigenous-led and Indigenous-focused research in the scholarly climate change and MES health literature does not imply that Indigenous peoples are not researching, documenting, and sharing their experiences of and responses to climate change in relevant and powerful ways. Whyte (2017) suggests that varied Indigenous-led work, including resiliency plans (Inuit Tapiriit Kanatami, 2019), policy documents (Watt-Cloutier, 2015), conferences, declarations, and academic papers be recognized as *Indigenous climate change studies,* in which "Indigenous and allied scholars, knowledge keepers, scientists, learners, change-makers, and leaders are creating a field to support Indigenous peoples' capacities to address anthropogenic (human-caused) climate change" (p.153). A comprehensive review of the grey literature would provide greater insight into the ways in which diverse Indigenous peoples and communities are experiencing and responding to the MES dimensions of health in relation to the changing climate.

Spiritual Health

Spiritual health is a lesser explored and vaguely understood dimension of health that is intertwined with the physical, mental, emotional, and social dimensions of health (Bensley, 1991). The concept of spiritual health lacks clarity in academic literature (Bensley, 1991; Jaberi, 2019). Common characteristics associated with spiritual health include connections and relationship (with self, others, nature, God, or higher power), and meaning and purpose in life (Bensley, 1991; Hawks, 2004; Jaberi, 2019). Hawks (2004) synthesizes spiritual health to

represent “purpose and higher meaning in life along with the value system that defines proper actions and the nature of relationships. As such, good spiritual health fulfills foundational needs and provides the impetus for achieving positive emotional and social health” (p.13). Spiritual health can be considered part of a holistic understanding of mental and emotional health that relates closely to identity, relationships, and existential questions.

Spiritual health is rarely mentioned or discussed in the climate change mental health literature. One exception is the body of on-going work led by A. Cunsolo Willox and J. Middleton and Inuit collaborators who explore the impacts of climate change on Inuit mental wellness in the Nunatsiuvut region of Labrador, Canada (See Cunsolo Willox et al., 2013; Middleton et al., 2020). For Inuit peoples, spiritual wellness is a component implicit within mental wellness (Middleton et al., 2020). While the academic presentations of the research findings do not differentiate spiritual health explicitly, the results presented show various components of spiritual health including the importance of relationship with culture, land, and community, as well as ways in which changing weather and climate impact one’s meaning and purpose in life, especially on men who participate in subsistence-based harvesting (Cunsolo Willox et al., 2013; Middleton et al., 2020). Another small pocket of research into the implications of climate change on spiritual health is developing in the Pacific (Havea et al., 2017; Havea et al., 2019). In this region, participants reported both positive and negative impacts of climate change on their spirituality (Havea et al., 2017; Havea et al., 2019). Positive impacts were attributed to a stronger faith in their God as a result of climate change (Havea et al., 2019). Overall, investigations of spiritual health in relation to climate change is underexplored in academic literature.

More commonly than spiritual health, although still infrequently, the spiritual *dimensions* of climate change are discussed. The ways in which the spiritual dimensions of climate change are discussed varies depending on the social, cultural, and place-based context. For instance, Pihkala (2018) explores the mental, emotional, and spiritual dimensions of climate change from a theological perspective, focusing on the spiritual dimensions of big existential questions that arise from climate change. Alternatively, in their studies in alpine areas of Eastern Tibet and Southwest China respectively, Byg & Salick (2009) and Wang & Cao (2015) discuss the spiritual implications of climate change in relation to changes in significant landscape features (e.g., glacier melt, waterfalls) bestowed with spiritual value. Recognition of the spiritual dimensions of climate change is also beginning to emerge in the solastalgia literature in relation to the change or loss of landscape features that hold spiritual value (Ebhuoma et al., 2021; Kumar et al., 2021).

Climate Emotions: Ecoanxiety, Solastalgia, and Ecological Grief

Over the past five years, discussion of the emotional dimensions of climate change have gained traction in both academic literature and popular media (Clayton, 2020; Ray, 2021). The concept of 'earth emotions' refers to the ways in which humans respond emotionally to environmental crises (Albrecht, 2019), and there is a growing discourse around 'climate emotions' specifically (Galway & Beery, 2022; Galway & Field, 2022 preprint, Pikhala, 2022). Embedded within 'earth emotions', climate emotions are defined as "affective phenomena which are significantly related to the climate crisis" (Pihkala, 2022, p.1). Climate emotions are being increasingly conceptualized as highly interrelated, rather than distinct phenomena, in relation to both climate change *and* climate injustice (Galway & Field, 2022 preprint). For example, Jones and Davidson (2021) discuss climate emotions as an "intricate web" (p.8) and Galway and Beery

(2022) pose the concept of a "constellation of emotions" (p.8) as a way to highlight the interconnectedness among emotions while retreating from the binary classification of emotions as *positive* or *negative*. While the semantics shift between authors, it is becoming increasing evident that climate emotions "manifest together with various other emotions, in a plurality of compositions" (Pihkala, 2022, p.11). Within the climate emotions discourse, *ecoanxiety, ecological grief,* and *solastalgia* have grown to be the predominantly explored emotional concepts, though there remains little empirical evidence of the diverse ways in which these emotions are experienced across and within people, populations, and places. While it is recognized that emotions guide actions (Royal College of Psychiatrists, 2021), there is a dearth of literature exploring the ways in which the emotional responses to climate change inform climate action (Galway et al., 2021). Understanding the ways in which emotions intersect with health and climate action is critical if we are to achieve the ultimate public health goal of staying below 1.5 degrees of warming as outlined in the Paris Agreement. In the following sub-sections, I will explore the three climate emotions most frequently discussed in the climate change and mental health literature and most relevant to my proposed research: *ecoanxiety*, *solastalgia*, and *ecological grief*. I will then synthesize the key trends and gaps in the research of these three emotional concepts.

Ecoanxiety

Ecoanxiety is an emerging concept used to capture a broad range of negative emotions related to the environmental crisis, including climate change (Clayton & Karazsia, 2020; Coffey et al., 2021; Wu et al., 2020). There is a lack of agreement on the terminology within the existing literature, with the term *ecoanxiety* often used interchangeably with *'eco-anxiety'*, *'ecological anxiety'*, *'climate anxiety'*, and *'climate change anxiety'* (Clayton, 2020; Dodds, 2021; Hickman,

2020). Additionally, there is little conceptual clarity among these terms (Leger-Goodes et al., 2022). The American Psychological Association defines ecoanxiety as "a chronic fear of environmental doom" (Clayton et al., 2017, p.68), while Hickman (2020) provides a more nuanced understanding, suggesting that ecoanxiety is not simply an emotional response to climate change but that "it includes a relationship between these emotional responses and the cognitive knowledge that we have both caused the threat and are failing to sufficiently act to reduce it" (p.414). Climate anxiety is considered the "most recognized form of eco-anxiety" (Soutar & Wand, 2022, p.2) and is defined as "anxiety associated with perceptions about climate change" (Soutar and Wand, 2022, p.2). Multiple versions of the terms '*ecoanxiety'* and *'climate anxiety'* have been used, sometimes interchangeably, in recent influential peer-reviewed publications, including large-scale studies (Hickman et al., 2021), systematic (Soutar & Wand, 2022) and scoping reviews (Leger-Goodes et al., 2022), and Pihkala's (2022) preliminary taxonomy of climate emotions. Given the lack of conceptual clarity between terms and the understanding that '*climate anxiety'* is included within '*ecoanxiety'*, the term 'ecoanxiety' will be used throughout my thesis research. As Hickman (2020) argues, regardless of specific term or definition, "it matters more how we understand and respond to the struggles, fear and suffering that is genuine and real" (p.421). Some scholars, however, continue to call for further research to provide conceptual clarity on various climate emotion terminology (Coffey et al., 2021).

Across the growing academic discussion, ecoanxiety is understood as a complex, future-oriented emotional landscape contoured by myriad "threat-related" (Pihkala, 2022) feelings including worry, fear, anger, uncertainty, helplessness and/or powerlessness (particularly in youth) and existential distress resulting from the direct, indirect, and vicarious impacts of climate change (Baudon & Jachens, 2021; Clayton, 2020; Maran & Begottie, 2021; Pihkala, 2020).

Emerging research suggests that care, empathy, and compassion evidenced as deep concern for others around the world, now and in the future, may be interwoven within experiences of ecoanxiety (Agoston et al., 2022; Hickman, 2020; Ogunbode et al., 2021). Feelings of care and empathy are hypothesized to be at the root of other climate emotions, including climate anger, climate grief, and climate guilt (Pihkala, 2022), and may be manifestations of climate worry in children (Leger-Goodes et al., 2022). Agoston et al. (2022) have identified six sub-types of ecoanxiety that both overlap with and diverge from the five anxiety responses to climate change identified in a systematic review by Soutar & Wand (2022). Shared components of ecoanxiety identified in both studies include *worry for future generations, feelings of helplessness,* and *anxiety/mental health symptoms* (Agoston et al., 2022; Soutar & Wand, 2022). Divergent themes included *empathy, conflicts with friends and family, being bothered by the changing weather* (Agoston et al., 2022) and *worry about livelihood, worry about apocalyptic futures,* and *competing worries* (Soutar & Wand, 2022).

Ecoanxiety, like all climate emotions, is not universal. Experiences of ecoanxiety can be both fleeting and long-term (Pihkala, 2022) and can exist along a spectrum of intensity, ranging from constructive to paralyzing, with individuals moving fluidly along the spectrum depending on the forces shaping their lives and worlds (Leger-Goodes et al., 2022). While typically characterized as an appropriate response to the horror of the unfolding climate crisis, there is some debate regarding the pathological possibilities of ecoanxiety (Agoston, 2022; Soutar & Wand, 2022). For example, in their recent mixed-methods study of 284 young people in the United States, Schwartz et al. (2022) concluded that there was insignificant association between ecoanxiety and psychiatric symptoms (including Major Depressive Disorder and Generalized Anxiety Disorder) and that ecoanxiety should not be viewed as a clinical disorder. Alternatively,

Sciberras and Fernando's (2022) longitudinal study on climate *worry* (often considered a component of ecoanxiety) concluded that young people in Australia who experienced persistent high levels of climate worry had higher depressive symptoms in later adolescents. When considering the manifestations and outcomes of ecoanxiety, however, it is important to also explore and account for the various coping strategies being used to content with these difficult emotions (Ojala, 2022). In their systematic review of anxiety responses to climate change, Soutar and Wand (2022) found a lack of evidence showing a connection between ecoanxiety and clinical anxiety. Overall, many authors argue that ecoanxiety, like other climate emotions, should not be pathologized and that it is an appropriate response to climate breakdown (Clayton, 2020; Hayes et al, 2018; Hickman et al., 2021; Kurth & Pihkala, 2022).

Two recent scoping reviews related to ecoanxiety provide further summary and synthesis of current understandings of ecoanxiety in the academic literature. Coffee et al. (2021) completed a more general scoping review of current ecoanxiety literature, while Leger-Goodes et al. (2022) focused on ecoanxiety experienced in children through vicarious pathways. Coffey et al. (2021) and Leger-Goodes et al. (2022) both call for greater conceptual clarity of the term ecoanxiety. Leger-Goodes et al. (2022) also highlight the need for additional research to understand if ecoanxiety be understood and defined in the same ways for both children and adults, or if key distinctions should be made. While both reviews point to myriad of interconnected emotions related to ecoanxiety, Leger-Goodes et al. (2022) identified worry, hope, and fear as the three most reported emotions in children. In addition to causing myriad psychological and emotional outcomes (e.g., panic attacks, sadness, depression, helplessness, numbness), ecoanxiety can also manifest in physical symptoms including irritability, weakness, sleeplessness, and unspecified physical sickness (Coffey et al., 2021).

Many authors have identified various vulnerability factors associated with ecoanxiety. Having a strong connection to land and nature and being female are consistently considered vulnerability factors (Coffey et al., 2021; Leger-Goodes et al., 2022), however being a girl may also be a protective factor, as girls are found to have higher levels of hope (Leger-Goodes et al., 2022). Coffee et al. (2021) identified young people and people who have experienced the direct impacts of climate change to be at heightened risk of ecoanxiety and Leger-Goodes et al. (2022) found children who use problem-focused coping, don't have opportunities to take action, and are unsatisfied with government responses to climate change to also be more vulnerable to ecoanxiety. While not identified in either of these scoping reviews, Clayton (2021) and Dodds (2021) have both published discussion articles identifying low socio-economic status as an additional risk factor for climate anxiety. Finally, Coffey et al. (2021) and Leger-Goodes et al. (2022) both note that Indigenous peoples are also at heightened risk of experiencing ecoanxiety. This suggestion is made despite the fact no studies included in either scoping review explored ecoanxiety through an Indigenous worldview (Coffey et al., 2021; Leger-Goodes et al., 2022). As Galway et al. (2019) illuminate in their scoping review on solastalgia, climate emotions may be "best articulated in the specific language(s) of the peoples who are experiencing [them]" (p.14) and a further exploration into Indigenous-led work on the MES dimensions of climate change found in the grey literature is warranted here. Clearly, the scholarly understanding of anxiety related to climate and environmental change is a rapidly growing field where new knowledges and perspectives are continuously emerging.

Looking more deeply at the intersection of ecoanxiety, culture, and race, Ray (2021) has raised concern "about the racial implications of climate anxiety" (para. 2), noting that "those responding to the concept of climate anxiety are overwhelmingly white" (para. 2). This

provocation by Ray (2021) elucidates the importance of exploring power and privilege in how, and by whom, ecoanxiety and other climate emotions are experienced and responded to on individual and broader scales. It is important to consider that a large part of the narrative around ecoanxiety has grown through mass media, a field dominated and controlled by white men (Diangelo, 2018) and that there is a dearth of both public and scholarly discourse that explicitly names race as an indicator in climate related health outcomes (Patel et al., 2021). Patel et al. (2021) suggest that ecoanxieties experienced by Black, Indigenous, and other children of colour may be overshadowed by the anxieties caused by the daily and chronic adversities rooted in structural racism. Further, ecoanxiety and other MES health outcomes associated with the impacts of climate change "are symptomatic of greater societal problems largely driven by structural racism" (Patel, 2021, p.15). The policy, practice, and research response to the MES dimensions of health associated with climate change must center an intersectional lens if they are to disrupt the structures and systems which create cumulative and compounding vulnerabilities in certain populations (Versey, 2021).

Solastalgia

Bringing together the notions of 'solace' and 'nostalgia' for a cherished home place, solastalgia is an emotional response that has been increasingly recognized in the climate and health literature since being introduced by Australian environmental philosopher Glenn Albrecht in 2003. Solastalgia is "the distress caused by the unwelcome transformation of cherished landscapes resulting in the cumulative mental, emotional, and spiritual health impacts" (Galway et al., 2019, p.11). The unwanted transformation of 'home' or 'place' may be due to environmental factors, including both rapid transformations (e.g., wildfire) or creeping impacts of climate change (e.g., prolonged drought, sea-level rise), or technologically driven, as in the

cases of coal mining or mountaintop removal (Galway et al., 2019; Kumar et al., 2021). Unlike other earth emotions, solastalgia is a distinctly place-based lived experience (Galway et al., 2019). In their taxonomy of climate emotions, Pihkala (2022) groups solastalgia within a network of "sadness-related emotions", alongside sadness, yearning, and grief. Pihkala goes on to suggest that experiences of solastalgia are closely entwined with feelings of betrayal (Pihkala, 2022). While concepts of 'home' may be nested within local, regional, and global scales (Albrecht, 2005), empirical investigations of solastalgia are focused on understanding the lived experience in specific local places where one resides, often lands involving generational or ancestral ties (Antabe et al., 2020; Ebhuoma et al., 2021). Solastalgia is understood to contribute to the erosion of both individual and community identity (McNamara & Westoby, 2011; Simms, 2021). It can manifest in mental health concerns including feelings of helplessness, substance abuse, and depression (Antabe et al., 2020; Moratis, 2021) and has been linked to increased suicide rates in farming populations (Ebhuoma et al., 2021; Ellis & Albrecht, 2017).

While early solastalgia research was focused primarily on Australian populations, the research in this area has seen a geographical expansion since 2003 (Galway et al., 2019). Building on the earlier work of McNarmara & Westoby (2011) on Erub Island in the Torres Strait, recent studies by Ebhuoma et al., (2021) in rural Ghana and Kumar et al., (2021) in rural southern India expand the construct of 'place' from the weaving of biophysical and cultural fabrics to include important spiritual dimensions. Kumar et al. (2021) explain, "many attributes of a place such as mountain peaks, water, and different plants and animals, are worshipped for their spiritual importance and as physical representation of gods or spirits. Climate change is a potential force capable of bringing alteration in the attributes of a place having religious and spiritual significance. In other words, climate change bears spiritual implications" (Kumar et al.,

2021, p.2). The spiritual significance of place – and its entanglement with solastalgia – is captured in research on rural populations in the Global South who hold deep ancestral ties to the land. There is little exploration of the spiritual dimensions of solastalgia or other earth emotions in research in the Global North except in relation to Indigenous populations (Cunsolo & Ellis, 2018).

In their scoping review on solastalgia, Galway et al. (2019) identified that the solastalgia literature is multidisciplinary and comes from a wide range of disciplines. Experiences of solastalgia are most often understood through qualitative interviews, though the environmental distress scale is sometimes used to measure this emotional response. In synthesizing the literature from 2003-2018, Galway et al. (2019) found that solastalgia can be triggered by myriad acute and chronic factors, most commonly extreme weather, resource extraction, climate change, and political violence. Experiences of solastalgia are found to be mediated by concepts of place, one's sense of power or powerlessness, confidence in government or industry, and future uncertainty (Galway et al., 2019). Given the velocity of environmental degradation due to climate change and resource extraction in the 21st century, solastalgia research is expected to expand as experiences of solastalgia increase. Galway et al. (2019) call for "additional research using diverse methodologies and data collection methods, across a greater diversity of people and landscapes, and conducted in collaboration with affected populations and potential knowledge users" (p.15). Future solastalgia research should focus on developing conceptual clarity and exploring the intersections between solastalgia and other earth emotions, primarily ecoanxiety/climate anxiety and ecological grief (Galway et al., 2019). This bid to explore the intersections between various earth emotions is not new. Cunsolo & Ellis (2018) have previously called for additional explorations of how ecological grief relates to solastalgia. Finally, further

research investigating the ways in which youth experience solastalgia is another opportunity to enhance the overall understanding of this place-based emotional lived experience (Galway et al., 2019).

Ecological Grief

Ecological grief is "the grief felt in relation to experienced or anticipated ecological losses, including the loss of species, ecosystems and meaningful landscapes due to acute or chronic environmental change" (Cunsolo & Ellis, 2018, p.275). It is understood to be a natural human response associated with three overarching categories of losses: physical ecological loss (such as those caused by acute events or gradual/chronic changes to landscapes, ecosystem, or weather patterns), eroded personal, cultural, or place-based identities including intergenerational knowledge systems, and ecological, identity, and place-based losses that are anticipated to occur in the future (Cunsolo & Ellis, 2018). Reported mental health outcomes of ecological grief include anger, sadness, frustration, anxiety, distress, hopelessness, depression, and despair (Cunsolo & Ellis, 2018). Populations at heightened risk of experiencing ecological grief include people who live or work in close relationship to the land (e.g., Indigenous peoples or farmers) (Comtesse et al., 2021; Cunsolo & Ellis, 2018), researchers whose work focuses on biodiversity loss (Cunsolo et al., 2020a) and those who are disproportionately impacted by climate change and/or who are already marginalized by existing systems of power and privilege (Comtesse et al., 2021; Cunsolo & Ellis, 2018).

Cunsolo et al. (2020a) have also introduced the concept of *cascading* ecological grief, meaning the "sequential, ongoing, and interrelated forms of grief triggered by a singular ecological loss" (p.52). This concept recognizes that ecological grief is not a solitary, static response but one that is a part of a larger complex unfolding of human experience that

"transcend[s] the original loss" (Cunsolo et al., 2020a, p.52). Further research is needed to explore the concept of ecological grief as it shape-shifts through time and space in diverse individual and community spheres.

Despite being a natural response to ecological loss or degradation, ecological grief is understood as a disenfranchised grief, meaning that it is not acknowledged or discussed publicly (Cunsolo & Ellis, 2018; Ojala et al., 2021). The silencing and disregard of people's experiences of ecological grief is believed to exacerbate feelings of sadness or distress (Cunsolo et al., 2020a) and warrants consideration. Ecological grief is an emotional response to losses that are often intangible or invisible and difficult to measure or monitor (Cunsolo et al., 2020a). However, current dominant worldviews do not recognize these intangible, non-human losses as mournable subjects (Cunsolo Willox, 2012). It follows, then, that those who are most likely to grieve for these non-human bodies, including Indigenous peoples, farmers, and those who live intimately with the land, are often marginalized within dominant systems of power and privilege, bear a disproportionate burden of climate impacts (Adams, 2021; Cunsolo Willox, 2012), and have limited access to mental health resources, especially ones that are culturally relevant and safe (Cunsolo et al., 2020a). People who are most likely to experience ecological grief are also more likely to be excluded from climate change policy and discourse (Cunsolo & Ellis, 2018). Issues of power and privilege are ubiquitous within experiences of ecological grief – and other climate emotions - and should be considered throughout the research process and in all our responses to climate change (Ray, 2021).

While Comtesse et al. (2021) suggest that solastalgia may be a sub-concept of ecological grief, Cunsolo & Ellis (2018) express concern that "existing definitional and conceptual ambiguities in key place-related concepts – such as place attachment, place identity and

solastalgia – heighten the risk that ecological grief may become conflated with related concepts" (p.278). The lack of conceptual clarity around climate emotions requires further research and discussion as we work to understand more fully the ways in which peoples' experiences of and responses to ongoing, accelerating, and cumulative ecological degradation are grounded in place. Furthermore, understanding that human experience is both "the cause *and* effect of various places" (Beery & Wolf-Watz, 2014, p.203) prompts consideration of the relational and dynamic interactions between people and *specific* places when investigating the ways in which people relate to the natural world (Beery & Wolf-Watz, 2014).

Given the dearth of research on ecological grief, there are many opportunities to expand the research agenda. There is a consensus among researchers that further study is needed to enhance theoretical and conceptual clarity of ecological grief and the ways in which this grief intersects with other earth emotions, especially solastalgia (Comtesse et al., 2021; Cunsolo & Ellis, 2018). Comtesse et al. (2021) calls for the development of a measurement tool as a pathway to establish an empirical understanding of ecological grief. There is a voiced need for future investigations into potential risk factors, at-risk populations, interventions, and supports associated with ecological grief in general (Cunsolo & Ellis, 2018), and more specifically with the complex, layered, and compounding stressors and risk factors associated with *cascading ecological grief* (Cunsolo et al., 2020a). Finally, future ecological grief research must take into account systems of power and privilege, the ways in which power and privilege unfold in the different contexts of unique peoples, places, and cultural structures (Cunsolo et al., 2020a).

Summary of Key Gaps in the Climate Emotions Literature

While conceptual understandings of various climate emotions are growing, there is still considerable need for empirical studies examining the lived experiences of different populations

in varying places (Galway & Field, 2022 preprint; Ojala et al., 2021). This gap in the scholarly literature, however, may be addressed in part by considering the work of peoples and communities outside of academia (e.g., within *Indigenous climate change studies* described earlier). There is also limited insight into factors that mediate or moderate the impacts of and responses to climate change, and a narrow understanding of what types of support are most appropriate and effective in responding to these emotional experiences (Ojala et al., 2021). Furthermore, longitudinal research is needed to better understand the long-term effects of ecoanxiety, solastalgia, or ecological grief, the cumulative impacts of these experiences, and the ways in which these experiences change over time (Cunsolo et al., 2020a). Longitudinal research will also help to identify causal relationships and confounding factors between emotions and actions (Cunsolo et al., 2020a). Finally, further research into the ways in which ecoanxiety, solastalgia, and ecological grief intersect and diverge is needed to provide greater theoretical and conceptual understandings of these experiences (Galway et al., 2019).

There is a notable gap of climate emotion literature positioned at the nexus of racism and climate change (Patel et al., 2021). Given that Black, Indigenous, and people of colour (BIPOC) bear the greatest impacts of climate change while simultaneously being oppressed by the underlying systems that have created the climate crisis, this is a critical oversight in the research community. Within the climate emotion literature, there is a small group of voices highlighting the importance of interrogating climate emotions through a critical lens. Galway et al. (2019), raise important issues of power and privilege in their discussion of the solastalgia literature by asking, “How, for instance, does one’s positionality within society, access to resources, and decision-making power determine the likelihood or intensity of solastalgia?” (p.13). Ray (2021) notes the racist history of environmentalism, and powerfully asks, “is climate anxiety just a code

for white people wishing to hold onto their way of life or get 'back to normal,' to the comforts of their privilege?" (para. 2). Whyte (2017) clearly notes that the "vulnerability" of Indigenous peoples to climate change is understood as "an intensification of colonially-induced environmental changes" (p.154), and that Indigenous peoples have long histories of organizing and adapting to change. Rouf and Wainright (2020) assert, "It is time to see the links between health, social, and climate justice, and to see them as deeply interconnected as part of a wider global health frame" (p.132). Framing explorations of climate emotions through a critical, intersectional lens is paramount if we are to ensure that policy and practices responding to MES health outcomes of climate change are rooted in equity and justice, not in the very systems of oppression and injustice from which the climate crisis has emerged.

Finally, the scant inclusion of youth perspectives on and experiences with solastalgia or ecological grief within scholarly research generally and in a Canadian context specifically, warrants a moment of reflection and inquiry. Why is it that this literature search revealed negligible discussion of young peoples' lived experiences in relation to concepts of place, including place-attachment or sense of place? Does this imply an inherent deficit framing, whereby youth are perceived as *unable* to feel a deep sense of 'home' or connect with ancestral ties to the land? Again, a thorough review of the grey literature may provide additional insight into the ways in which young people are experiencing place-based emotions such as solastalgia and ecological grief.

Emotions in Youth-Focused Social Movement Literature

The importance of young people in social movements has long been documented by social movement scholars (Earl et al., 2017). For this literature review, I looked generally within the youth-focused social movement literature and specifically within the youth climate activism

literature to see how emotions are understood and discussed in relation to action. In the broader body of youth-focused social movement literature, emotions (excepting apathy) are rarely mentioned or discussed. Apathy appears in the youth politicization literature wherein youth are commonly considered unengaged in politics due to apathy (Goessling, 2017; Gordon & Taft, 2011). One notable exception challenging this frame is the combined ethnographic work of Gordon and Taft (2011) who report on the ways in which youth activists view adult claims of apathy in young people. Relevant to my research, Gordon and Taft (2011) found that the youth activist participants understood the disengagement of their peers as a result of both apathy *and* cynicism intersecting with power and privilege along class, race, and gender lines. For instance, white, middle-class activists in Portland, Oregon suggested that the inaction of their peers was due to "middle-class comfort and obliviousness" (Gordon & Taft, 2011, p.1508) and low-income Black and Latinx organizers in Oakland, California suggested that for their peers who live with violence, poverty, and racial isolation, "a deep-seated cynicism prevents many youth from becoming hopeful enough to pursue social change" (Gordon & Taft, 2011, p.1509). For these youth activists, apathy was viewed as a social construction rather than an act of disengagement.

A non-systematic literature review by Earl et al. (2017) identified common trends in the youth-focused social movement literature, including campus activism, youth politicization, the role of adults in youth organizing, intersectionality, and the changing context in which youth activism is taking place. While these trends may provide important insights into youth climate activism, the role of emotions is not discussed.

The Intersections of Emotion and Action in Youth Climate Activism

While emotions are largely overlooked in the general social movement literature focused on youth, there is slightly more attention paid to the experience of emotions in youth climate

activism. The exploration of emotions, however, remains limited and there is little empirical evidence of the emotional experiences of young climate activists or on the generative and motivating role of emotions in relation to climate action. A common trend among social movement scholars is to focus on instrumental motivations (e.g., working toward a particular goal) rather than expressive motivations (e.g., engaging to express ideology, values, or emotions, irrespective of expected outcome) for climate activism (see Haugestad et al., 2021; Piispa & Kiilakoski, 2021; Ritchie, 2021). This is a missed opportunity, given the growing evidence in the climate change and health literature suggesting that some emotions may be activating and generative for urgently needed climate action (Galway, 2021; Stanley et al., 2021). In the following section, I will review the most prominent emotions discussed in the literature focused on youth climate activism. I will then explore the role of emotions in motivating climate action, the effects of participating in collective climate action on emotion, and the importance of hope in climate action.

Myriad emotions are commonly expressed by young people involved in the climate action movement. Experiences of anxiety, worry, anger, fear, powerlessness, despair, frustration and hope feature prominently in studies focused on young people confronting the climate crisis (Kleres & Wettergren, 2017; Martiskainen et al., 2020; Piispa & Killakowsi, 2021; Wahlström et al., 2019). Interestingly, these negative feelings experienced by young activists (e.g., anxiety, worry, anger, fear, powerlessness, despair, frustration) are also found within the complex layers of emotions characterizing ecoanxiety, solastalgia, and ecological grief (Antabe et al., 2020; Clayton, 2020, Cunsolo & Ellis, 2018). In their 2019 large-scale study of FFF climate strike participants in 13 cities across Europe, Wahlström et al. (2019) found high rates of worry and anger among protestors, and notable levels of fear and powerlessness. Protesters also reported a

"hopeful attitude towards the future" (p.17), with school students more likely than adults to express hopefulness. Martiskainen et al. (2020) reported similar results, highlighting feelings of fear (23/64), hope (23/64), anger (11/64), and despair (10/64) as the most commonly mentioned emotions during 64 structured interviews with climate protesters in 2019. While the 2019 climate strikes are noted for the mass mobilization of youth participants, neither Wahlström et al. (2019) nor Martiskainen et al. (2020) report socio-demographic information and it cannot be assumed that all participants are youth. Similarly, these studies are limited by their focus on industrialized countries in the Global North. Kleres & Wettergren (2017) conducted a noteworthy study in both the Global North and Global South, finding that the emotional experiences of young climate activists may vary across diverse places depending on the political and socio-material context. Using in-depth interviews with 41 youth climate activists from both the Global North and Global South, Kleres & Wettergren (2017) found that anger was treated with caution in participants from the Global North while it was a strongly motivating force by participants from the Global South. This difference is attributed to political forces, where activism is more politicized in the southern context than in the north (Kleres & Wettergren, 2017).

The social movement literature on youth climate activism provides limited insight into the role of emotion in motivating action. While emotions are widely recognized as critical components in generating and sustaining action, there are few specifics identified in the literature. By bringing together evidence from across disciplines, we can better understand the motivating role of emotions in generating and sustaining climate action. For example, anger has been identified as an emotion that motivates climate action by both climate change and health scholars (Stanley et al., 2021) and social movement scholars (Curnow et al., 2020). Galway et al. (2021), an interdisciplinary research team, has identified worry as an activating emotion for

climate engagement, and other climate change and health scholars have suggested that ecoanxiety may inspire climate action (Clayton, 2020; Cunsolo et al., 2020b; Stanley et al., 2021). In a quantitative study of 2080 participants across eight African and European countries, Heeren et al. (2022) found that lower levels of climate anxiety had a significant association pro-environmental behaviour while participants reporting higher levels of climate anxiety experienced more eco-paralysis. In addition, anxiety was found to "motivate pro-environmental behaviour, call for change, and inspire hope" across Oceania (Clissold et al., 2022). Other scholars across disciplines have also identified that hope plays an important role in motivating and sustaining action (Budziszewska & Głód, 2021; Cattell, 2021; Nairn, 2019; Ojala, 2012). The importance of hope in climate action will be discussed in more detail below. Given that anxiety, anger, worry, and hope have all been identified as prominent emotions experienced by young people taking up climate action, it is not surprising that evidence of their motivating force is emerging across different academic disciplines. Finally, the urgency and scale of the climate crisis requires that scholars across disciplines work to understand the motivations generating climate action and further research into the intersections of emotion and climate action is required across diverse places, especially the Global South, using diverse methodologies.

While emotions can motivate climate action, participating in collective climate action can also influence emotions. Curnow and Vea (2020) argue that emotion in activism is complex and social, a collective experience where "feelings, learning and politicization often drive each other in interwoven ways" (p.731). Activism is not a solitary experience but is mediated by the social context (Budziszewska & Głód, 2021) and these movement spaces can create opportunities for 'emotion management' (Cattell, 2021; Kleres & Wettergren, 2017) and transformation (Curnow et al., 2020). For instance, Curnow et al. (2020) found that FossilFree UofT provided a space

where activists' anger was witnessed, collectivized, and transformed. Participating in climate action also appears to create positive emotions for young people, including feelings of agency and power (Haugestad et al., 2021). Laughter has been noted as a way for young activists to process emotions and to "blow off steam" (Curnow et al., 2020, p.2). Bowman (2019) suggested that youth climate activism includes play, laughter, and fun as an integral element of resistance and that youth climate strikes often have a 'festival like' atmosphere in which participants experience joy.

Hope, often considered the antidote to despair, appears as another fundamental emotional dimension that spurs climate activism. Unlike the motivating emotions fear and anger, however, hope appears to have a reciprocal relationship to action; while hope drives action, collective action also generates hope (Cattell, 2021; Kelsey, 2016; Kleres & Wettergren, 2017;). This hope-action relationship also appears in various hope theories within climate discourse, whereby hope is understood as a verb - the action of working toward a preferred future (Orr, 2007; Macy & Johnstone, 2012). In his articulation of *grounded hope,* Stoknes (2015) articulates that "the walking and the doing are their own reward" (p.222) when facing difficult circumstances. Experiencing these types of constructive hope can stimulate meaning-focused coping strategies among youth (Ratinen, 2021). Meaning-focused coping, when "people draw on their beliefs, values, and existential goals to sustain well-being" (Ojala, 2012, p.226) is found to increase feelings of environmental efficacy, motivate pro-environmental behaviour, and evoke hope in children and adolescents (Ojala, 2012). Thus, meaning-focused coping can be seen as a positive component in the hope-action cycle.

Hope generated through collective action may also act as protection against challenging emotions (Li & Munroe, 2017; (Budziszewska & Głód, 2021). This may be attributed to the

"emotion management" that occurs when youth take action together (Cattell, 2021). Yet while collective climate activism can help to manage difficult emotions and generate hope, it can also lead to psychological strain and burnout (Budziszewska & Głód, 2021; Nairn, 2019; Sanson & Bellemo, 2021). Many youth activists report feeling strained by the demands of school, life, and commitments to activist groups (Nairn, 2019). Some participants interviewed by Nairn (2019) noted that their more cynical peers did not seem to experience burnout. This finding implies that a hope that is grounded in a clear appraisal of reality is more enduring than optimism. It is important to note that research on youth climate activism is overwhelmingly cross-sectional and thus a causal relationship between hope and action cannot be established from the existing research.

Locating and Understanding Place

Climate change is a global phenomenon that is understood, experienced, and often responded to in place (Galway, 2018). While further work is needed to establish a strong scholarly methodology for conducting 'place-based' climate change and health research, researchers are increasingly curious about the role of place in the way people experience and respond to climate change (Nicolosi & Corbett, 2018). Place is most often understood to be a multi-dimensional relationship between people, landscape, and myriad social, cultural, and geographic factors. Gislason, Galway, Buse, et al. (2021) provides a comprehensive definition, suggesting that "place not only refers to specific geographical locations, but also to a range of forces which contour it, such as politics, populations, economies, institutions, nature and power which interact through myriad concentric circles of influence and a range of social and ecological relationships" (p.534). 'Place' is an important determinant for health and well-being,

including MES health, and relationships to place can increase health by nurturing important social and environmental connections (Fresque-Baxter & Armitage, 2012).

A variety of place-related bonds are explored within the climate change and engagement literature, including place-attachment, sense of place, and place identity. In their systematic review of the environment/climate change, place, and engagement literature, Nicolosi and Corbett (2018) found that place-attachment was the concept used most often to explore human-place relationship in this research field. Broadly defined, place attachment is "the emotional bonds that people develop with their socio-physical environment" (Nicolosi & Corbett, 2018, p.4). While rarely mentioned in the literature, spiritual landscapes may also be embedded within relationships to place (Johnson, 2018). Place-attachment theory suggests that, as climate change impacts the people's relationship to place, people's attachment to those places may be a motivator for action (Nicolosi & Cobett, 2018). Of the 66 studies included in their review, Nicolosi and Corbett (2018) found that 74.2% (n=49) of studies indicated that relationships to place are an effective way to promote climate change engagement, and that those studies which understood engagement as action (as opposed to concern) reported the highest levels of relationship to place. It is critical to note, however, that Indigenous peoples, minority populations, urban areas and the Global South were vastly under-represented in the literature (Nicolosi & Cobett, 2018). Given the ways in which power and privilege are embedded with places, it would be irresponsible to generalize these findings of Nicolosi and Corbett (2018) on a global scale.

Grounded in a Canadian context, the work of Scannell and Gifford (2013) has received significant attention in the place-based climate change literature. In this research, Scannell and Gifford (2013) sought to understand the ways in which local versus global messaging frames

impacted climate change engagement and the extent to which place attachment was a mediating factor in engagement. Results indicated that locally framed messages increased engagement and that place attachment was a significant predictor of climate change engagement (Scannell & Gifford, 2013). These results provide significant argument for grounding climate health and action research in the context of place because a failure to do so assumes that the experiences of and engagement with climate change are independent of the factors contouring place, including social, cultural, and political forces.

Chapter 3: Methodology & Methods

I begin this chapter by locating myself as a researcher in relation to this climate change and MES health research and then explore social constructivism as a useful conceptual framework for grounding this grounding. I provide details on the methods of this research, including the study design, research setting, participants and recruitment methods, and data collection and analysis procedures. This chapter ends with an explanation of the ethical issues considered and the limitations of this research.

Positionality

I come to this work at the intersection of climate change and mental health as a mother of two young girls, a climate activist, and the long-term primary support for a family member who lives with complex mental health challenges. As a mother, I am compelled to work for healthy and just futures, and I am provoked to listen deeply to the thoughts and feelings of young people as they conceive of and grapple with the complexities of the world. I join in collective climate action out of moral responsibility, as a coping mechanism to manage my own difficult climate-related emotions, and in effort to cultivate inspiration and hope by joining together with others who are dedicated to making the impossible, possible. Having faced the shame of mental health and navigated the deficits of the mental health care system, I hope that my work will help to reduce stigma, build dialogue, and improve the response of public health to the MES challenges generated and exacerbated by climate change.

I am a healthy, able-bodied, cis-gendered, middle-class, university educated woman with Métis, English, and German Mennonite ancestry. I live, work, play, learn, love, and grieve on the shores of Lake Superior, the largest body of freshwater in the world, surrounded by vast swaths of intact boreal forest. Thus far, I have been well insulated from experiencing the direct impacts

of climate change, though regularly face myriad vicarious impacts, including difficult climate emotions. Though I move through the world with considerable power and privilege and am relatively well-equipped to respond to the impacts of our changing climate, I still struggle each day to remain hopeful in the face of this crisis.

I came to the Master of Health Sciences program, and thus this research project, having worked for a well-intentioned but critically lacking environmental non-governmental organization for eight years. While this flexible part-time position fit my needs as a mother of two young children and the primary support person for my family member, I was deeply troubled by the lack of critical reflexivity and justice-focused lens in the way we approached relationship building, environmental education and action. In our work, we often failed to address (and thus perpetuated) racist policies and practices, myriad injustices, and were oblivious to intersectional theory. I wanted to work differently. This experience, combined with new ways of thinking, knowing, and working gained through the Master of Health Sciences program, influences the way that I approach and undertake my research.

Finally, my lived experience as a climate activist has influenced my work thus far and is likely to continue shaping this work as it unfolds. In 2019, I worked collaboratively with other community climate activists to ask the City of Thunder Bay to declare a climate emergency. While I am quite uncomfortable in the spotlight, I recognized that I had a responsibility to do my part. Together with another activist, I gave a deputation to City Council, spoke with media, and worked to gain the attention and support of the community. Thanks to the collaborative effort of many activists, organizations, and community members, Thunder Bay City Council unanimously declared a climate emergency, signifying their commitment to meaningful change. Through this experience I learned some of the joys and challenges of working in climate activist spaces and

experienced first-hand the emotional toll of taking a lead role in climate action. As a climate activist myself, I have approached my research eager to listen to others' experiences, curious to learn what led them to climate action, how they sustain their involvement in action, and where they find hope in the face of climate change.

Conceptual Framework

This climate health and action research is based in a social constructivist paradigm. Social constructivism views reality as a construct of human activity, something that is created rather than something to be discovered (Kim, 2010). In this sense, multiple realities can be created as diverse people and places interact (Creswell & Poth, 2018). The epistemological assumptions of social constructivism cognize knowledge as something that is socially and culturally constructed through interactions between people and their environments (Kim, 2010). Knowledge is developed through shared social experiences and individuals may hold a multitude of varying and complex views (Berkeley Graduate Division, n.d.; Creswell & Poth, 2018). Research conducted through social constructivist framework unfolds with the understanding that knowledge – and the multiple meanings of that knowledge - is co-created by the participants and the researcher (Creswell & Poth, 2018).

Social constructivism is appropriate for my study because the research question is socially situated. The ways in which youth climate champions experience climate change and participate in climate action are contoured by cultural and historical norms. These norms influence the ways in which we "appraise, feel, and act when experiencing – or performing – a certain emotion" (Weber, 2012, p.234). Similarly, Budziszewska and Głód (2021) posit that social movement work is mediated by the social context. Youth climate action is understood to

be a collective experience, one that is shaped by families, schools, peer groups, neighbourhoods, political context, media, culture, social groups, and social class (Budziszewska & Głód, 2021).

Methods

Study Design

Helldén et al. (2021) notes that most of the of child health and climate change literature that has emerged in the past five years is primarily quantitative, indicating a lack of qualitative research exploring the ways in which children and youth experience and respond to the MES dimensions of climate change. This exploratory study uses qualitative methods to investigate the emotions, experiences, and supports that are generative and supportive of climate action for young climate champions in Northern Ontario. As Budziszewska and Głód (2021) elucidate, “qualitative research is particularly well-suited to the in-depth study of emerging social phenomena and personal meanings people attach to their actions" (p.4). Connecting with youth climate champions through conversational interviews using open-ended questions and a broad letter prompt allowed me to gather a depth a breadth of complex experiences and ideas from participants. Additionally, collecting multiple forms of data helps to improve rigour in qualitative studies (Cresswell & Poth, 2018). Using a thematic network analysis process to guide data analysis is methodologically congruent with a social constructivist framework and ensured that I remained open to the complexity of views by providing a systematic way to create codes and themes without narrowing the meanings (Creswell & Poth, 2018). I recognize that my unique positionality influenced the ways in which I co-created knowledge with participants, as well as the ways in which I have interpreted and come to understand my research findings (Creswell & Poth, 2018).

Research Setting

This research project was situated in Northern Ontario, from the Manitoba border to the Southern boundary of the Parry Sound district. This region is an appropriate setting for my climate change and health research for several reasons. First, Canada's Provincial Norths are disproportionately experiencing the impacts of climate change (Galway, 2018). Northern Ontario has recently experienced climate-related impacts, including extreme weather events, wildfires, floods, and growing numbers of Lyme disease (EarthCare Thunder Bay, 2015; Public Health Ontario, 2021). Next, this region is home to the seven northern health units who have formed the Northern Ontario Climate Change Health Collaborative (NOCCHC) and are working collaboratively on a regional Climate Change and Health Vulnerability and Adaptation Assessment for Northern Ontario. The public health units involved in the NOCCHC include: (a) Algoma Public Health, (b) North Bay Parry Sound District Health Unit, (c) Northwestern Health Unit, (d) Porcupine Health Unit, (e) Public Health Sudbury & Districts, (f) Thunder Bay District Health Unit, and (g) Timiskaming Health Unit. My research contributes additional insights into the MES dimensions of health related to climate change, a subject that has received little attention in the regional Climate Change and Health Vulnerability and Adaptation Assessment to date (Rob Sanderson, personal communication, December 6, 2021). Despite experiencing and responding to climate change in unique ways, rural and remote populations are underrepresented in the climate change and mental health literature (Kipp et al., 2019). By situating my research in Northern Ontario, I worked to address this gap in the research and continued to build on the work of my supervisor, Dr. Lindsay Galway and previous Master of Health Sciences student Rob Sanderson who have both conducted climate health research in Ontario's provincial north.

Participants and Recruitment Methods

In order to be eligible to participate in this study, participants were required to self-identify as being involved in climate action (defined as *actively involved in idea and knowledge sharing, relationship building, and/or innovative action in response to climate change*), currently living in Northern Ontario, and between the ages of 15-24. Choosing to center youth experience in this research has been done thoughtfully and is not without repercussions. Climate narratives tend to frame youth as the key stakeholders in the climate movement, placing an unnecessary burden of responsibility upon today's young people despite the deep intergenerational timescale inherent in the climate crisis (Nairn et al., 2021). I wish to be clear that I do not allocate the responsibility of solving the climate crisis on a single generation, and that I understand this research as an opportunity to listen deeply to the ways in which young people are experiencing and responding to climate change so that we can build intergenerational partnerships to promote health and wellbeing and imagine transformative climate solutions together.

In my research, the term 'climate champion' refers to community members who are dedicated to idea and knowledge sharing, relationship building, and innovative action in response to climate change. This definition is shaped by the descriptions by Gislason, Galway, Buse, et al. (2021) and Philip (2014) who similarly capture the idea of climate champions as those engaged in climate education, action, and solutions. I have purposefully chosen 'climate champion' rather than 'climate activist' because of the cultural and political connotations inherent in the term activist (Boucher et al., 2021; Bowman, 2019). The term 'activist' can be ambiguous, especially when applied to youth who are operating outside of the formal adult-centric understandings of the term and many youths are not comfortable adopting an activist identity (Bowman, 2019; Fisher, 2016). 'Climate champion' is used to encompass the fluid identities of those engaging in

myriad types of climate action. While there is a valuable precedent in academic and grey literature using the term ‘climate champion’, I avoided using this term in any recruitment or communication material with participants. The term ‘champion’ holds multiple meanings, signifying either a “winner” or an “advocate” (Merriam-Webster, 2022), and I was wary of participants perceiving this term to place hierarchical value on themselves or the ways in which they take action in response to climate change. As an alternative, all communication with participants referred to ‘youth engaged in climate action’ rather than ‘climate champion’.

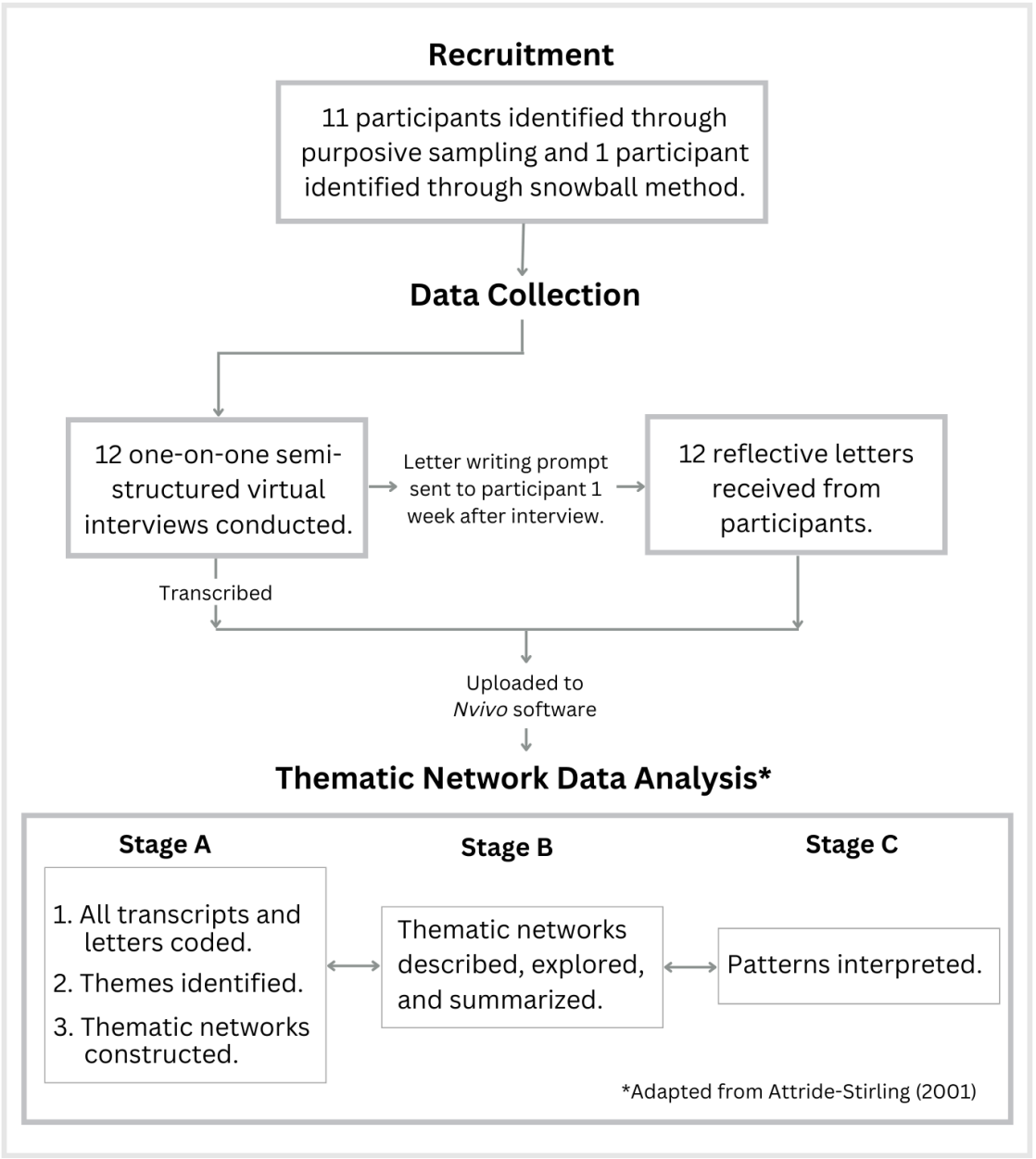
I used a purposive sampling technique to recruit participants from Northern Ontario who self-identified as engaging in climate action. Participants were identified through my own previously established contacts, those of my colleagues and supervisor, Dr. Lindsay Galway, and by reaching out to regional climate action groups through social media. One participant was identified using a snowball technique. A total of 12 participants from six communities across Northern Ontario took part in the study. I attempted to recruit participants from a variety of different sized communities across the research setting who were responding to climate change in various ways, at an individual and/or community level. Participant profiles, including a narrative description of each participant and demographic information based on questions asked at the end of the interview, are presented alongside the study findings on page 60.

Data Collection

This section provides a more thorough explanation of the interviews and letter writing process used in this study. A diagram of the methods is provided below in Figure 1, and is explained in the subsequent sections.

Figure 1

Methods



Interviews. Twelve one-on-one semi-structured interviews were conducted virtually and recorded using video conferencing (Zoom). Interviews lasted approximately 45-75 minutes and followed the interview guide comprised of five sections of questions and prompts (see Appendix D). To begin, the participant was asked introductory and contextual questions to build rapport

and to understand the community and context in which the participant lives. Next, the interview questions focused on understanding the participant's perspectives and direct experiences of climate change. The third and fourth sections explored the ways in which the participant experiences and responds to the MES dimensions of climate change and the role of climate action in shaping these experiences. Finally, the interview closed with basic socio-demographic questions. Prior to data collection, the interview guide was piloted with two colleagues involved in climate action who did not meet participation criteria (one due to location, the other because of age) to ensure flow, timing, and clarity of questions. Minor adjustments to two questions were made following the pilot interviews. In order to practice deep listening, I did not take notes during the interview. Immediately following the interview, however, I made reflective notes highlighting key observations, recurring themes, successes and challenges of the interview process, as well as my own personal response to the conversation. These reflective notes were reviewed throughout the data collection period and through the initial stages of familiarization with the data to iteratively re-visit initial perceptions and ideas. They were not considered data and, as such, not included in the analysis process. Despite the variation in the lived experiences and involvement with climate action among participants, I felt that I had reached a point of data saturation with the 12 interviews. I transcribed all 12 of the interviews verbatim, a process that allowed me to develop an initial familiarity with the data. I emailed all participants a copy of their transcript, allowing them the opportunity to member check for accuracy and meaning (Creswell & Poth, 2018). Six participants approved their transcript without edit, and the other six did not respond to the request.

Letter Writing. Letter writing was included as a data collection method to generate rich data that did not emerge from the interviews alone. Asynchronous methods including letter writing

are recognized as a useful tool for eliciting honest and genuine responses about sensitive or personal topics, including emotions (McAuliffe, 2003; Pithouse-Morgan et al., 2012). At the end of each interview, I explained the letter writing component and let the participant know they would receive instructions including a writing prompt one week after the interview (see Appendix E). This time delay allowed participants the opportunity to reflect more deeply on the interview, process their emotions, and offer a thoughtful response at a time and in a place of their choosing (James, 2016, McAuliffe, 2003). Participants were given the choice of writing an electronic (email) or postal letter. All but one participant chose to submit their letter via email. If they had not already submitted their letter, participants received a reminder email two weeks after the initial prompt, and a final request two weeks following the reminder. All 12 participants submitted a letter within one month of their interview.

Data Analysis

I did an initial read-through of all of the transcribed interviews and letters, making notes on recurring themes and ideas, possible codes, questions, and reflective thoughts. I then uploaded the transcripts and letters in *NVivo*© software (QSR International, 2022) to analyze the data. The letters and interviews were treated as a single data set and were analyzed together. While I began to explore and code the data following the process of thematic analysis outlined by Braun and Clarke (2006), I soon began to conceptualize themes of different orders (e.g., low-order, high-order) and sensed an important interconnectivity between the themes, two key characteristics of thematic network analysis (Attride-Stirling, 2001). For the remainder of the analysis process, I followed a thematic network analysis approach outlined by Attride-Stirling (2001) which provided a three-stage method for identifying, structuring and depicting these interconnecting themes (Attride-Stirling, 2001). Stage A of analysis included coding the material, identifying

themes, and constructing thematic networks. Next, exploring the text in stage B involved describing, exploring, and summarizing the thematic networks. Finally, stage C involved interpreting patterns to integrate the exploration completed in the previous stages (Attride-Stirling, 2001).

Through the thematic network analysis process, I identified three global themes along with 11 organizing themes and 32 basic themes. I have visually depicted these three thematic networks in "web-like nets" (Attride-Stirling, 2001, p.3), which helps to eliminate "any notion of hierarchy, giving fluidity to the themes and emphasizing the interconnectivity throughout the network "(Attride-Stirling, 2001, p.5). A visual representation of the thematic networks is presented alongside the findings in Figure 2 on page 59, and a full codebook including all basic themes is included as Appendix F. It is important to note that while the findings have been grouped according to three global themes, the organizational and basic themes that compose each network weave together in and between networks in myriad ways and should not be considered exclusive. While these lower-level themes were distinct enough to conceptualize as individual codes and grouped according to my interpretation of the data in relation to the research questions, the lived experiences from which they emerged are relational, fluid, and messy; to consider the themes exclusive to one thematic network would not fully honour the stories of participants.

Ethical Considerations and Study Limitations

Prior to data collection, this research project received approval from the Lakehead University Research Ethics Board as a sub-project nested within a larger national scale study led by my supervisor, Dr. Lindsay Galway. Before beginning the interview, all participants received (and signed) an information letter and consent form outlining the benefits, risks, and

responsibilities of participating in the research. Participants were informed that, while the study posed minimal risk to the participants, some questions could evoke uncomfortable emotions, reveal vulnerabilities, and raise challenging existential questions. Both in the information letter and prior to beginning the interview, participants were directed to Canada 211 (https://211.ca/) and Kids Help Phone (kidshelpphone.ca) should they feel they needed psychological support while participating in this research. Participants were clearly informed of their right to share only what they were comfortable disclosing, that they could end the interview or withdraw from the study at any time without giving reason and without repercussions until the defence of the final thesis. Precautions were taken to ensure the confidentiality of participants, including using pseudonyms and excluding community names and other identifying information. In addition, participants were given the opportunity to member check (and edit) their transcripts to ensure I had captured their words and meanings as they had intended. All raw data (audio-recordings, transcripts, letters, signed consent forms) will be stored for five years on a password protected computer and/or in a locked filing cabinet at Lakehead University before being destroyed. All participants indicated that they would like to receive a copy of the results, which I plan to provide following the completion of this project.

There were a number of limitations to this research, from recruitment and data collection through analysis and interpretation. Participant recruitment was somewhat more difficult than expected, in part because of strong adult gatekeepers in some climate movement spaces and also due to the COVID-19 pandemic which limited the activities of community-based climate/environmental groups across the region for the past two years. Recruitment difficulties also exemplify the lack of community-based climate action taking place across the region. A number of perspectives were under-represented in this research, including those of people living

in First Nation communities, People of Colour, and male-identified participants, and the perspectives of young people who live in remote communities or identify as gender non-binary were missed completely. Given that participants self-identified as 'engaged in climate action', the type of engagement with climate action varied significantly. Four participants were actively engaged in organizing collective climate activities (e.g., community and political actions), six participants had previously participated in one or more specific events or projects in response to climate change (e.g., an eco-club in high school or a one-time climate strike), and two participants had engaged solely in individual actions they identified as climate actions (e.g., recycling and litter clean-up). While the wide spectrum of engagement with climate action made it more difficult to identify if and when I had achieved data saturation, this diversity also resulted in rich data representative of the myriad ways in which young people in Northern Ontario are understanding and responding to climate change. During data analysis, I remained cognizant of the ways in which each participant was engaged in climate action and noted trends that appeared among those four participants who had higher levels of engagement compared to those who had less experience. As a result, some findings emerged that otherwise might not have been identified (e.g., less engaged participants referenced recycling and garbage clean up more often; emotional transformation only occurred for those participants engaged in *collective* climate action). This study was also limited by the virtual interview method. Although I had hoped to employ walking interviews to enable a relational and place-based approach to data collection, I had to pivot to using virtual technology due to the ongoing COVID-19 pandemic. Virtual interviews may have reduced the richness of data collected as this approach limits my ability to observe body language, is less place-specific, and maintains a division in the participant/researcher relationship. Given that this is a cross-sectional study, it does not truly

explore the way in which climate emotions are shaped over time and was limited by participant recall. The findings of this study are specific to Northern Ontario, though may suggest potential trends relevant to other rural and remote regions in Canada and beyond. Finally, analysis and interpretation were completed by a single adult researcher and it is inevitable that my own positionality influenced the ways in which I asked questions, listened, interpreted, and understand the findings of this research. Ultimately, I am an adult interpreting, discussing, and presenting the lived emotional experiences of young people through my own lens.

Chapter 4: Findings

The findings of this research have been organized into three networks that emerged through thematic network analysis. The first network, *making meaning of climate change,* brings to life participants observations and experiences of climate change and the ways in which they learn about the crisis. The second network, *climate emotions,* explores the lived experiences, triggers, coping strategies, and impacts of climate emotions as reported by participants. The third network, *motivations and supports for youth climate action,* centers on the emotional dimensions, influences, and supports of individual and collective climate action undertaken by young people living in Northern Ontario. A visual of these three networks has been provided below (see Figure 2) and a complete overview including basic themes can be found in the codebook (see Appendix F).

Throughout this chapter, direct quotes from both the interviews and the letters are used to illustrate and support the findings. All direct quotes are from the interview transcripts unless denoted as 'letter'. As discussed above in the *data analysis* section, human lived experiences are highly dynamic, fluid, and relational. As such, the basic themes that compose each organizational and global theme are both sufficiently distinct as to be conceptualized as separate codes yet interconnected within and between thematic networks in myriad ways. Also noted in the *data analysis* section, both the letters and the interview transcripts were analyzed together as one data set. Finally, Participant profiles, including a narrative description of each participant and demographic information based on questions asked at the end of the interview, are presented below in Table 1. The findings reported in this chapter represent a cross-sectional snapshot of the lived experiences of the participants at the time of data collection in spring, 2022, and will undoubtedly continue to transform as their lives unfold in a climate altered world.

Figure 2

Thematic Networks

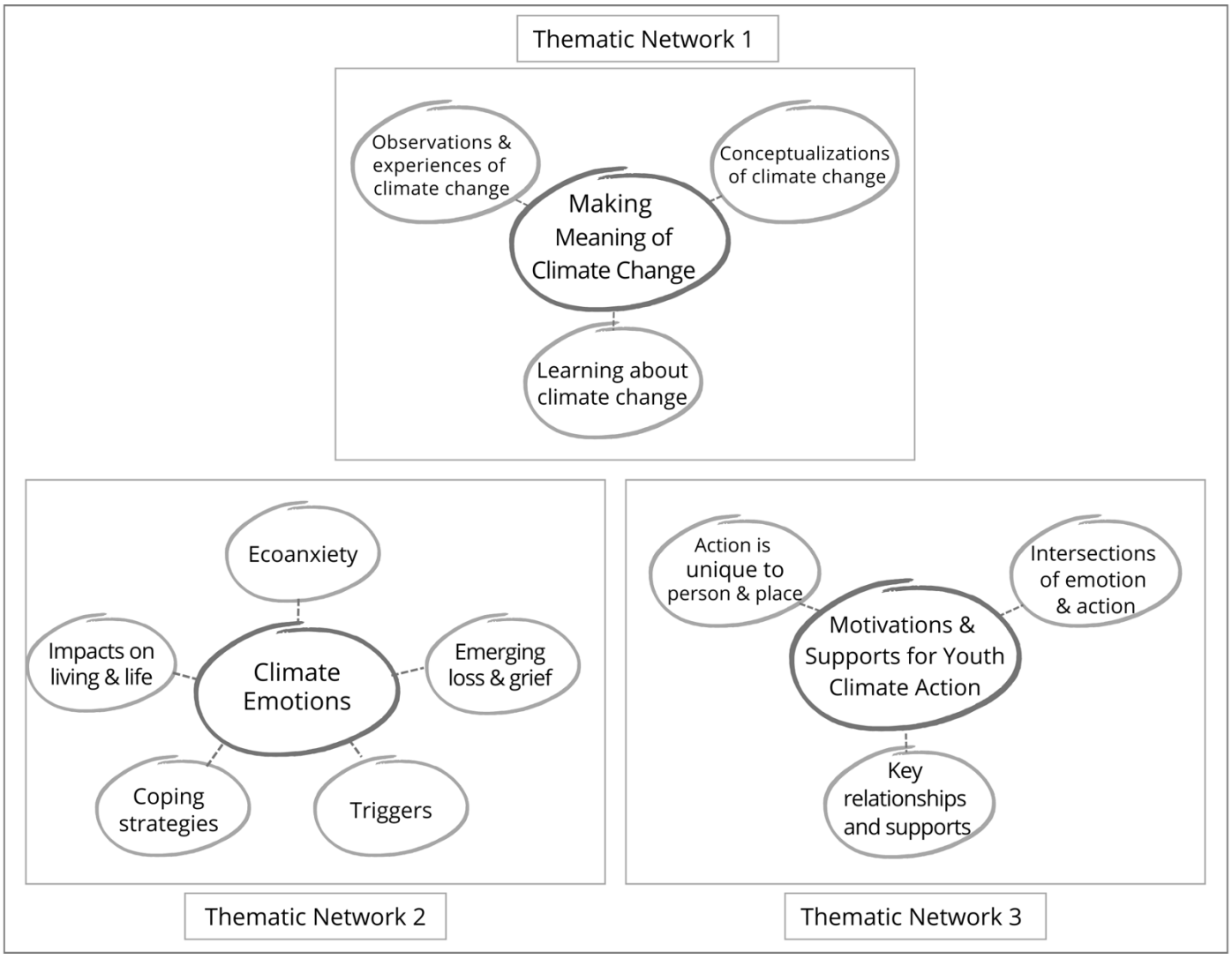


Table 1

Self-reported Participant Profiles

Alias	Race	Age	Gender	Size of Community	Narrative Description
Evelyn	White	20	Woman	> 75,000	Evelyn has completed her first year of undergraduate studies and has been in a leadership role in the school's sustainability committee for the past year.
Catherine	White / South Asian	19	Woman	< 75,000	Catherine has completed her first year of undergraduate studies and was previously engaged in her high school eco-club. She hopes to be more involved in collective climate action again in the future. She is not aware of any environmental club or group at her university.
James	White	22	Man	>75,000	James pursued climate-related research during his undergraduate degree, which he has recently completed. He has engaged in several forms of collective climate action for several years.
Elizabeth	White	21	Woman	< 75,000	Elizabeth has completed her second year of undergraduate studies. She is passionate about living a 'green' lifestyle, works to engage others in everyday environmentalism, and struggles to create and/or find more organized climate action in her community.
Reese	White / Metis	20	Woman	>75,000	Reese has completed her first year of undergraduate studies and is dedicated to recycling and litter clean-up. She is unaware of any collective climate action in her community.
Omar	Latinx	24	Man	>75,000	Omar is pursuing graduate research related to climate solutions. He has volunteered for an environmental organization for the past five years and supported tree planting in the land surrounding his home community.
Leanne	First Nations	18	Woman	>75,000	In her last year of high school, Leanne has recently begun to learn about and speak publicly about climate change. She is interested in addressing the climate crisis through art and is contemplating changing career paths to focus more on environmental issues and Indigenous culture.

Sophia	First Nations / White	19	Woman	>75,000	Sophia has been actively involved in collective climate action, including traditional activism, for several years. She is pursuing an undergraduate degree in environmental science and is dedicated to a career and life path in response to climate change. She credits her Anishinaabe culture for influencing her understanding of the environment and climate change.
Rachel	White	15	Woman	<10,000	When she was in grade 8, Rachel worked with a friend to organize a school climate strike in her community. Now in grade 10, she wishes there was an organized climate or environmental group in her school or community that she could join to support her in continuing to take collective climate action.
Chelsea	White	16	Woman	< 20,000	Chelsea, influenced by her mother who works in climate advocacy, has participated in collective climate action from a young age. Despite her busy high school schedule, she would continue to engage in collective action if there were an organized climate action group in her community.
Kristen	White	16	Woman	< 20,000	Through her high school, Kristen has been part of an eco-club and other environmental and climate-focused activities. She appreciates climate education and meeting others involved in climate action.
Arwen	First Nations	23	Woman	<10,000	A recent college graduate, Arwen lives and works in a First Nations community that is actively pursuing climate solutions. Through her work, Arwen is engaged in a variety of environmental and climate-related projects.

Thematic Network 1: Making Meaning of Climate Change

Three organizing themes emerged as to how participants across Northern Ontario make meaning of the climate crisis, including they ways in which they experience, conceptualize, and learn about climate change and climate injustice. This first network provides important contextual information, laying the foundations from which emotions arise and participants engage in climate action.

Observations and Experiences of Climate Change

All participants described both direct and vicarious experiences and/or observations of climate change. The direct experiences and observations of climate change reported by participants were most often related to changing weather patterns, including extreme heat, extreme cold, and changes in snow patterns, all resulting in a felt sense of unpredictability. When asked what she had experienced or observed, Evelyn explained:

> Our weather is getting out of whack in recent years. It used to be a little more predictable, where you know, usually it snows sometime around November and then comes and goes, and then usually by April it's gone. I remember a couple of years back when we had black ice on the road out by where my grandmother lives in May…when do you get black ice in May? And then, super crazy changes in heat. Especially in the summers…I was working outside a lot and I definitely noticed more peaks than usual, in both temperature and then in the snow and the ice sticking around.

Participants also commonly reported experiencing and/or observing droughts, wildfires, and/or wildfire smoke in their region and many spoke of bearing witness to the 2021 wildfire season in British Columbia and California. Chelsea spoke of her experiences preparing for potential evacuation due to encroaching wildfire threat, while Arwen spoke of her worry about loved ones involved in regional firefighting efforts during Northern Ontario's 2021 wildfire season. Participants often coupled their talk of drought and wildfire with mention of floods. For example, Chelsea noted, "We've seen extreme drought in my part of Canada, drought that led to forest fires. This year we have exactly the opposite, people are now out of their homes because of extreme flooding." It is important to note that the aforementioned experiences of fires and floods were witnessed in close proximity and none of the participants expressed having experienced

disruptions in their homes, relationships, or daily lives as a result of these extreme events. A variety of other climate impacts witnessed within close proximity include: unprecedented tornadoes in the region and changes in animal behaviour and forest health (Arwen), impacts of blue-green algae on rural drinking water supplies (Evelyn), and high UV index ratings (Catherine). Four participants echoed that "everything has happened so rapidly" (Catherine), noting changes in their lifetime or throughout their parent's lives.

Additionally, most participants spoke of their vicarious experiences of climate change, including climate education, witnessing climate impacts unfold across the globe through media, and being affected by the structural roots of the crisis. Sophia shared her experience, explaining,

> I don't think we've necessarily been impacted directly by climate change by events that are happening. I think more by colonial structures that enable climate change and more by some of the grief and other emotions that come with knowing what is coming.

Leanne spoke of her experience watching the climate crisis unfold from a distance, noting,

> One that kind of worries me is there was a big glacier that recently broke off of the Antarctica. Like, it could be a warning sign of what's to come because predictions are that sea level will rise by two meters, and that is very concerning.

The vicarious experience of learning about climate change and the ways it impacts emotional wellbeing will be explored more fully in subsequent sections. It is important to understand from these findings that youth in Northern Ontario are experiencing and observing the collapse of the global climate system both directly and vicariously.

Conceptualizations of Climate Change

As the participants shared their experiences of growing up in a time of climate crisis during their formative years, two common conceptualizations of climate change emerged. First,

participants unanimously understood climate change to be fluidly unfolding on multiple scales (e.g., near and far) in both time and space. On one scale, participants unanimously understood climate change to be currently impacting Northern Ontario. For instance, Chelsea explained in her letter,

> I believe that most adults think of ice caps melting and the polar bears starving when they think about climate change. Melting of icebergs is important, but the truth is that we are seeing the effects of climate change here and now.

Five participants articulated the climate crisis to be simultaneously occurring across time and space, continually expanding beyond the *here* and *now* and onto a more distant, macro level of global impacts on a deep timescale. For instance,

> …maybe it's just the small impacts we're noticing now but it's going to get worse. Or, I think, somewhere like [name of community], maybe we're not getting the worst weather conditions there are but there's people in the world that are really suffering and it's because of climate change…I feel like our earth will be fine for my lifetime, or most of it. But just the idea that maybe afterwards it might not be, or near the end it's going to be less green and less species, like more extinct species. (Kristen)

Three participants expressed a felt sense of safety and protection from the direct impacts of climate change because of their geographic location in Northern Ontario. In addition, three participants with more complex and nuanced understandings of climate change articulated how concepts of power and privilege influences their experiences with climate change. For example, Elizabeth, who identified as a Caucasian female with a medium socioeconomic status, spoke of how her geographic and social location provided some protection against experiencing the impacts of climate change:

> …because people who don't have the same type of socioeconomic advantages as I have, or the same benefits of what their society gives, they're going to be affected first. Not only because of where they are, like close to the equator but because they don't have as much money as us, they're not going to be able to migrate to places where climate change isn't affecting them.

Sophia articulated how her family's middle-class financial status allowed them to "protect ourselves in the case of a disaster" and James suggested that his financial status, which allowed him both the time and opportunity to "spend more time learning about the issues", increased his obligation to engage in climate action.

Climate change was often understood through a litter-focused lens. For many participants, seeing litter was not only a frequent trigger of climate emotions (discussed in Thematic Network 2), but litter and garbage were also seen as a significant contributing cause and impact of climate change. Leanne, who named "extreme heat and, like, a lot of garbage" as the primary impacts of climate change also felt she was a contributor to the climate crisis by occasionally throwing "a piece of litter on the ground." Relatedly, Evelyn viewed the scale of the climate crisis with litter and plastic garbage, explaining,

> I think it reminds me of the scale of the issue...you've seen the articles about how much crap they've pulled out of the oceans.' So even when you see a gross street gutter that's full of trash and you think 'oh, that's so bad', and then you just sit for a moment and think, well, that's going on in the thousands in other places.

Those participants who were younger, had lower levels of education, and/or who had little to no experience participating in collective climate action frequently referenced recycling and/or community garbage cleans ups as one way in which they took individual action against climate

change. In her letter, Reese noted, “Some of us are trying to help by recycling, cleaning up the streets,” while Arwen initiated a community clean-up as a response to a heightened sense of community worry during the 2021 wildfire season. On the other hand, as age and involvement with collective climate movement increased, there were fewer references to litter, garbage, and recycling. Level of education and knowledge of climate change, explored further in the next section, also influenced how participants made meaning of climate change.

Learning about Climate Change

All participants talked of gaining knowledge about climate change from at least two different sources, most commonly through *active media*, *formal education*, and/or *social connections*. Active media, including google searches, you-tube, and social media, was the most prominent source of knowledge, with eight participants considering active media as their primary source of climate change information. Information through active media was both sought intentionally and come across inadvertently. For instance, Reese shared, “Sometimes I’m like, ‘I’m very curious about this’ and I’ll do a couple of research things…I’ll google ‘what effects’, or [laughs], Tik Tok pops up…” Only James mentioned consuming active media through a critical lens or cross-referencing what he read with additional media or academic sources.

Seven participants mentioned formal education, including primary, secondary, and/or post-secondary education, as a source of climate education, and two of these seven considered formal education as their primary pathway to climate knowledge. Other participants mentioned formal education more casually, as in, “I learned a lot about it during my bachelors” (Omar), or “in university, definitely in my anthropology and sociology classes we discuss it” (Catherine).

Finally, seven participants noted gaining climate knowledge through social connections. Three participants highlighted their mother as a key source of information about climate change,

also describing their mothers as actively involved in climate action at the community level. Two of the participants' mothers were teachers who taught about climate change in school. Other social connection points included "email lists and that sort of thing, as well as the people I work with in terms of climate actions" (James), or "word of mouth" (Arwen) more generally.

The ways in which participants make meaning of climate change provides a foundation from which their emotional response emerges. As explored above in the first thematic network, participants reported experiencing and observing climate change both directly and vicariously. Climate change was conceptualized to be unfolding near and far in both time and space and often understood through a litter-focused lens. Participants reported learning about climate change through active media, formal education, and/or social connections. The second thematic network, presented below, explores the ways in which participants experience the mental, emotional, and spiritual dimensions of climate change.

Thematic Network 2: Climate Emotions

All of the participants reported experiencing a diversity of interconnected, complex emotions in relation to the climate crisis. Through exploring the climate-related emotional experiences of participants, five organizing themes emerged around the global theme of climate emotions, including *ecoanxiety, the beginnings of loss and grief, triggers, coping strategies, and impacts on living and life.* Each of these organizing themes will be described and explored in the sections below.

Ecoanxiety

Profound and interconnecting emotions are being experienced by young people engaging with climate action across Northern Ontario. Participants' descriptions of their lived experiences revealed that their climate emotions were vast, deeply entangled, and often fluid, shifting from

day to day and/or over time. A complex landscape of emotions consistent with the existing scholarly understanding of ecoanxiety as described in the literature review emerged through the interviews and letters. Emotions of powerlessness, fear, anger, and sadness were the most prominent, followed by hopelessness, anxiety, and worry. Flickers of hope and expressions of empathy and care were often woven into the emotional fabric of ecoanxiety. Figure 3[1] below is a word cloud visually representing the emotions most frequently shared by participants.

Figure 3

Word Cloud of Frequently Expressed Emotions

Just as the issue of climate change is multi-dimensional, so too are many emotions, with specific feelings often related to specific aspects of the crisis. Powerlessness, for instance, was often experienced as a response to scale, commonly arising from a sense of individuality in the face of an immense problem. Participants expressed powerlessness through phrases like, “I feel so small. What can I possibly do?” (Omar, Letter), “I don’t know where to start and I don’t know how to make a bigger impact” (Elizabeth), and “sometimes I know that my best isn’t really doing

anything" (Reese). Or, as Leanne suggested, "an analogy would be like you're taking one teaspoon out of an ocean and you're thinking you're doing something, but you're not." Feelings of hopelessness were closely intertwined with feeling disempowered and many participants described the experience of powerlessness while naming hopelessness. Sophia explained how the power and scale of oppressive systems led to her sense of hopelessness, sharing,

> ...understanding systems of oppression towards Indigenous communities goes hand in hand with systems that harm the environment for me. And I can't quite separate them. A lot of the hopelessness comes from not knowing how to move forward with where the overlap is there.

[1]To create this word cloud, all post-coded as anxiety was reviewed and any identifiable emotion stated or clearly expressed was noted and tallied. Stated words of similar meaning (e.g., fear, afraid) were combined to more accurately show the frequency of an emotional sentiment.

Participants' reported experiences of fear, including feeling afraid or scared, were typically rooted in timescale, either in relation to the rapid speed of current change or as future-oriented fear. Given the prompt '*When I think about the future, I feel...'* five participants responded with the word "scared", and when probed, Arwen elaborated "Just the rapid changes, and, I don't know. For me, it's just the weather because there's been so many things that are changing and I'm like, 'oh my god'." All five of these participants expressed a general fear of the future, such as "sometimes there's the fear, thinking about what's to come" (Kristen), and Sophia expressed a more personalized fear for the wellbeing of her relatives and future ancestors. Expressed anger was always on the macro scale (e.g., not personalized) and, while sometimes related to collective inaction or the impacts of climate change, it was predominantly related to climate injustices.

Embedded within the myriad emotions characterising lived experiences of ecoanxiety was a sense of care and empathy. Empathy was sometimes directed toward future generations, while other times it was felt toward people and communities who are currently experiencing unequal and inequitable impacts of the climate crisis. For example, embedded within her anger at

the inaction of societal actors, Chelsea expressed empathy for "the people who live in other places and are genuinely doing the best they can with it [climate impacts]." Sophia wondered empathetically about an apocalyptic future, questioning, "what does that look like for other differently-abled people or for people who are living with illnesses that wouldn't necessarily get that medication, or it would be more difficult or more expensive?" Some expressions of care were also oriented toward the more-than-human world or toward a general reverence for the living planet.

While most participants perceived feeling hopeful to be an important prerequisite for engaging in climate action (discussed in Network 3), the reported experiences of actually *feeling* hope were more infrequent. Five participants reported experiencing feelings of hope when they witnessed others caring about or acting in response to climate change. As Evelyn expressed,

> I feel like it's becoming more important to the youth now as we get older, and that does give me a feeling of hope that our younger generation seems to care and will hopefully continue to care and kind of push as they become the stewards, the providers of that generation.

On a more personal level, Sophia reported struggling with a sense of helplessness and noted that she felt more hopeful when she considered being in community with other friends who also care about climate change. Two participants also noted experiencing hope as a response to seeing positive changes. For Kristen, a feeling of hope was triggered by seeing big companies make changes to reduce waste, and Catherine reported feeling hope from witnessing the return of wildlife immediately upon the initial COVID-19 shutdown. There was also a felt sense of future-oriented hope. When asked what they feel about the future, four participants answered "hopeful" while two others wavered between hope paired with fear or hopelessness.

Participants often talked about different emotions in highly interconnected, web-like ways. For instance, Reese reported “Definitely frustration...sometimes a bit of anger. Or sadness. Definitely not good stuff.” Another participant, Rachel, ruminated in her letter,

> I have very mixed feelings about climate change. I mean, it’s awful obviously, but it’s a mix of hopefulness and hopelessness. On one hand I sometimes feel like I’m drowning in it. Like all the horrible things that are happening are all piling up on me and I feel like I have to do something, but I don’t know what to do and it probably wouldn’t help anyway. Other times I feel full of hope for the future. There are so many amazing people fighting climate change as activists, scientists, writers, and artists. Honestly, recently I haven’t been thinking about it much at all. I feel like such a hypocrite, because I really believe the environment should be a top priority. I’ve just been so stressed with school and friends and I haven’t even been doing the simple things like avoiding as much plastic as I can. I feel a bit like a failure. I feel like nothing I do will ever be anywhere near good enough.

In addition, seven participants described their emotional experience as “constantly shifting” (James), or evolving and compounding with other stressors, including personal issues like work (Elizabeth), school or friends (Rachel), or global issues including the COVID-19 pandemic and the war in Ukraine (Catherine).

Experiences of ecoanxiety were also reported to be persistent and looming. Common sentiments included, “Climate anxiety is something that comes back to gnaw at the forefront of my brain during most of my daily excursions” (Elizabeth, Letter) and “it looms in the back of my mind” (Catherine). Four participants reported a sense of rumination, perceiving signals about climate change in all parts of their days. Elizabeth noted continually worrying about climate change at work while stocking shelves and using plastic bags. Other participants suggested they

regularly caught themselves contemplating how everyday activities like playing video games (Leanne, Omar), going on their computer (Leanne, Sophia), drawing (Leanne), or eating dinner (Sophia) contributed to climate change.

Finally, ecoanxiety was predominantly experienced alone and in isolation. If participants spoke to anyone about their climate emotions, it was usually one close friend or family member. As Rachel confessed, "I'm kind of embarrassed to bring it up with my friends because they don't really care as much and I don't want to be annoying." Elizabeth reported only expressing their emotions as a "fun joke...but it's not fun." Chelsea and Sophia both shared that they would rant with friends about the politics of climate change, but, as Sophia explains, "it's easier to talk about the anger...and it's a lot harder to talk about the fear and to open up about it in a personal way." Without a trusted confidante, many participants have been left to navigate a persistent assemblage of climate emotions *alone*. However, when asked, '*what kinds of supports, programs, or resources do (or would) help you cope with your feelings around climate change?'* eight participants highlighted the importance of talking with friends and family, peers, and therapists. For example, Elizabeth wished for a climate emotions peer support group facilitated by a therapist who specialized in climate anxiety; Sophia suggested a "shared place-based community" in which to explore the emotional dimensions of climate change. Kristen expressed that she felt safe sharing vulnerable climate emotions with her mother and sisters because they shared similar values and were supportive. As expressed in the descriptions and direct quotes above, reported experiences of ecoanxiety were dynamic; emotions mingled, compounded, reorganized, and transformed as life in the face of the climate crisis unfolds, with many feelings of ecoanxiety being persistent and often a lonely experience.

Emerging Loss and Grief

Although more subtle than their expressions of ecoanxiety, participants consistently expressed an emerging sense of both tangible and intangible loss and grief. It is important to highlight that, while some sentiment of loss and grief emerged in the interviews, participants seemed to express these more vulnerable emotions through their letters. This was the one notable divergence between the letters and the interviews. Tangible grief was expressed through direct statements of witnessed or anticipated loss and suffering of humans and the beyond-human world. Catherine wrote,

> Dear Earth,
>
> I'm going to miss you the way you were. I'm going to miss the animals thriving in the natural habitats you provide them with and all the natural beauty you bring to this world. I feel as though this beauty will soon be gone.

Leanne expressed her devastation, "because from now, probably a lot of species that we have on Earth are probably going to go extinct. Like, there won't be much biodiversity to maintain our system.". Six participants spoke of their empathy for suffering in the world. For instance, Omar wrote of his sorrow,

> I grieve for the lives of the people of those small towns I discovered as a kid that are affected by the constant fires. I grieve for the people that are now experiencing the worst drought ever and are struggling to get help from the authorities. It hurts that those who are less privileged than most have to suffer like that when the people that can do the biggest changes aren't downsizing their impact on the environment.

When asked how they felt about the degradation of land and nature and/or observing the impacts of climate change, sadness was the predominant emotion.

Intangible losses can be difficult to identify. While sometimes coated in anger, fear, or powerlessness, the underlying sentiment expressed was often an unnameable loss and an undeniable sorrow that things are not as they should be. Expressions of intangible loss and grief were typically related to the decrease of existential security (an intergenerational perspective of the survival of humanity) (Sears, 2020) or a sense of betrayal. These sentiments often appeared as profound questionings of an uncertain future, like "are there still trees...is most of the wildlife extinct?" (Reese, Letter) and "How will people grow up in these conditions?" (Arwen, Letter). Further, Catherine lamented in a letter to her future self,

> When out in nature, I've been stunned by the beauty, the fragility, and the preciousness of everything that surrounds me. The smell of the trees, the pines, the earth. The cool breeze floating off the water, the heat of the sun on my back. The sounds of songbirds and quacking waterfowl and ribbiting frogs. How many of these things will you still have? How many sounds and smells and sights will you still be able to treasure? Will your children ever know the nature of your youth?... I hope you take your children to the parks and hikes you always loved. I hope if they're quiet, they'll hear the sounds of living things all around them, and marvel at the songbirds flying overhead, and the tadpoles squiggling in their tiny hands. I hope it's not too late for you to have these things. I hope what we had is not lost forever.

Sometimes the intangible loss was communicated as a sense that the world was failing them. For instance, Elizabeth said, "it's not going to be the same planet, and I don't want that for people", and Kristen simply stated, "I don't want a life, that, like, just seems not amazing." Leanne expressed anger at the loss of humanity's connection to mother earth and grief at the loss of her Anishinaabe culture and language. A deep sense of betrayal is another way in which participants

felt the world was failing them. Governments and big business were often the source of felt betrayal, although Catherine also felt a loss from older generations. She explained,

> I will admit, the government is not the only one fuelling the problem. I have had far too many adults in their 60s-80s ask why they should care about the problem if they're not going to be around to see it. To that I wonder, don't you care about future generations? Do you not want your child or grandchild to thrive and enjoy all the wonders the earth brings? (Letter)

The continual expressions that something is amiss in the world indicated that participants are feeling a sense of loss and emerging grief for something largely unnameable, unknown, intangible, and unrecognized by society. The complex emotional experiences of participants were often activated by specific factors. The following section explores a variety of triggers commonly reported to generate climate emotions in participants.

Triggers

The web of climate emotions experienced by participants was triggered through four main pathways: *collective inaction, systems of oppression, tangible reminders,* and *climate information and messaging.* Participants spoke of collective inaction primarily related to government and corporate rule. As Reese explained, "the big companies...they don't care. They're just there for producing and making money...I think someone needs to step up." Catherine explained further in her Letter to The Earth,

> Corporations around the world have become too greedy and our government doesn't listen to Young People pushing for climate action. Currently, I am not feeling optimistic about the state we're in...If the government and large companies don't step up, I fear there is much of you that I'm going to miss.

Similarly, government inaction typically stirred up feelings of disappointment, frustration, anger, and worry. Rachel explained,

> Sometimes [I feel] kind of angry because they [government] have the power to be doing more. And obviously I know there are limits, they can't do certain things because of a lot of different reasons, but I definitely think they could be doing more. Especially, like, pipelines too. Like, pipelines make me really mad...

Four participants felt that systems of oppression, including systemic racism, colonization, and capitalism influenced and activated a myriad of climate emotions. Elizabeth felt horrified because, "We know how things can get better but the people in charge don't want things to get better because it's not profitable." Leanne wrote in her letter,

> I have no hope for the future of life on Earth. Specifically, I have no hope for the future of our society. We cannot go on with capitalism as an ideal way of living. The structure of our society involves white supremacy, racism, cis-heteropatriarchy, post-colonialism, and capitalism. All of which contribute to hierarchy, a power system, and climate change. At this point, it seems inevitable that war is the only answer. Getting people to step down from their roles within power and giving that power to marginalized groups of people is like trying to convince a fish to fly to the moon.

Still another participant, Sophia, felt panicked because, as she explained,

> I can't think a way out of the systemic structures that are causing this problem in a way that is doable and equitable...I want certain things for my future and it's harder to see that happening in current structures and I don't know what that will look like in future structures.

Eight participants expressed frustration, anger, and/or confusion that 'people in general' are not

doing enough to address the climate crisis. Three participants spoke specifically of the emotions that arose in response to peer inaction, including James who explained, “If I can do it [take action], I feel like they can do it...They know the problems, but I feel like they’re not really doing anything about it.”

Closely related to peer inaction, half of participants spoke of litter as an activator of climate emotions, including ecoanxiety, horror, upset, and anger. Referring to the sight of litter, Leanne asked “why aren’t people caring?” Seeing litter in natural spaces was particularly activating, provoking feelings of hopelessness and being overwhelmed. Even without litter, a number of participants spoke of how challenging emotions were sometimes provoked when they were in natural settings. Omar explained his experiences,

> Seeing nature and the beauty of nature could lead me to two possible thoughts, like ‘oh, this is beautiful’ or ‘this is so sad, this is going to be impacted by climate change at some point’. That’s complicated. I feel like it could be both.

Observing or experiencing tangible climate impacts on a personal or community level also activated emotions characteristic of ecoanxiety. For example, Arwen shared “the pressure of a constant worry that never went away until the fires did” and Chelsea echoed, “it’s a little scary when that [floods and fires] starts coming close to home because it just makes you worry about your home and the things that you’ve always known.” Other tangible reminders that sparked emotions characteristic of ecoanxiety included driving a gas vehicle (Evelyn) and witnessing consumptive patterns in the workplace (Elizabeth).

Finally, climate emotions were often triggered when participants were exposed to climate change information and messaging. Reading about climate change either in the media or in academic courses often activated a plethora of emotions. In Evelyn’s words,

> Anxiety is definitely a big one, when you get all the articles about, you know, the fires and the plastic that they're pulling out of the ocean, and oh this species went extinct and this went extinct and then oh god and then I find that there are a lot of countdowns. There are always a lot of articles that say 'oh, climate change will be irreversible beyond this date'. Like this is the deadline, this is the year. So, a lot of anxiety and apprehension when you see things like that.

The *carbon footprint* message emphasizing individual responsibility activated feelings of frustration, powerlessness and uneasiness for Sophia, while Evelyn spoke of struggling with the disparity between the size of the problem and the size of the solutions that they were learning about in school. As illustrated above, diverse triggers activate myriad climate emotions in participants. The following section, *coping strategies*, explores the ways in which participants are responding to the challenging emotions they experience in response to climate change and climate injustice.

Coping Strategies

Participants dealt with their climate emotions in unique ways, and three predominant pathways for coping emerged from the data: *activating empowering thoughts and emotions, connecting with community,* and *distancing and distraction.* Participants tended to utilize multiple coping strategies, shifting between them as emotions, triggers, and circumstances changed.

Participants were able to activate empowering thoughts and emotions in multiple ways. First, three participants were able to re-frame their experiences and understandings to find an encouraging way of thinking about this complex and daunting crisis. Omar, who has struggled with powerlessness and depression related to climate injustice, engaged the mantra "just for

today, I'm going to do this" and repeated it daily, reminding himself "if I did it yesterday then I can do it today." Arwen was able to find a positive re-framing of the climate emergency, writing "Although human and non-human suffering could be seen as the end product of climate change, it can also be the starting point for resistance and change."

Participants often experienced a renewed sense of hope and possibility when they sensed a growing collective awareness of the crisis. Five participants echoed the observation that climate awareness is growing among the general population, and expressed sentiments like, "I see more people trying to make a difference and I feel hope" (Catherine, Letter). While the lived experience of feeling hopeful in the face of climate breakdown was limited (as discussed within the *ecoanxiety* section above) three participants spoke specifically of working to activate a sense of hope within themselves. While they viewed hope as an important emotion to engage, these participants were careful to ground it in the realities of the current situation. As Kristen articulated,

> Everyone needs some form of fear. Everyone needs that idea that if we do absolutely nothing the earth won't be able to sustain us...But I don't think we need to overwhelm people with fear. So also have that hope.

Other participants felt it was important to balance hope and hopelessness to ensure that optimism doesn't dissuade from action, and James wrote in his letter, "Though hope alone isn't enough to fix our problems, there's power in hope."

Participants often activated empowering thoughts and emotions by orienting towards climate solutions. Sometimes this was a simple act of witnessing positive change. For example, Elizabeth reported "I try very hard to look up ways that we are going to make things better and that we are going to save the planet." Other participants oriented towards solutions through

collective action. Evelyn shared an example from her environmental club, relaying, “when we’re together we help to shoot off solutions to help alleviate some of the fears. So, like, ‘okay, we’ll look into doing a tree planting day.” Sophia, who sometimes struggles to get out of bed because of climate emotions, confessed,

> Whenever I would have a meeting for an environmental club I was in, I would get out of bed, I would walk twenty-five minutes across campus, and I would go to that meeting. And I know it’s time that I otherwise wouldn’t have been able to be productive with. But whenever there is that element of organizing or doing some of that work, I can always get up and take that time that would otherwise be spent in a bad place.

The above is also an example identifying connecting with community was also identified as an important coping strategy. Sophia expanded this on sentiment in her letter, writing,

> The feelings of hopelessness, powerlessness, fear, anxiety, and numbness brought on by climate change have been overwhelming at times. But even existing within the realm of those feelings, hope can be found through community and action. Being involved in climate action work, to me, means being involved in community. It means working with people that understand the severity of climate change, but also understand that we can still mitigate its harm and work towards building a safe future for humans and non-humans alike. It provides support systems for grief and anxiety spawned by climate change. It allows us to envision a future that is so much more than what we have now.

James, who regularly engages in collective action, felt that being in community with others who are orienting towards solutions was important and created a supportive space offering emotional support. He elaborated, saying, “I don’t think I generally have asked them for that kind of support [emotional support], but I think that I probably could if I wanted to.” The fact that some

participants are connecting with a climate action community as a way to orient toward solutions and cope with challenging emotions suggests that ecoanxiety may be a generative emotion, inspiring young people to engage in climate action (discussed further in Network 3, *intersections of climate action and emotions*).

Finally, eight participants worked, at one time or another, to distance or distract themselves from their climate emotions. For example, Catherine shared grounding techniques she had learned in therapy, suggesting

> Right now, the damage we've done isn't permanent so we can still do some changes. This isn't immediate, nothing is happening right now that you should be too stressed out about. Just taking a moment to relax and think to yourself it's going to be okay.

Other participants spoke generally of distraction, like Chelsea who stated, "I usually just try and distract myself. I find that's the best way to deal with my anxiety." Still others articulated specific distancing and distracting techniques, including activities like singing and walking (Omar), creating art (Leanne), or listening to music (Rachel) to move away from their feelings about climate change. Three participants also commented on the need to avoid or limit climate communications. Reese, for example, suggested "I don't like following that many people [on social media] because it overwhelms me", and Sophia and Catherine spoke of needing to moderate or take breaks from engaging in climate action work. Participants shifted between coping strategies as their experiences of climate change and climate action evolved over time. Although all participants were employing multiple coping strategies in varying degrees, they also all spoke to the different ways in which climate emotions impacted their lives. The section below explores how climate emotions influenced participants' lifestyle choices, larger life decisions, and impacted their physical, mental, and spiritual wellbeing.

Impacts on Living and Life

Growing up experiencing a web of climate emotions has impacted participants lives in various ways. All participants reported ways in which their life and/or lifestyle choices had been influenced. For instance, James, Omar, and Sophia have pursued post-secondary programs as a result of their concern for the climate crisis, and Leanne wrote that she was planning to shift her career goals as a result of reflecting on the interview. Sophia felt so pulled to a career in climate policy that she was brought to tears anticipating that, "I won't be able to do what I need to do in [name of community]", suggesting that she may need to end her long-term relationship and move away from her family and cherished home place to meaningfully do her part to address the climate crisis. Six participants also reported lifestyle choices, including becoming vegetarian or reducing their meat intake in response to the climate crisis.

Participants also reported several functional impairments to varying degrees. First, five participants reported their ability to concentrate was occasionally diminished as a result of climate emotions. For example, Sophia shared that she struggled to pay attention in school because she was distracted by climate advocacy work, which she felt was more interesting and applicable to real life. Next, six participants reported impacts on sleep due to climate change. For five of those participants, difficult or racing thoughts related to the climate crisis caused occasional difficulties falling asleep. Two of those participants also reported disturbing dreams. Omar reported experiencing interrupted sleep patterns multiple times a week, explaining,

> Usually, I wake up in the middle of the night, like 2am, and then I wake up at 6am, and then I wake up eventually at 7am which is the time that I should wake up, but those intermediate interruptions of my sleep are usually because I am thinking in the back of

> my head or I'm dreaming about stuff that I feel is a reflection of injustice in the world and also about, well that includes climate change.

In addition, Omar shared that he had sought treatment for serious depression related to environmental concerns and Sophia shared that she sometimes struggled to get out of bed because of climate worry.

When asked to describe how climate change has impacted their spiritual health, four participants reported feeling that climate change has disrupted their spiritual health in some way. While Omar described his gradual distancing from Catholicism as he learned more about the world and climate change, three participants spoke to the ways in which their spirituality was related to the land. Elizabeth, who tied her spirituality to nature, felt reluctant to deepen her connection with nature because "it can be really disheartening when there is so much going on in the world related to the environment." Leanne and Sophia, who both identified as First Nations, reported that climate change generally, and harm to the land specifically, impacted their spirituality, culture, and identity. Leanne explained, "climate change impacted my emotional and spiritual health because it further disconnects me from nature and my identity as an Indigenous person and learning about my culture." Sophia shared a nuanced perspective, reflecting,

> "Spiritual health, it's so rooted in the land that the idea of that being harmed is really frightening...when I die the body will go back into the land and the land is, to me, where the spirit rests. So, it's not just who is living now and who is going to be living in the future, it is also like, what is that doing to sacred and spiritual places where ancestors and spirits are currently resting and existing? Emotionally, it's just overwhelming."

The above section notes some of the diverse ways in which climate change and climate emotions are influencing participants' life and lifestyle choices, impacting their functional impairment, and

decreasing the spiritual wellbeing of one-third of participants. The next section, '*motivations and supports for youth climate action'* provides additional insight into the ways participants are impacted by and responding to climate change and climate emotions through action.

Network 3: Motivations and Supports for Youth Climate Action

Participants described a plethora of ways in which they engaged in climate action. All participants reported engaging in some sort of "everyday environmentalism" or "green lifestyle" choices (Orman, 2022), include moving toward plant-based diets, reducing consumerism and focusing on ethical consumer choices, reducing air travel, and recycling/upcycling. Five participants were currently or previously involved in some sort of environmental group or club connected to their school that focused on community-based responses to a wide variety of environmental issues, including climate change. Three participants were actively engaged in "traditional activism" (Orman, 2022), primarily collective political activism with youth-led local and national campaigns. The following sections will explore the ways in which the identities of people and places shaped participants' responses to climate change, the junctures at which action and emotion intersected, and key relationships that emerged as critical supports to generating and sustaining youth climate action in Northern Ontario.

Action is Unique to Person and Place

The ways in which participants conceived and participated in climate action were rooted in their social location, individual identities, and place. Two participants felt they had to speak louder or more passionately about climate change because they were young and female. Arwen felt that her age was perceived to make her "just sort of hyper" and her female gender identity was perceived by others to mean she "might be overreacting.". Kristen also explained, "I feel if I just casually say something people might not take me seriously." However, Kristen also felt that

age may be a benefit when communicating climate messages to her peers, who "don't like listening to adults sometimes." Leanne and Sophia felt that their Indigenous culture played a significant role in shaping their understanding of climate change and their responsibility to protect the land and future generations. As Sophia elaborated,

> It goes back to the roots of spirituality for me and having that rooted, like some Indigenous knowledges. I have obligations to the land and I have obligations to the people here and I have a responsibility to protect that and take care of that, which aligns with some teachings that I've had throughout my life...I need to protect the land and protect the communities that are close to the land and the spirituality that is close to the land. It's inseparable for me from trying to protect Indigenous creed and culture. To me, if the land is lost everything is lost. So, it's the only thing I can do.

Leanne, who identified as both Anishinaabe and low-income, explained how her social location shapes her climate actions,

> My social position as an Indigenous woman is, I'm sort of like that victim status. But because of that, I feel like I have a responsibility because I'm supposed to fight against it and I'm not supposed to cower behind it. So that is like my pride as a human being. To fight against what is holding me down.

Five participants also identified that their socioeconomic status, including ability to attend post-secondary education and support from middle-high income families, influenced their sense of responsibility to actively respond to the climate crisis. Evelyn felt it was important to share the knowledge she was gaining from attending post-secondary education while Catherine felt a responsibility to act because she had the privilege of *time* that others may not have. James explored how his privilege motivated him to action,

> I realize that I am in a privileged position to be able to, one, to be receiving all the benefits that climate change and industrialization has brought to us to this point...we've benefited the most from it and the power dynamic has shifted towards us the most so I think we have the ability to change it. So, I personally do feel an obligation to do that... I think has largely motivated me to do what I've done. Because it's pretty obviously unjust, which is not a thing that I'm okay with letting happen.

Two participants felt that they had responsibilities to practice *everyday environmentalism* personally and within their families because of their socioeconomic status. Leanne and Chelsea also briefly mentioned how their personal identities shape their response to climate change; Leanne identified as an artist who wanted to focus upcoming her works on climate, and Chelsea grew up in the shadow of a mother who had dedicated her career to climate advocacy and thus, while she didn't feel the same passion to work on climate as her mother, "participating in that stuff has always kind of felt like 'of course I'm going to do that'."

Participants' response to climate change was shaped by the places they lived. Three participants from different communities felt "disconnected from the action" (Rachel) and echoed Chelsea's sentiment,

> I live in such a small town. It would be nice to have something that actually made me feel like I was doing something. Like some kind of group that actually made me feel like I was making a difference in [name of community]. But it is a small town and there is not a lot of stuff like that here.

Elizabeth had tried to organize a Fridays for Future school strike a few years earlier but was not able to get anyone else to participate. She commented about her community, "There's nothing very organized. It's very much an individual effort". Finally, Rachel who lived in a community

that emphasized “being green” wished to have some support or encouragement in her actions, suggesting “it would be nice to have people and also, like, school and different places making me feel more involved.” While participants had unique experiences of climate action based on personal factors and forces of place, they also expressed unique ways in which their involvement with action intersected with their emotional experiences. The following sections explores the common themes expressed by participants at the crossroads of action and emotion.

Intersections of Climate Action and Emotions

Participants shared a variety of ways in which their emotional experiences of climate change intersected with their climate action. First, participants shared the ways in which emotions shaped their motivations to engage in climate action. The most prominent generative emotions included care, empathy, and a reverence for nature, a sense of responsibility, and, to a lesser extent, ecoanxiety. It is worth noting that, while all participants believed that hope, especially one grounded in a clear appraisal of reality, is important for inspiring others to take action (as discussed above), no participants spoke about hope as a motivating emotion in their own engagement with climate action. Alternatively, a sense of care, empathy, and/or reverence for the world moved half of participants to respond to climate breakdown. For example, Kristen began her letter, addressed Dear Mother Nature, telling of her reverence for the living planet continued on in her letter to express care,

> It is at the point where humans seem to be doing the opposite of what you had planned for our planet. This needs to change if we want our future generations to have a beautiful, healthy planet to live on. I want to have hope in you that you will be able to survive climate change and get through this, but I know you will need our help for that to happen. I try my best to do any possible thing, big or small, to fight climate change.

Rachel shared that she had initiated a climate strike in her community because “I really care about the environment and animals and especially, like, when things are unfair, which they really are to a lot of people with this...It makes me passionate about it, I guess.” When probed about her motivations to act, Evelyn replied, “Being in nature. Appreciating the nature we do have. I think the trees are so pretty sometimes, so seeing them, it's like motivation to be, like, ‘let’s keep our earth this way.” Interwoven within generative experiences of care and empathy was a sense of responsibility. While this sense of responsibility was sometimes shaped by a participant’s attention to the privileges of their social location, for others it was rooted in a more generally in care or humanity. For example, Omar explained, “I feel like it’s our responsibility. Why do I care? Because I have to care. I feel like if I don’t care, I’m leaving the world a worse place than it was before.”

While somewhat subtle, hues of ecoanxiety also coloured the emotional experiences that moved participants to action. Catherine pointed to her concern about the current and future impacts of climate change as a motivating factor to effect change, while James linked his motivation to frustration with government response. Two participants pointed directly to their feelings of anxiety as an inspiration to act. For example, Omar explained, “I really enjoy hiking. I really enjoy watching scenery. But I also get anxious that I need to do something to keep that natural world safe.” Earlier, engaging in climate action was discussed as a coping strategy for several participants. The idea that participants have moved toward collective climate spaces to contend with their emotions suggests that ecoanxiety may be a generative emotion, inspiring youth to engage in climate action. Finally, it is also worth noting that two participants expressed a sentiment of place-attachment in their motivations to act. For Evelyn, it was a sense of pride in

their community, while the Omar suggested that his connection to land surrounding his home community was influential.

The second emotional dimension of climate action that emerged was the ways in which participants' constellations of climate emotions transformed through the process of engaging in collective action. While some participants oriented toward solutions through collective action to cope with their climate emotions, building a sense of community through involvement with movement spaces diminished the intensity of powerlessness and hopelessness. For example, Sophia, who has been actively involved in collective action for over three years, explained,

> The powerlessness is kind of a starting point where a lot of the other emotions come from. Gaining power by working within community and by bringing together different minds and perspectives to make change brings that power back to you and your communities. It, like, re-centers the power.

James, who has worked on several local and national youth-led climate campaigns, shared similar sentiments,

> Before I joined these groups, I was more upset about these things and I think it was just feeling alone in them, feeling that I was the only one worried about it...But since joining those groups I feel like having that sense of community around the problem has really made me feel better about it. It's probably one of the things that has made me feel less upset about it. Just seeing that I'm not alone in it and that there are other people who are also fighting alongside me to make these changes.

From the participant voices shared above, it is evident that a large part of the emotional transformation occurred because of the sense of community developed through collective action. As Evelyn exemplified, "...being able to see other people be as passionate about it as you are is

really encouraging and makes you feel like, 'okay, I'm not crazy for caring this much." The evidence of emotional transformation, however, emerged only from those participants who have previously or are currently actively engaged in *collective* climate action. Those participants who had never or rarely engaged in collective climate action with like-minded peers did not elucidate a shift or transformation of emotions. The following section explores avenues participants identified to support increased and ongoing youth climate action in Northern Ontario.

Key Relationships and Supports for Youth Climate Action

Four interconnected types of supports for youth climate action emerged from the interviews and letters. First, adult allies, primarily educators and mothers, emerged as critical supports for participants' initial and/or ongoing involvement in climate action. As Evelyn explained of her teachers in high school,

> If there was ever a desire to do something or start something, you could always find somebody to help you with it. I think that was definitely a big part of what made us all so motivated. Because we could have ideas about what we were learning either in class or online or in the news, and they would help us put it into action.

Catherine shared that the teachers in her high school had issued a call to action to students and provided encouragement to help her overcome her nervousness. Four participants named their mothers as key supporters to their climate engagement, while Omar described his father's influence. While mother sometimes provided participants with general encouragement to stand up for what they believed in, Kristen spoke of her mother as a role model, explaining "I can see her trying to make that change and I see the change happen, so then I know that it's possible. If you just keep trying, change can happen."

Closely related to adult allies is another critical support - gateways to action. Nearly all participants who had been or were currently engaged in collective climate action had initially become involved through a school-run environmental or eco-club. James explained how this high school eco-club had provided an entranceway through which he built confidence to join more politically active climate initiatives later on. Five participants wished for some sort of club or organized climate group in their school or community, reporting that they would be involved if they knew how to connect. Leanne suggested that more young people could be engaged if climate programs and clubs were offered in diverse community spaces (e.g., Friendship Centers, youth councils). Another participant suggested community workshops or art projects would help to attract young people to climate initiatives.

Friends, family, and peer community were found to be critical supports. As mentioned earlier, working collectively with like-minded people provided emotional support for young people alarmed by the climate crisis. Peer action groups not only alleviated a sense of isolation around climate emotions, but also helped to sustain and motivate re-engagement. As James explained,

> ...if I'm feeling busy or, maybe, disenfranchised, just actively being a member of those groups and getting communications from them and seeing their planning and stuff can help me get back into it if I'm not necessarily feeling it at the time.

And while finding community within climate movement spaces was a key support, so too was community outside of these spaces. Sophia suggested,

> I think community sustains. Also, family, friends, people close to me. Not necessarily ones that are really devout environmentalists or anything, just being around people that you love and that love you is very nurturing and can bring some much-needed rest.

Finally, while a reverence for nature was discussed earlier as a motivation for climate action, two participants suggested that (re)connecting with land and nature was foundational to engaging with climate action. When asked what supports, resources, or programs would help to motivate more young people to engage in climate work, Sophia explained,

> Learning on the land and learning skills that are relevant to spending time on the land is something that a lot of youth are missing, and a lot of youth want, and a lot of youth want especially without knowing that they want it.

Similarly, Evelyn suggested that simply drawing people outside into natural spaces (through geocaching, for example) can help to build a sense of connection, care, and a "desire to help." As elucidated by the above examples and words of participants, strengthening relationships and connections, whether with land and nature, family, friends, and peers, climate action groups, or adult allies is an important component of generating and sustaining youth climate action across Northern Ontario.

Conclusion

The findings of this research speak to the lived experiences of self-identified youth climate champions across Northern Ontario. Using thematic network analysis, the experiences shared by participants were organized into three networks: *making meaning of climate change, climate emotions,* and*, motivations and supports for youth climate action*. The first network reported on the ways in which the participants observed and/or experienced climate change, and the ways in which they conceptualize and learn about climate change. This initial network provided an understanding of the foundations from which the participants' emotional and behavioural responses arise. The second network explored participants' experiences of climate emotions. This section began by describing participants' lived experiences of ecoanxiety and

emerging loss and grief. Following, both the triggers of these climate emotions and the coping strategies engaged by participants were described. Finally, this second network reported on the ways in which climate emotions are impacting participants' life and lifestyle choices, daily functioning, and spiritual wellbeing. The final network, *motivations and supports for youth climate action,* looked at factors relevant to generating and sustaining youth climate action in Northern Ontario. This section began by describing the ways climate actions are unique to person and place and then explored the intersections of climate actions and emotions. Key relationships and supports, including adult allies, gateways to action, and community, were then identified as important for generating and sustaining youth climate action across Ontario's provincial north. In the following *Discussion* chapter, the findings of the three thematic networks are discussed in relation to the academic literature reviewed in Chapter 2 and my own insights and questions. These findings are also used to make suggestions for future climate emotions research and to highlight the implications of these findings for public health and education systems.

Chapter 5: Discussion

The overall purpose of this research was to explore the emotions, supports, and experiences that are generative and supportive of climate action for youth climate champions in Northern Ontario. The findings are based on a small sample size and may have limited relevance outside of the context of Northern Ontario. Still, the findings provide valuable insight *(a)* as part of the rapidly growing discussion on climate emotions and *(b)* to inform public health and education policy and practice. In this chapter, I weave together the findings of this research with existing literature and my own reflections and questions. First, I will discuss the MES dimensions of climate change, including ecoanxiety and grief and loss. Next, I discuss the intersection of climate emotions and climate action, exploring the generative roles of *ecoanxiety* and *care and empathy* and the power of collective action to transform emotions. Finally, I will outline the methodological contributions of this research, the ways in which this project contributes to the growing body of work at the intersection of climate emotions and action, and propose three key recommendations for public health and education policy and practice.

Mental, Emotional, and Spiritual Dimensions of Climate Change and Climate Action

Lived Experiences of Climate Emotions in Youth Climate Champions

While there is still limited research on the lived MES dimensions of climate change in young people, an understanding of the interconnected, compounding, fluid, cascading, and relational nature of climate emotions is emerging in the literature (Leger-Goodes et al., 2022; Pihkala, 2022). Consistent with this framing, many stories and thoughts shared by participants in this research pointed to both the plurality and entanglement of their emotional experiences in relation to climate change. These findings support Galway and Beery's (2022) proposed conceptualization of climate emotions as a "constellation" (p.8), that is, a realm of

interconnecting affective phenomena that are neither ‘positive’ or ‘negative’ but rather, I extend, pieces of embodied information that warrant curiosity. Furthermore, the experiences shared by participants suggest that climate change and climate injustice not only add significant burden to the MES wellbeing of young people engaging in climate action, but they can also overburden young people, resulting in problematic and paralyzing MES health outcomes for some. The findings of this research elucidate that the MES health of young people in the face of the climate emergency warrants serious consideration and response.

The young people in this study experienced a plethora of climate emotions, predominantly powerlessness, fear, anger, hopelessness, anxiety, worry, and grief triggered by collective climate inaction and climate injustices. In addition, one-third of participants reported experiencing decreased spiritual wellbeing as a result of climate change. As a result of these emotional and spiritual dimensions, over half of the participants reported at least occasional impairments to their daily functioning; five participants reported at least occasional difficulties concentrating, five participants reporting occasional difficulties falling asleep, and one participant reporting frequent sleep disruptions. Additionally, Sophia reported struggling to get out of bed because of climate emotions and Omar told of suffering from existential depression related to climate change and climate injustices. These findings align with larger studies, including a recent survey of Canadian youth that found almost 40% of participants reporting at least moderate negative impacts on their daily functioning (Galway & Field, 2022 preprint). Similarly, Hickman et al. (2021) reported that more than 45% of respondents across 10 countries experienced disruption to their daily lives and functioning as a result of emotions related to climate change, and Ogunbode et al. (2021) found a significant positive correlation between ‘negative’ climate emotion and insomnia in 72% of the 25 countries included in their cross-

sectional survey. While climate emotions are often considered non-pathological (Kurth & Pihkala, 2022; Lawrence et al., 2022), they do warrant serious consideration and close attention. Pre-pandemic, mental health trends among youth in Canada showed an increase in the prevalence in both poor/fair perceived mental health status and diagnosed mood and anxiety disorders (Wiens et al., 2020). Through the COVID-19 pandemic, young people across Canada reported deterioration in their mental health status (Cost et al., 2021). As stressors continue to compound in the lives of young people, symptoms of poor mental health are likely to be exacerbated (Lawrence et al., 2022) and the demand on mental health care services is going to continue to increase (Wiens et al., 2020). Identifying and supporting opportunities for youth mental health promotion and the prevention of mental health challenges is increasingly important as Canada's health system is critically stressed (Canadian Medical Association, 2022) and climate impacts continue to increase.

The participants' experiences clearly elucidate that young climate champions in Northern Ontario are experiencing harm and "moral injury" (Hickman et al., 2021, p.2) to their MES wellbeing as a result of adult inaction, including government and decision-makers. Canada's track record and forecast for climate policy and action is rated "highly insufficient" compared to what is needed to limit planetary warming to 1.5°C (Climate Action Tracker, 2022). In Ontario in 2018, the newly elected centre-right conservative political party cancelled the cap-and-trade program and in 2022 is off-track to reach it's weak 2030 emissions reduction target (Environmental Defence, 2022). Ontario has "gone from being one of the leading provinces taking action on climate change to becoming a climate pretender" (Environmental Defence, 2022, p.3). While young Ontarians and Canadians are demanding, both in the streets and through the court systems (Feasby et al., 2020; Fridays For Future, 2022), that their health and futures be

protected, there remains a significant gap in provincial and national climate policy and action responding to the dire realities of the climate crisis. Orienting toward climate solutions, especially through witnessing the engagement and achievements of others, was a critical coping mechanism used by participants. As James stated, “I think the main thing that would help me cope with [climate change] is seeing more done about it.” Witnessing the enaction of climate solutions helped to protect the MES wellbeing of participants, was a motivating factor for participants to join in collective climate action, and created a sense of hope in some participants. As such, it is imperative that governments and decision-makers at all scales and across sectors immediately initiate and sustain swift, just, and transformative action to reduce greenhouse gas emissions, transition to renewable energy, and transform the underlying oppressive social and economic systems to mitigate further climate impacts and protect and support the MES wellbeing of young people.

Ecoanxiety. Despite the growing popularity of the terms ‘ecoanxiety’ and ‘climate anxiety’ in the media (Ray, 2021) and increasingly in academic research (Clayton, 2020), participants rarely use these terms when describing their emotional responses to climate change. Rather, specific emotions like powerlessness, fear, anger, worry, and sadness were often shared in overlapping succession with expressions of care, empathy, and compassion, again highlighting the entanglement of climate emotions. Given the myriad social-ecological factors that contribute to one’s experiences and responses to climate change, climate emotions must be understood as contextual and cannot be considered universal (Kurth & Pihkala, 2022; Pihkala, 2022). To enhance the conceptual clarity of ecoanxiety, additional attention is needed to understand the ways in which young people experience ecoanxiety differently from adults. The systematic review of climate change anxiety by Soutar and Wand (2022) identified occupation as one of

three key factors influencing experiences of ecoanxiety (alongside socio-economic status and proximity to climate change). This finding is unlikely to apply to young people who are yet to identify or pursue a career path. Given that the large majority of studies included in Soutar and Wand's (2022) systematic review were focused on adult populations, their findings cannot be generalized to youth populations. Further research on the lived experiences of ecoanxiety is needed across generations to understand if the same concept and/or definition of ecoanxiety is applicable across the lifespan (Leger-Goodes et al., 2022).

Most participants of this study reported feeling isolated and alone in their emotional experiences related to global climate breakdown. When they did speak with others, it was often as a joke or as a rant expressing anger. Many participants reported being unable to find a space in which they felt comfortable sharing their climate emotions, and multiple participants suggested this research was the first time they had ever articulated their climate emotions aloud (and/or in writing). Although most participants rarely shared their climate emotions with others, eight participants identified talking with others, including friends, family, and therapists, as an important support for coping. These eight participants shared a desire for opportunities and spaces in which they could comfortably share challenging and vulnerable emotions related to climate change and climate injustice. These findings highlight the urgent need to create accessible, safe spaces where youth can share, feel heard, and explore their experiences of and responses to disenfranchised and vulnerable climate emotions (Galway & Field, preprint; Hickman, 2020). Creating these spaces and opportunities for young people to explore and process their climate emotions is important for mental health promotion and the prevention of mental health challenges. Gislason, Kennedy, Witham, et al. (2021) point out that many adults are seeking guidance and resources about how to communicate with young people struggling

with climate emotions and suggest that "many climate conversations cannot yet be had between generations" (p.13). Policy and funding to support education and training opportunities, related to climate change and climate injustice generally and climate emotions specifically, for parents, educators and mental health professionals are crucial to supporting youth MES wellbeing in the face of climate change.

Emerging Loss and Grief. The findings of this study are unique in highlighting the loss and grief experienced by young climate champions in relation to climate change. As we continue to cross planetary boundaries required to maintain stability of Earth's systems, young people are experiencing both tangible and intangible loss and grief. The experience of tangible loss and grief was most commonly reported in relation to current and anticipated ecological losses, specifically species and biodiversity loss, and align with the current understandings of ecological grief as outlined by Cunsolo and Ellis (2018). While rarely studied or reported in young people, the concept of ecological grief is increasingly common in climate emotions discourse (Ojala, 2021).

This research contributes new insights into intangible loss and grief experienced by young climate champions that does not clearly align with, and may exist beyond, the concept of ecological grief. Participants in this study repeatedly implied an unnameable sorrow for a world gone amiss. In his book *The Wild Edge of Sorrow*, Weller (2015) discusses five distinct 'gates' or forms, of grief. In the fourth gate of grief, *what we expected and did not receive,* Weller explores a grief rooted in "our longing to belong" (p.54). Weller expands, "This longing is wired into us by necessity. It assures our safety and our ability to extend out into the world with confidence" (p.54). This grief relates to our worth and our welcome in the world, our sense of community with others, and our ability to contribute our gifts to the world (Weller, 2015). In

both the interviews and the letters, participants shared feelings of betrayal by government, corporations, and adults. Rather than feeling welcomed into the world, this betrayal by societal actors made participants wonder "don't you care about future generations?" (Catherine). Many participants questioned (often in their letters) their existential security and the future of the Earth. Without naming it, participants seemed to repeatedly question and describe a lost sense of belonging and connection in this world. This perceived loss of grounding and belonging in the world often emerged from participants' expressions of fear for an unknown future, feelings of helplessness, and feelings of betrayal related to collective inaction. These illustrations of loss and grief may be contextualized in larger youth-focused climate emotions studies. Galway and Field (2022, preprint) found that 66% of respondents reported feeling sad, 36% felt grief, 50% felt that humanity was doomed, and 77% believed that "people have failed to take care of the planet" (p.7). Similarly, Hickman et al. (2021) found youth reporting high levels of sadness (67%) and moderate levels of grief (42%). Additionally, both Galway and Field (2022, preprint) and Hickman et al. (2021) report that young people in Canada and around the world feel betrayed and abandoned by government. These quantitative studies indicating high levels of sadness, moderate levels of grief, and intense feelings of betrayal align with the lived experiences of intangible grief and loss expressed by the participants of this study. Further climate emotions research is needed to explore and conceptualize young people's experiences of intangible (and often unnameable) experiences of loss and grief in the face of climate change and climate injustice.

Finally, the loss reported by youth may also be understood as *ambiguous loss,* a "loss that goes on without answers or closure and leads to feelings of being frozen, halted, or stuck in the grief process, living with both the presence and the absence of what was lost" (Cunsolo & Ellis,

2018, p.279). Cunsolo and Ellis (2018) highlight that children and youth in particular may be impacted by an *ambiguous loss* related to climate change due to the 'doom and gloom' messaging they receive throughout their lifespan and highlights the need for climate communication to be coupled with solutions-messaging.

These findings illustrating experiences of loss and grief experienced by young climate champions hold fourfold significance. First, current climate emotions research on young people is focused on exploring ecoanxiety and thus creating and perpetuating a strong narrative of an *ecoanxious generation*. Future youth-focused climate emotions research should include lines of considerate inquiry related to sadness, grief, and loss outside of and building upon existing conceptualizations of ecological grief. Given the vulnerable nature of grief and loss, exploring the lived experiences of youth is likely to require unique research methodologies and methods, including participatory action research and asynchronous methods, through which a deeper trust can develop between the participant and the researcher. Second, even though unprocessed grief is known to manifest in physical symptoms and contribute to additional mental health challenges (Zisook & Shear, 2009), grief is a highly disenfranchised emotion in Western culture and there are few recognized community grief rituals. Initiatives to support the MES wellbeing of youth must carefully consider and respond to young people's lived experiences of intangible and *ambiguous* loss and grief in relation to climate breakdown. Third, facing and processing grief and loss is necessary, both individually and collectively, if we are to meaningfully engage in radical and transformational climate action. Turning toward our pain and grief for the world is a vital part of "the work that reconnects" (Macy & Johnstone, 2012) and precedes our ability to move towards more generative ways of living and being. Weller (2015) suggests that, without witnessing our grief, "we will not be able to stem the hemorrhaging of our communities, the

senseless destruction of ecologies, or the tyranny of monotonous existence" (p.113). Additionally, Ray (2020) reminds us that embracing our grief "opens us up to the love that is necessary in order to sustain the work of climate action" (p.126). Processing our climate related grief, as with all challenging climate emotions, is important for preventing additional mental health challenges and is an essential component of moving toward a healthy and just future for all.

Intersections of Climate Emotions and Climate Actions

Generative Potential of Climate Emotions. The findings of this study highlight the generative potential of two emotional responses to climate change: *ecoanxiety* and *care and empathy*. Participants highlighted several emotions in the web of ecoanxiety, including worry, frustration, and anxiety, as motivations to engage in collective action. Noting that these emotions were generative challenges the dichotomous labelling of emotions as positive or negative (Galway & Beery, 2022) and emphasizes the need to examine the ways in which coping strategies and action contour the lived experiences of climate emotions (Ojala, 2022).

While care and empathy are often conceptualized as overlapping and entwined within experiences of ecoanxiety, they are highlighted in this section as emotions that moved participants to climate action. Participants in this study often expressed care and empathy towards both the human and more-than-human world, including a distinct reverence for nature, both now and into the future. Human-centered expressions of care and empathy were often on a macro scale, including "suffering towns and communities" (Kristen) and "future generations" (Catherine). Many participants spoke of a close relationship with the natural world, often describing cherished places, favorite nature-related activities including hiking and gardening, and a sense of wonder for ecological cycles and wildlife. References to (and reverence for) water and

trees/forest were particularly common. These expressions of care and empathy and reverence for the natural world were consistently communicated as motivations for engaging and/or intentions to engage in climate action. This finding relates to the body of research examining the relationship between "objects of care", climate change, and behaviour (Haltinner et al., 2021; Wang et al., 2018;), which suggests "'objects of care' may bridge the psychological distance between the self and climate change, making the issue of climate change seem more personally relevant, evoking stronger emotions, and prompting action" (Wang et al., 2018, p.38). Furthermore, emerging work indicates a relationship between connectedness-to-nature with climate action, whereby those more closely connected to nature experienced higher levels of climate worry, spurring conversation with friends and family about climate change, and ultimately translating into higher levels of climate action (Galway et al., 2021). In addition to several participants who identified a reverence for nature as a personal motivation, two participants emphasized that creating opportunities to help others (re)connect with the natural world was a key way to engage more young people in collective climate action. Strengthening human-nature relationships has been recognized as a "deep leverage point" (Galway et al., 2021, p.13) in addressing the climate crisis. Re-building and re-pairing human-nature relationships can generate multiple co-benefits including supporting MES wellbeing in the face of climate change (Westoby et al., 2022), motivating action, and repairing human-nature disconnect at the root of the climate crisis (Galway et al., 2021). Hancock (2019) suggests that "re-discovering the spirit in nature may be one of the more important ways for us to address the Anthropocene" (p.20). (Re)building and repairing human-nature relationships must be done with care, however, as connections with and experiences in nature can also elicit strong feelings of grief, sadness, anxiety and anger at what is being and has already been lost (Westoby et al., 2022). This again

echoes the urgent need to create safe opportunities where we can honour the grief and loss felt for a world gone amiss as we work to reconnect with nature and each other. Finally, recognizing the generative power of care and empathy provides valuable insight for climate communication strategies. Kelsey (2016) reminds us, "The stories we tell ourselves shape how we live and what we believe to be possible" (p.10). If it is true that "what you pay attention to grows" (brown, 2017, p.55), then shifting the climate narrative toward an ethic of care and empathy would create opportunities for our emotional and behavioural responses to move collectively toward a more generative, compassionate, hope-filled way of living in this world together.

Emotional Transformation. Participants who were engaged in *collective* climate action reported a shift in their climate emotions because it provided them an opportunity to orient toward solutions and/or created opportunities to connect with like-minded community. As a result of engaging in collective climate action, participants commonly reported an increased sense of agency and hope while clearly articulating that their feelings of fear, powerlessness, and hopelessness had diminished but not disappeared. Holding feelings of both hope *and* hopelessness, agency *and* powerlessness is reflective of experiencing *active hope,* a hope which recognizes the realities of a wicked problem. Furthermore, the findings of this study suggest that care, empathy, and ecoanxiety can strengthen a desire to *engage* in action while hope grounded in a clear appraisal of reality may be an important factor in *sustaining* collective climate action. However, this finding is limited by the cross-sectional nature of this research which required participant recall of what and how emotional transitions unfolded over time. Longitudinal research is needed to see if similar results would be found over time as a young person moves through their journey of climate action as opposed to reporting based on personal self-reflection (Ojala, 2021).

It is important to highlight that only those participants who engaged in *collective* climate action reported experiences of emotional transformation, and that opportunities to engage in *collective* climate action were only reported among participants who lived in communities with a population > 75,000. Participants living in communities with < 75,000 residents shared that they were unable to find organized climate action groups in their communities and/or were unable to find sustained support for their efforts to organize a climate action group. Given the potential co-benefits of collective climate action to influence climate policy, advance mitigation and adaptation strategies, and lessen the burden on social and ecological health including the MES wellbeing of young people, this research points to the specific importance of creating and supporting pathways to collective climate action in rural and remote communities with fewer than 75,000 residents. Given the intense social resource strain and geographic distance between rural and remote communities across Northern Ontario, it is imperative that the education system, with existing networks (e.g., school boards) across the region, recognize their role and responsibility as leaders in climate change education that engages the head, heart, hands, and spirit of students. In addition to teaching the cognitive dimension of climate change (e.g., climate science), scholars of climate change education are increasingly recommending practices that engage the affective and behavioral dimensions of learning through critical reflection, dialogue, and opportunities for collaborative community action (Trott, 2022). Young people are also asking for increased inclusion of and emphasis on social and emotional dimensions within climate education (Galway & Field, 2022 preprint). Wholistic climate change education in which young people find safe spaces to recognize, share, and process their emotions *and* engage in meaningful, collaborative community-based action is critical to supporting the MES health and wellbeing of young people (Trott, 2022) *especially* in small and rural communities across

Northern Ontario. This demands policy and ongoing funding support to provide education and training opportunities to teachers, administrators, and support staff (e.g., mental health counsellors) and will require partnerships, including community health providers and public health services. Additionally, opportunities for collective intergenerational climate action created within the formal education system must recognize youth as competent agents of social change yet not position young people as the generation responsible for climate action. Young people and adult allies must work carefully together to build intergenerational partnerships to address climate change and climate injustice. Nisreen Elsaim, UN Secretary General Youth Climate Advisory Group, notes,

> "Although young people have huge capabilities, we do not have huge mentorship programs; we do not have facilities for human development whereby the older generation can pass knowledge and experience on to the newer generation so that we don't just repeat the same mistakes" (Elsaim, 2022, p.605)

Earl et al. (2017) suggest that adult allies can support youth-led movement spaces by helping to connect youth with otherwise inaccessible resources and networks, provide mentorship, and provide stability as youth participants turnover or age out of the group. While rich opportunities for intergenerational learning and action on climate change abound (Lawson et al., 2018), adult allies must remain attentive to the emotions, positionality, knowledges, and contributions of young people.

Contributions

In considering the contributions of this research, it is important to recall: (a) the findings of this research were generated from a small sample of participants and may have limited relevance outside of Northern Ontario, (b) the cross-sectional nature of this research provides

static information about fluid and dynamic lived emotional experiences and relies heavily on participant recall of vulnerable emotions, and (c) the stories of diverse youth experiences were collected, analyzed, interpreted, and re-storied by a single adult researcher whose background and experiences undoubtably impacted the interpretation and analysis of the data. Despite these limitations, this study contributes to the field of climate emotions research both methodologically and theoretically, and points to implications for policy and practice in education and health services.

Methodological Contributions

This research demonstrates the utility of combining semi-structured interviews with asynchronous letter writing in climate emotions research, particularly with youth. All 12 participants who were interviewed submitted a letter within one month of their interview. To my knowledge, this is the first time this combination of synchronous and asynchronous data collection methods has been applied to climate change and mental health research. Asynchronous data collection methods, including letter writing, are recognized as valuable tools when communicating about private, personal, and sensitive matters (Harris, 2002; Pithouse-Morgan et al., 2012) and letter writing provides a layer of 'invisibility' to the participant which may allow for an expression of vulnerability not achievable in an interview (Harris, 2002). Even though the interview transcripts and letters were considered and analyzed as one data set, one significant variation in emotional expression was perceived by the researcher during analysis; participants more commonly expressed feelings of anxiety and anger in their interviews yet expressed more sadness and grief through the lamentation of lost species, "the loss of the Earth" (Leanne, Letter), and existential security in their letters. This finding supports existing evidence that asynchronous letter writing methods are effective at eliciting rich data in relation to personal

and sensitive topics (Harris, 2002; McAuliffe, 2003). In addition, this research exemplifies the utility of combining asynchronous letter writing with interviews to prompt data that may not emerge through one method alone. Combining asynchronous letter writing with interviews may prove useful in future climate emotions research, particularly among youth.

Participants provided valuable feedback on the use of interviews and letter writing to explore their emotional response to climate change. When asked to reflect upon the letter writing process, participants suggested that it provided an emotionally safe opportunity to explore their climate feelings more deeply. For the purpose of this research, there was a one-week time gap between the interview and sending the writing prompt. Participants had mixed feedback on this time gap. While some participants felt indifferent about the timing, some appreciated the space to reflect while others wished they could write the letter sooner after the interview.

Future climate emotions research should consider the use of asynchronous data collection methods, including letter writing. This may be a particularly useful tool in youth-focused climate emotions research interested in understanding the lived-experiences of grief and loss related to climate change. This study was limited by the small sample size and consideration of the interviews and letters as one data set. Larger-scale studies in which the synchronous and asynchronous data are analyzed separately would be useful to better understand the potential of asynchronous methods in climate emotions research.

Contributions to Knowledge Generation

This research explores and documents the lived experiences of the MES dimensions of climate change of youth climate champions in Northern Ontario. Participants shared that they are experiencing a constellation of climate emotions which are both problematic, negatively impacting MES health and wellbeing, and generative, leading to climate action. In addition to

contributing to the growing understanding of ecoanxiety, this research explores the role of care and empathy in motivating youth to act in the face of the climate emergency and illustrates the potential of collective climate action to shift and transform the intensity of climate emotions experienced by youth climate champions. The emphasis participants placed on witnessing and engaging in climate solutions as a coping mechanism in response to climate emotions clearly elucidates the need for swift, transformative, and just climate mitigation and adaptation actions across all scales. Finally, participants illustrated the need for allied adult support in creating and maintaining pathways to collective climate action, particularly in small and rural communities.

Summary of Recommendations

The findings presented in this chapter elucidate a number of implications for (a) climate emotions research and (b) policy and practice in health and education spaces. In the following sub-sections, I summarize possible avenues forward to support youth MES health in the face of climate change.

Future Climate Emotions Research.

- Longitudinal research with youth on the lived experiences of climate emotions, coping strategies, and the influence of collective climate action is needed to understand the fluid and dynamic nature of climate emotions experienced over time and the potential of collective climate action as a strategy to support youth MES health and wellbeing in the face of climate change and climate injustice.
- Further place-specific inquiry into the loss and grief experienced by young people in response to climate change and climate injustice is needed both to advance conceptualizations of climate grief and ecological grief and to inform the development of contextually appropriate responses and supports for youth MES health and wellbeing.

- Innovative methodologies and methods are needed in climate emotions research. Research conducted *with* youth, in ways that acknowledges young people as experts on their own experiences, is important to uncovering unseen and unheard perspectives on climate emotions and climate action. Participatory action research and asynchronous methods could be explored as methods which work to build trust and create opportunities in which young people safe to explore vulnerable emotions, feel listened to, and feel heard.

Health and Education Policy and Practice.

- First and foremost, it is imperative that decision-makers in health and education spaces immediately work within and beyond siloes to initiate and support swift, just, and transformative climate mitigation and adaptation actions. Along with innumerable ecological, social, and economic benefits, mitigating the climate crisis is the foremost way to protect human health, including the MES health of young people, in the face of global climate breakdown.
- Simultaneously, this study emphasizes the need to establish accessible, safe spaces for young people to come together to recognize, share, explore, and process the emotional dimensions of climate change and climate injustice. This implies a need for policy and funding support from health and education spaces to provide training for allied adults, including mental health professionals and teachers, to learn about climate change and climate injustices generally and climate emotions specifically. Additionally, there is an important opportunity for public health to facilitate climate emotion conversations in mental health promotion programming in ways that aim to reduce stigma, disenfranchisement, and isolation of climate emotions. Conversations and safe spaces for

climate emotions dialogue within health and education spaces should be developed and implemented through meaningful collaboration with the young people they are intended to serve (Galway & Field, 2022 preprint; Gislason, Kennedy, Witham, et al., 2021); Hickman et al., 2021).

- The findings that (a) youth are orienting toward solutions to cope with climate emotions and (b) that collective climate action increases agency and hope, highlight the need for accessible pathways to community-based collaborative climate action for and with youth, particularly in small and rural communities. This emphasis on action must be conscientious of the potential of strain and burnout among young people and must not inflate the importance of individuals in the process of deep systemic change (Berry et al., 2018). The formal education system is well-positioned across rural regions to respond and support youth by implementing solutions-oriented climate education that engages the head, hearts, hands, and spirits of students. However, this pedagogical and structural shift will require policy and funding support from decision-makers, including improved climate change education and teacher training.

Chapter 6: Conclusion

I began to conceptualize this research project shortly after the influential global youth-led climate strikes in 2019, and have actualized the project throughout the coronavirus pandemic, a period of unprecedented climate-related events throughout British Columbia in 2021, the invasion of Ukraine by Russian forces, and endless other heart-breaking and anxiety-inducing events around the world. While the coronavirus pandemic has stirred a collective moment of reflection on social and ecological injustices, the recovery response of decision-makers is not reflective of a justice-focused systems-thinking approach that accounts for the "slow pandemic" (Christou et al., 2022, p.1) of climate change. It is as though both *everything* and *nothing* has changed. As I reflect on the world today compared to when I began this project, I cannot help but engage with Sonya Renee Taylor's questioning, "the terrain looks similar, but the question is, can we see it from a higher vantage point?" (Hemphill, 2022). In what ways are we edging toward the precipice of collapse and in what ways are we moving toward the portal of creativity and (re)connection?

The participants of this study have shared intimate stories of the ways in which they are seeing and experiencing the world and how many are striving to *see* and *act* from a more expansive perspective. Young climate champions across Northern Ontario are poised to create new ways of living and being in this world, and the findings of this research suggest that intergenerational allyship and action is an important path forward if we are, in fact, to move more toward creativity and (re)connection. Moving in this direction, however, requires the courage to engage with the "heart, gut and spirit stuff" (Hancock, 2019). While we must continue to push for immediate climate mitigation and adaptation actions and longer-term systemic change, we must simultaneously begin to collectively and courageously engage with our

anxieties, our grief, our fear, our care, our empathy, and our hope. If we appreciate the lesson of fractal patterns in nature, that complex patterns self-repeat across scales, then we may find that emotional grounding within ourselves and our communities will also help to settle the chaos of climate catastrophe in which we are embedded. I warmly invite you to join in this work.

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Appendix A – Literature Search Summary

Database	Search Details	Results
PubMed	climate AND (anxiet* OR grief OR "mental health" OR solastalgia)	773
	After title review	116
	After abstract review	72
	Full text reviewed	50

Database	Search Details	Results
Web of Science	TS=(ecoanxiet* OR "ecological anxiet*" OR eco-anxiet* OR "climate anxiet*")	77
	After title review	52
	After abstract review	37
	Full text reviewed	37

Database	Search Details	Results
Web of Science	solastalgia AND "climate change" (All Fields)	32
	After title review	22
	After abstract review	19
	Full text reviewed	19

Database	Search Details	Results
Web of Science	"ecological grief" AND “climate change” (All Fields)	21
	After title review	19
	After abstract review	14
	Full text reviewed	14

Database	Search Details	Results
Web of Science	TS=(youth AND activism AND "social movements") (2010-2021)	88
	After title review	73
	After abstract review	26
	Full text reviewed	26

Database	Search Details	Results
Web of Science	((TS=(youth)) AND TS=("climate change")) AND TS=(activis*)	72
	After title review	55
	After abstract review	32
	Full text reviewed	32

Database	Search Details	Results
OMNI	Title is (exact) “climate change” AND Title contains place AND Any field contains “behaviour change” *Filters: Articles, English, 2010-present* *Excludes subjects: Environmental Aspects*	7
	After title review	5
	After abstract review	5
	Full text reviewed	5

Database	Search Details	Results
OMNI	Title is (exact) “climate change” AND Title contains place AND Any field contains engagement *Filters: Articles, English, 2010-present* *Excludes subjects: Environmental Aspects, Meteorology & Atmospheric Sciences*	26
	After duplicates removed and title review	10
	After abstract review	10
	Full text reviewed	10

Database	Search Details	Results
OMNI	Title is (exact) “climate change” AND Title contains place AND Any field contains perceptions *Filters: Articles, English, 2010-present* *Excludes subjects: Environmental Aspects, Meteorology & Atmospheric Sciences*	23
	After duplicates removed and title review	10
	After abstract review	7
	Full text reviewed	7

Appendix B – Recruitment Text

Email subject line: Youth climate champions needed for a research study on the lived experiences of mental, emotional or spiritual impacts of climate change and climate action.

Email text:

Dear potential research participant,

Have you experienced (or are you experiencing) climate change-related distress, anxiety, and/or grief?

Are you between the ages of 16-25 and living in Northern Ontario?

Are you involved in climate action in your community? (e.g., idea and knowledge sharing, relationship building, and/or innovative action in response to climate change)

We want to hear from you!

We invite you to participate in a research project entitled **"Exploring the lived experiences of climate emotions in rural, remote, and mid-sized communities in Canada."** Nested within this large project is a smaller sub-project focused on exploring the climate-related mental and emotional health dimensions of youth (ages 16-25) who are involved in community climate action in Northern Ontario (Manitoba/Ontario border to Parry Sound). We are interested in learning about how different climate-related emotions and experiences motivate young people to engage in sustained climate action. Findings from this study will inform opportunities for protecting mental, emotional, and spiritual health and identify supports for motivating and sustaining the involvement of young people in climate action.

We are currently hoping to speak with young people ages 16-25 who are involved in community climate action and who live in Northern Ontario (from the Manitoba/Ontario border to Parry Sound)**.**

Your participation will involve:

- Sharing your experiences and perspectives in an interview that will last approximately 45 - 75 minutes in length (over the telephone or virtually/online)

- Writing a letter to describe your feelings about climate change and your involvement with climate action (an email letter or a handwritten letter using prepaid postage)

Participation is entirely **voluntary and confidential**. As an expression of gratitude, research participants will **receive a $20 gift card.**

If you would like to **learn more about the project, have questions, or would like to participate** please reach out via email at climate.emotions@gmail.com or call Lindsay Galway at **807-766-7280**.

Thank you for considering participation in this research.

Sincerely,

Aynsley Klassen
Master of Health Sciences Student and Research Assistant
Department of Health Sciences, Lakehead University

Lindsay Galway
Assistant Professor and Canada Research Chair in Social-Ecological Health
Department of Health Sciences, Lakehead University

Appendix C – Information Letter and Consent

Dear Potential Participant,

We invite you to participate in a research project entitled **"Exploring the lived experiences of climate emotions in rural, remote, and mid-sized communities in Canada"**. Nested within this larger project is a smaller sub-project focused on exploring the climate-related mental and emotional health dimensions of youth (ages 16-25) who are involved in community climate action in Northern Ontario. We are interested in learning about how different climate-related emotions and experiences motivate young people to engage in climate action, and to identify opportunities to support ongoing engagement with climate action in Northern Ontario. Findings from this study will inform opportunities for protecting mental, emotional, and spiritual health and identify supports for motivating and sustaining the involvement of young people in climate action.

You are being invited to participate in this study because you have valuable perspectives and experiences to share. Study participants must be 16 years of age or older, involved in climate action in their community, and living in Northern Ontario (from the Manitoba/Ontario border to Parry Sound). Your time and help are truly appreciated.

Why is this project important?
The mental, emotional, and spiritual health impacts of the climate crisis are rapidly advancing as extreme events become more frequent and severe, ecological degradation continues, and people become increasingly aware of the projected impacts and myriad injustices of the climate crisis. Additionally, urgent climate action is needed in order to limit global temperature rise. Although the large majority of climate change and health research has focused exclusively on physical health impacts, the need for research examining the mental, emotional, and spiritual health impacts is now recognized. Numerous organizations and scholars have called for research to advance our currently limited understanding of the mental, emotional, and spiritual health impacts of climate change and to inform opportunities for addressing these impacts in ways that foster hope and generate and sustain climate action. Additionally, research focused on the lived experiences of youth is important because young people are at a heightened risk for experiencing the mental and emotional health impacts of climate change and that young people experience and respond to climate change differently from adults.

What is involved in the study?
If you agree to voluntarily participate in this research, this will involve the following:

1. Participating in **one interview** to share your experiences and perspectives relating to the mental, emotional, or spiritual health impacts of climate change and your experiences being involved with climate action. The interview will be conducted over the phone or online (based on your preference). With your permission the interview will be video and/or audio-recorded otherwise notes will be taken.
2. A few weeks after participating in the interview, you will **write a letter** describing your feelings about climate change and your involvement in climate action.

The overall time commitment for study participants will also be minimal; an estimated 75 - 105 mins (~ 45 to 75 mins for the phone/online interview and ~ 30 mins for the letter-writing).

After you have read this information letter and before the interview begins, we will ask you to sign the electronic consent form accompanying this letter. Please ask any questions you may have before signing.

Are there any risks to doing this study?

The risks are minimal for this study, there is no direct harm to participants. However, some people may experience stress, anxiety, sadness or anger because of the topic discussed. These feelings may also be what has prompted you to participate. You are not obligated to disclose anything during the interview or while writing a letter that you are not comfortable with, and you can decline discussing any topic during the interview at any time. If you think that you would like psychological support before or during the interview or while/after you write your letter Canada211 (https://211.ca/) has a list of services available and information to help access these services.

Are there any benefits to doing this study?
This research will not benefit you directly although you may enjoy sharing your thoughts, opinions, and experiences with others and with the research team. You will be thanked for your time and participation with a $20 gift card (after participating in the interview and the letter-writing). We also anticipate that the research will make a positive contribution to the scholarship on climate change and health while informing opportunities for protecting mental, emotional and spiritual impacts in the context of our changing climate and supporting the on-going involvement of youth in community climate action.

What are my rights as a participant?
As a participant you are under no obligation to participate, you are free to withdraw from the study at any time (up until the final thesis defence) without giving a reason and without any negative consequence to you. You are also free to decline answering any questions asked without any negative consequences. This study aims to maintain the highest standards of ethical conduct and integrity. Centrally, this means that in participating in this research you should feel that you, and your contribution to this research, have been treated with respect. All questions about the research, its aims and outcomes will be answered openly and honestly.

What if I want to withdraw from the study?
If you decide to participate, you may still choose to withdraw for whatever reason, up until a project report is created. There are no consequences to withdrawing. In cases of withdrawal, any data you provided will be destroyed. You can withdraw by contacting the research team (see below for contact information).

Who will know what I said or did in the study?
Should you agree to participate in this study, you will be participating confidentially. We will not use your name or any potentially identifying information in any study materials or reports. You will be assigned a unique study number as a participant in this study. Only this number will be used so that your identity (i.e., your name or any other information that could identify you) will be kept confidential. Only the researchers will know if you participated in the study and what you said during the interviews. We will collect basic demographic data during the interview (i.e., age, gender, place of residence).

Data collected during this study will be kept on a password-protected computer in a locked and secure office space in Lakehead University's Department of Health Sciences. De-identified data will be stored on a secure online environment. Data will be stored for 5 years after the completion of the study.

What will the data be used for?
We anticipate that data collected will be summarized in a report and an infographic (in a visual manner that is easy to interpret and understand). In terms of scientific knowledge dissemination, findings will be shared in a peer-reviewed academic journal.

How is this study funded?
This study is funded by the Canada Research Chair program, the Social Sciences and Humanities Research Council, and the Ontario Graduate Scholarship.

How do I find out what was learned in this project?
A copy of the final research findings can be provided to you upon request.

Additional questions about the study?: If you have questions or need more information about the, please contact *Aynsley Klassen (*MHSc Student, Lakehead University) or Dr. *Lindsay Galway* (Associate Professor, Lakehead University) at climate.emotions@gmail.com or *807- 766-7280.*

This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact Sue Wright at the Research Ethics Board (email: research@lakeheadu.ca, or 807-343-8283).

YOUR CONSENT

Title of the project: Exploring climate emotions in rural, remote and mid-sized communities in Canada

Names of research team members involved:

Dr. Lindsay Galway, Assistant Professor in the Department of Health Sciences, Lakehead University
Email: lgalway@lakeheadu.ca OR Telephone: *807- 766-7280*

Aynsley Klassen, MHSc Student in the Department of Health Sciences, Lakehead University

Taking part in this study is entirely up to you. You have the right to refuse to participate. If you decide to take part, you may choose to withdraw from the study (up until the final thesis defence) without giving a reason and without any negative consequence to you. Your written consent indicates that you have received a copy of this consent form for your own records and that you consent to participate in this study. By consenting to participate, you have not waived any rights to legal recourse in the event of research-related harm.

By signing this consent form, I agree to the following:

I freely consent to participate.
- I am 16 years of age or older
- I have read and understood the project information letter.
- I understand that participation is voluntary and that I am free to refuse to participate or to withdraw without negative consequences.
- I understand that I can choose to not answer any questions asked as part of the research and that I do not have to give a reason.

- I understand the potential risks and/or benefits of the study.
- I understand that all potentially identifying information will be kept confidential.
- I understand that information that you provide during this study may be shared in a report, academic publications, and academic conferences but I will not be identified.
- I understand that the data provided will be securely stored at Lakehead University for a minimum of 5 years following completion of this study.
- I agree to have my interview audio or video-recorded (**please circle one**): Yes No
- I would like to receive a copy of the findings summary (**please circle one**): Yes No
    - A summary of findings should be sent to the following email address: _____

Signature of participant: _____ Date: _____

Name of participant (printed): _____

Signature of interviewer: _____ Date: _____

THANK YOU for your participation and your time.

Appendix D – Interview Guide

Prior to starting the interview:

- Remind participants about their rights and consent and confirm consent to record the interview
- Ask if they have any questions before beginning the interview
- Remind participants about estimated time (45-75 minutes) for the interview

. **Introductory and contextual questions**

What we hope to elicit here: *These first questions of the interview will also be used to build trust, start the conversation, and build rapport between interviewer and interviewee. These questions also help to understand the community/place where the participant lives.*

- Can you please tell me a bit about yourself?

- Can you please tell me about the place where you live?
  Probes
  - What three words best describe this place?
  - What three words best describe the people that live there?

- Can you describe your relationship to the natural world?

- Why were you interested in participating in this research?

General understandings and experiences of climate change

What we hope to elicit here: *A general understanding of how participants think about and experience climate change, and the role of place in shaping this understanding and experience.*

- When you think about climate change, what is the first word or sentence that comes to mind?

- How do you gain knowledge about climate change?
  - Where do you get information about climate change from?

- From your perspective, what are the primary impacts of climate change?
  - How is or will climate change impact you, your family, and/or others?

- Can you tell me more about the impacts of climate change that you **have** observed and experienced or **are** observing and experiencing?
  - Have you experienced any extreme events (fires, flooding, extreme heat, storms, extreme cold, etc.), can you tell me more about this experience?

- If a family or friend asked you why you care about the issue of climate change, what would you tell them?

C. Mental, emotional and spiritual impacts of climate change

What we hope to elicit here: *A deeper understanding of the mental, emotional, and spiritual impacts and responses associated with climate change and the factors shaping these impacts and responses.*

- Can you describe the feelings that you experience in relation to climate change?
    - Can you explain why you feel this way?
    - Are there factors, other than climate change itself, that you think influence your feelings about climate change?

- Can you describe how climate change has impacted your mental health?
    - Have these impacts changed over time?

- Can you describe how climate change has impacted your emotional or spiritual health?

- How does your social position in the world (gender, race, education, financial status, physical abilities, citizenship, etc.) influence your feelings related to climate change?

- I am going to ask a few prompts, and I would like to hear the first word that comes to mind:
    - When I think about the future, I feel…
    - When I learn about climate change and the projected impacts of climate change, it makes me feel…
    - When I learn about the inequities caused by climate change, it makes me feel…
    - Observing and/or experiencing the impacts of climate change makes me feel…
    - Observing and/or experiencing the degradation of the land and nature due to climate change makes me feel…

- I'm going to ask you about different parts of your daily life, and I want to know: Have your feelings about climate change negatively impacted this aspect of your daily functioning:
    - Sleeping
    - Eating
    - Concentrating
    - Work or School
    - Spending time in nature
    - Playing
    - Having Fun
    - Relationships
        - Have any of these aspects of daily functioning been positively affected by your feelings about climate change?

- Do you talk to others about how climate change is making you feel or how it affects your mental, emotional or spiritual health?
    - If so, what do you say?
    - If not, why not?

- What do you do to cope with your feelings about climate change?
    - Are there any kinds of supports, programs, and/or resources that do (or would) help you cope with your feelings about climate change?

D. Climate action

What we hope to elicit here: *How various dimensions of climate action (feelings about action, hope, and self-efficacy) shape lived experiences.*

- Can you tell me about the climate work you are involved in?
    - Are you part of a group? If so, what is the name of your group?
    - What type of climate work or actions do you/your group do?
    - What is your role in this climate work?

- What feelings or experiences motivated you to become involved in climate action work?
    - Was there a specific moment or feeling that motivated you to get involved?

- How does your social position in the world (gender, race, education, financial status, physical abilities, citizenship, etc), influence your motivation or sense of responsibility to take action against climate change?

- Have your feelings about climate change evolved or changed in any way through participating in collective climate activities?
    - Does collective action help to transform or manage your emotions?

- What sustains you to continue taking action against climate change?
    - Are there any specific experiences, supports, resources, or programs that keep you engaging in climate work?
    - Are there any specific emotions that sustain your work?

- If you had access to one kind of support to help you continue with climate change work, what would it be? Why?

- What experiences, resources, or supports do you think would help to motivate more young people to become involved in collective or community-based climate change work?

- When you think about how our governments are dealing with climate change, how does that make you feel?

- When you think about the future in 25 years, how do you feel?
    - Is there anything you appreciate about living in this moment in human history?

- Do you think it is important to inspire hope, or other emotions, to foster individual and collective climate action?
    - Why or why not

- If there was a message you could share with decision-makers and governments in a **word**, a **phrase,** or in a **symbol**, what would that message be?

- Is there anything else you want to share with me?

E. Conclusion and demographic questions

To tell the participant: *Before signing off, I have a few short demographic questions. We are asking these questions to get a sense of the people and voices that we are hearing from and those that we are not hearing from, as we would like to gather a diversity of experiences.* ***You can decline to answer any of these questions.***

- Name of community where you live (*likely noted above)
- What year were you born?
- What is your gender identity?
- We know that people of different races do not have significantly different genetics. But our race still has important consequences, including how we are treated by different individuals and institutions. Which race category or categories best describe you? Select all that apply.
    - Black
    - East/Southeast Asian
    - Indigenous (First Nations, Metis, Inuk/Inuit)
    - Latino
    - Middle Eastern
    - South Asian
    - White
    - Another race category
    - Do not know
    - Prefer not to answer

- What is the highest level of education that you have completed?
- Would you consider you/your family as having low socioeconomic status?

THANK the participant and remind them about the letter-writing component of the project. ***Ask the participant if they would prefer to receive the letter-writing details and submit their letter electronically (via email) or by postal mail (using a pre-paid envelope)?***

NB: Based on the participant's preference, instructions and prompts for letter writing will be sent via postal mail (along with pre-paid envelope) OR electronic mail (to the project email address climate.emotions@gmail.com) approximately ***1week after participating in the interview.***

Appendix E – Letter Writing Instructions and Prompts

Email:

Thank you again for participating in the interview for the research project titled "Exploring the lived experiences of climate emotions in rural, remote, and mid-sized remote communities in Canada". The experiences, perspectives, and stories from youth climate champions are invaluable.

The second element of participating in this study involves letter writing. Specifically, **write a letter describing how you are feeling about climate change and your involvement with climate action work**. You have opted to write an electronic letter and to **send it back via email.**

Your letter can be self-reflective, simple, poetic, a call to action, a letter to the past or to the future, or an opportunity to give voice to the Earth or another species. Your letter can be long or short. Feel free to be creative in your letter writing.

Address your letter to whomever or whatever you would like. Some possibilities include writing to a past or future ancestor, the Earth, a cherished place or landscape, your children, your ancestors, another species…

As a reminder, your letter will remain confidential. If you would like psychological support before, during, or after you write your letter, Canada211 (https://211.ca/) has a list of services available and information to help access these services.

After writing your letter, please send it to the following email address: climate.emotions@gmail.com

Thank you for participating.

With gratitude,

Aynsley Klassen
Research Assistant and Master of Health Sciences Student
Department of Health Sciences, Lakehead University

Lindsay Galway
Assistant Professor and Canada Research Chair in Social-Ecological Health
Department of Health Sciences, Lakehead University

Postal Mail:

Thank you again for participating in the interview for the research project titled "Exploring the lived experiences of climate emotions in rural, remote, and mid-sized communities in Canada". The experiences, perspectives, and stories that you have shared already are invaluable.

The second element of participating in this study involves letter writing. Specifically, **write a letter describing how you are feeling about climate change and your involvement with climate action work**. You have opted to write a hand-written letter and to send it back via **postal mail.**

Your letter can be self-reflective, simple, poetic, a call to action, or an opportunity to give voice to the Earth or another species. Your letter can be long or short. Feel free to be creative in your letter writing.

Address your letter to whomever or whatever you would like. Some possibilities include writing to a past or future ancestor, the Earth, a cherished place or landscape, your children, your ancestors, another species…

As a reminder, your letter will remain confidential. If you would like psychological support before, during, or after you write your letter, Canada211 (https://211.ca/) has a list of services available and information to help access these services.

After writing your letter, please mail it using the envelope with pre-paid postage and the mailing address you have just received.

With gratitude,

Aynsley Klassen
Research Assistant and Master of Health Sciences Student
Department of Health Sciences, Lakehead University

Lindsay Galway
Assistant Professor and Canada Research Chair in Social-Ecological Health
Department of Health Sciences, Lakehead University

Appendix F - Codebook

Global Theme	Organizing Theme	Basic Themes	
Making Meaning of Climate change	Observations and experiences of climate change	Direct Experiences	Our past few summers have been hard for everyone, we've seen extreme drought in my part of Canada. Drought that led to forest fires. This year we have exactly the opposite, people are now out of their homes because of extreme flooding.
		Indirect/Vicarious Experiences	I don't think we've necessarily been impacted by, like directly by climate change by events that are happening. I think more by, more by colonial structures that enable climate change and more by some of the grief and other, like, emotions that come with knowing what is coming.
	Conceptualizations of climate change	Here and Now	I believe that most adults think of ice caps melting and the polar bears starving when they think about climate change. Melting of icebergs is important, but the truth is that we are seeing the effects of climate change here and now. It's scarier when it's close to home, or for some of us, quite literally in our homes.
		Closely associated with litter	The primary impacts of climate change are, um… hot weather, unpredictable weather, droughts, and you can see that in very third developing countries or developing countries like India. Now they're going through a heat wave. And, like, a lot of garbage.
	Learning about climate change	Active Media	I definitely do some research. Sometimes I'm like, 'I'm very curious about this' and I'll do a couple of research things…I'll google 'what effects', or (laughs), Tik Tok pops up and I have some things on there that are like, 'hey, some things are happening that are good and some things are happening that are bad'. Stuff like that.
		Formal Education	We do have a lot of really good professors at (University). So, some of it we kind of got involved in our Intro to Microbiology class. This year was kind of the first when I actually was able to have someone with knowledge about, who works in the environment, be able to sit and just teach about some of the aspects.
		Social Connections	So, my email lists and that sort of thing. As well as the people I work with in terms of climate actions. I definitely learn a lot from them that I, even through all the different internet channels I follow and stuff, probably wouldn't have learned otherwise. At least not in the depth that I have learned it.

Climate Emotions	Ecoanxiety	Complex & Interconnected Emotions	I have very mixed feelings about climate change. I mean, it's awful obviously, but it's a mix of hopefulness and hopelessness. On one hand I sometimes feel like I'm drowning in it. Like all the horrible things that are happening are all piling up on me and I feel like I have to do something, but I don't know what to do and it probably wouldn't help anyway. Other times I feel full of hope for the future. There are so many amazing people fighting climate change as activists, scientists, writers, and artists. Honestly recently I haven't been thinking about it much at all. I feel like such a hypocrite, because I really believe the environment should be a top priority. I've just been so stressed with school and friends and I haven't even been doing the simple things like avoiding as much plastic as I can. I feel a bit like a failure. I feel like nothing I do will ever be anywhere near good enough.
		Future-oriented	I think it's fear of, like, not having a future. Not even just for me though. For people I care about, um. Yeah, I think…fear that, like, those that come next won't have good lives. It really scares me.
		Persistent	Climate anxiety is something that comes back to gnaw at the forefront of my brain during most of my daily excursions.
	Emergence of loss and grief	Tangible loss	As I educated myself more and more about climate change I learned of its consequences. Nowadays I grieve for the lives of the people of those small towns I discovered as a kid that are affected by the constant fires. I grieve for the people that are now experiencing the worst drought ever and are struggling to get help from the authorities.
		Intangible loss	I will admit, the government is not the only one fuelling the problem. I have had far too many adults in their 60s-80s ask why they should care about the problem if they're not going to be around to see it. To that I wonder, don't you care about future generations? Do you not want your child or grandchild to thrive and enjoy all the wonders the earth brings?
	Triggers	Collective Inaction	I think there's some frustration that I think has also been in relation to my joining of these groups. One, if I can do it and we can make a difference with such a small amount of people. I talk to other people and they don't, they don't get involved, or they don't see the value in it. And obviously before there was frustration with politicians and big companies and that's still there. But there's a little bit more frustration around seeing how my peers will react around the situation…They know the problems, but I feel like they're not really doing anything about it.
		Systems of Oppression	I have no hope for the future of life on Earth. Specifically, I have no hope for the future of our society. We cannot go on with capitalism as an ideal way of living. The structure of our society involves white supremacy, racism, cis-heteropatriarchy, post-colonialism, and capitalism. All of which contribute to hierarchy, a power system, and climate change. At this point, it seems inevitable that war is the only answer. Getting people to step down from their roles within power and giving that power to

			marginalized groups of people is like trying to convince a fish to fly to the moon.
		Tangible Reminders	Climate anxiety is something that comes back to gnaw at the forefront of my brain during most of my daily excursions. There is pollution in the skies from the steel mill, there is garbage littering the streets, everything is made out of plastic, animal agriculture is inhumane and we are still promoted to consume, consume, consume.
		Climate Information and Messaging	Anxiety is definitely a big one, when you get all the articles about, you know, the fires and the plastic that they're pulling out of the ocean, and oh this species went extinct and this went extinct and then oh god and then I find that there are a lot of countdowns. There are always a lot of articles that they put out that 'oh, climate change will be irreversible beyond this date'. Like this is the deadline, this is the year. So, a lot of anxiety and apprehension when you see things like that.
	Coping strategies	Activating Empowering Thoughts and Emotions	Although human and non-human suffering could be seen as the end product of climate change, it can also be the starting point for resistance and change.
		Connecting with Community	Being involved in climate action work, to me, means being involved in community. It means working with people that understand the severity of climate change, but also understand that we can still mitigate its harm and work towards building a safe future for humans and non-humans alike. It provides support systems for grief and anxiety spawned by climate change.
		Distancing & Distraction	I take walks. I sing, sometimes. Those two distract me, yeah.
	Impacts on Living and Life	Life Decisions	Maybe I have pursued more education and stuff around those topics because I've wanted to learn more and I've wanted to seek out solutions and that kind of thing.
		Lifestyle choices	I have been trying to cut back on my meat intake because I have heard of the effects that large factory farms can have on our climate, so I've been trying to be more conscious of what I eat and, sort of, we have a market here so I try to buy local produce instead of stuff that's shipped in.
		Concentration	I would sometimes, like, also struggle with wanting to pay full attention in school because I think once you kind of start doing that advocacy work it's, like, I'm learning so much in this realm and it is more applicable to what I want to be doing and what's going to be useful and making change now.
		Sleeping	I wake up in the middle of the night, like 2am, and then I wake up at 6am, and then I wake up eventually at 7am which is the time that I should wake up, but those intermediate interruptions of my sleep are usually because I am thinking in the back

			of my head or I'm dreaming about stuff that I feel is a reflection of injustice in the world and also about, well that includes climate change.
		Spiritual Health	I have a hard time connecting spiritually when it's like, it almost sometimes seems, not pointless, but it can be really disheartening when there is so much going on in the world related to the environment.
Motivations and Supports for Youth Climate Action	Unique to person and place	Identity shapes action	I am an artist too, so climate advocacy will be a theme in my upcoming works.
		Place-specific	I live in a small town. Sometimes it feels like there is very little I can do here. There truly are no groups I can work with, and no protests I can attend.
	Intersections of action and emotion	Rich Emotional Dimensions	I sometimes feel proud about being part of those type of groups of people. So proud, pride. Um. I guess I feel fulfilled when I accomplish something in those regards.
		Emotional Transformation through collective action	Before I joined these groups, I was more upset about these things, and I think it was just feeling alone in them, feeling that I was the only one worried about it. And that I, as an individual, didn't have much power over what happened. But since joining those groups I feel like having that sense of community around the problem has really made me feel better about it. It has made me, it's probably one of the things that has made me feel less upset about it. Just seeing that I'm not alone in it and that there are other people who are also fighting alongside me to make these changes. So yeah, it's definitely, being in these groups have definitely made me feel better about it.
	Critical supports for youth climate action	Adult allies	Definitely my teachers in high school. My English teachers, they were, well, they also ran the club, but they were very supportive in pushing me, like 'you can do this'. I was nervous.
		Gateways to action	I think what motivated me initially was, one, I already cared about it a lot, and two, there was an outlet, I guess. There was already the eco-club or environmental club that I was able to join.
		Friends, family, & peer community	I think being part of groups also helps to, you know, sometimes if I'm feeling busy or, maybe, disenfranchised still, just actively being a member of those groups and getting communications from them and seeing their planning and stuff can help me get back into it if I'm not necessarily feeling it at the time.
		Relationship with the natural world	It all goes back to having those foundational experiences of being on the land. Like, the best way to understand climate change and the environment is to build your own relationship with the lands around you...