

**Exploring Climate Emotions and Coping Strategies of Canadian Youth in a
Climate-Focused Program**

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Abstract

Climate change education holds particular significance amid today's social and ecological realities. Youth specifically are feeling the pressure of our changing climate, manifesting in feelings of anxiety and hopelessness. A climate education which recognizes these complex emotions and provides opportunities for youth to cope with these emotions through action is key. This research explores the role of an interdisciplinary, hope-focused environmental education program in shaping the climate emotions and coping strategies of its students. In this mixed methods case study, grade ten and grade twelve students from Claremont Secondary School's Institute for Global Solutions participated in surveys and a focus group to gain insights to the relationship between the programming and their climate emotions and coping. The study found that youth in the IGS program are experiencing a breadth of emotions in relation to climate change, and use a variety of coping strategies. It was also identified that programming such as IGS can provide students with a positive orientation to both personal and collective climate action. This demonstrates the importance of educational models which support and acknowledge the emotional dimensions of teaching climate change, and fostering student agency. This research holds implications for educational practice, curriculum development, program development, and student well-being.

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Disclaimer: Generative AI was used to copy-edit this thesis. The writing, ideas, and analysis is solely my own work, and AI was not used to write this thesis.

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Chapter 1: Introduction

1.1 Context

While climate change education equips students with relevant knowledge, it can also evoke emotions like anxiety and hopelessness. With increased media engagement and education on climate change, students are more aware than ever of the complex challenges climate change presents. With this increased awareness comes increased complex climate emotions like anxiety, doubt, anger, and hopelessness (Galway & Field, 2023; Hickman et al., 2021). As a result, educational spaces must be responsive and reflexive in supporting youth who are navigating these emotions.

In recent years, research on climate emotions ¹ and coping, particularly in youth demographics, has expanded significantly. Foundational work, established by Ojala (2012), argues the importance of coping processes in youth climate engagement, particularly highlighting the role of meaning-focused coping and hope. Building on this research, it has been documented that youth experience climate change through many complex emotions, such as worry, sadness, and anger, often simultaneously (Burke et al., 2018; Sarrasin et al., 2022; Wu et al., 2023). Large-scale and recent studies further highlight the prevalence and intensity of climate anxiety among young people, suggesting that these emotional responses are both widespread and significant (Hickman et al., 2021; Crandon et al., 2024). In a Canadian context, Galway and Field (2023) similarly emphasize the emotional complexity of youth climate engagement.

Research has also identified key coping strategies that support adaptive engagement. Studies suggest that hope, emotional resilience, social support, and

¹ Definitions for key terms provided in section 1.5

action-oriented environmental engagement can all contribute to more constructive coping responses among youth (Chawla, 2020; Cosma, 2023; Levesque & Rocque, 2024). Finally, research examining the role of education indicated that climate learning environments are most effective when they intentionally integrate emotional dimensions of learning, including opportunities for agency, action and critical reflection (Baker et al., 2021; Levesque & Rocque, 2024; Rushton, 2023). Collectively, this research suggests that climate emotions are not only common among youth but are also shaped by educational context and individual coping processes. Further research is needed to more fully understand how education systems and settings can better support constructive coping within youth experiencing climate emotions, including research on specific strategies and interventions (Galway, 2026).

1.2 Purpose

The purpose of this study is to gain insights into how British Columbian high school students in a climate-focused education program experience and cope with complex climate emotions and to determine how education and coping, in this context with these students, can support engagement in climate action. Existing research suggests that climate education may influence how young people emotionally process climate change and engage in pro-environmental behaviour. However, it is still an underdeveloped field, as further research is recommended by the aforementioned authors which addresses how education can support constructive coping. Secondly, research to date does not explicitly explore specific actions or strategies which youth or adults are engaging in or could engage in to process their climate emotions. Based on a scoping review on

climate emotions and coping in youth, Martin et al. (2022) recommend “future research should also examine how to help children meaningfully cope with negative emotions about climate change and explore the role of practitioners, schools, parents and guardians, and communities” (68). Based on the researcher’s review of literature, there is a gap in identifying how education can aid in providing opportunities for young people to engage in constructive coping and encourage pro-environmental behaviour. This thesis aims to address this gap through the following research questions:

1.3 Research Questions

1. What emotions do youth experience when learning about climate change?
2. What strategies do youth use to cope with climate change and its associated emotions?
3. How does a solutions-based approach to climate education provide a positive orientation to personal and collective action?

1.5 Definitions

Climate emotions: “Climate emotions are understood as feelings, emotions, and affects related to climate change and climate injustices” (Galway & Field, 2023).

Coping: coping refers to the ways in which individuals manage stress. This can be either behavioural or cognitive, and can be influenced by resources available to individuals, self-esteem, environment, and problem solving skills. (Frydenberg, 2008).

Constructive coping: Constructive coping is the ability to deal with stress in a way that is positively oriented or adaptive, including strategies such as seeking help, reframing situations, or taking action (American Psychological Association, 2018). In the context of youth and climate, constructive coping reduces emotional harm on young people that awareness of climate change can cause, and at the same time orients individuals to engage in pro-environmental behaviours (Brown et al., 2023).

Non-constructive coping: In adolescent coping research, also referred to as maladaptive coping, non-constructive coping refers to strategies which are associated with poorer adaptation to situations and negative mental health outcomes (Frydenberg, 2008). This can include engaging in avoidance, self-blame, denial, or worry (Frydenberg, 2008).

Pro-environmental behaviours: The actions and activities which individuals and or society take to either solve environmental problems, improve sustainability, and or lessen negative impacts on the environment (Farrukh et al., 2023).

Climate Actions: Climate actions are intentional efforts by governments, organizations, and individuals to address climate change through emission reduction, adaptation, policy, education, and everyday practices (Almeida et al., 2024).

Climate education: Climate education is based on scientific concepts with a general goal of cultivating pro-environmental attitudes and behaviour within learners (Kolenatý

et al., 2022). UNESCO (n.d.) defines climate education as “[helping] people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values and attitudes needed to act as agents of change.”

Youth: Youth are defined as persons who are age fifteen to twenty-four (United Nations, n.d.). It should be noted that youth often has a varied scope. In this research, youth surveyed were between the ages of fifteen and eighteen.

Chapter 2: Literature Review

This section will outline recent research on climate emotions and youth, followed by a discussion of recent research on coping with such emotions and the role of education in coping with climate emotions and orienting learners to climate action. Finally, it identifies the specific gaps in the literature that this study addresses.

2.1 Introduction to Literature

In recent years, research on climate emotions and coping, particularly in youth demographics, has grown. Maria Ojala's extensive research on youth climate coping strategies provides foundational insights, particularly the 2012 study, which categorizes coping into meaning-focused, avoidant, and problem-focused approaches. These terms will be later explored in the literature review. Based on the existing research and literature, several gaps remain evident. Current research lacks clarity on the specific actions or strategies that youth and adults employ to engage with or process climate emotions effectively. There is less of an emphasis overall on how individuals process their emotions and how the coping manifests itself. From my review of the literature, it is apparent that the majority of the research is based on cognitive thought processes and framing that individuals engage in as a way of coping.

2.2 Climate Emotions

Climate emotions are a common response for young people grappling with the climate crisis (Galway & Field, 2023). These emotions can manifest in many ways and be triggered by things such as personal experience with climate change, learning about

climate change, worry for future generations, or general concern for the wellbeing of ecosystems (Ojala, 2012; Pihkala, 2022). The taxonomy of climate emotions (Pihkala, 2022) is increasingly viewed through an interdisciplinary lens, encompassing psychological, ecological, educational, feminist, health, and policy research. This taxonomy recognizes the diverse range of climate emotions, illustrating how individuals experience and navigate complex climate-related feelings. Collectively, this body of work suggests that climate emotions are multifaceted, encompassing both distress-oriented emotions like anxiety, grief, and guilt, and more action-oriented emotions such as hope, empowerment, and determination. This broader conceptualization challenges earlier research which primarily focuses on anxiety or negative emotional responses to climate change. Levesque & Rocque (2024) critique much of present climate emotion research, as much of the existing literature on youth and climate emotions focuses primarily on negative emotions, especially anxiety, rather than a range of emotions.

Ojala (2022) takes a critical approach to the way in which climate emotions have been addressed in present research. She asserts that the experience of ‘negative’ climate emotions is viewed as something that should be corrected to ‘positive’ emotions, rather than encouraging individuals to “ponder our fears, worries, and guilt in relation to societal problems” (Ojala, 2022, 1112). Ojala’s critique becomes particularly relevant when examining the relationship between climate emotions and education, as it calls for a shift in pedagogy. Educators may consider how complex climate emotions impact their students. Although consensus differs within the field, some scholars argue these emotions are an appropriate response in most individuals, however can become problematic for some (Galway & Field, 2023). Galway & Field (2023) consider strong

emotional responses appropriate considering the weight of the climate crisis, and recognize the burden this can place on young people. As such, instead of trying to correct or fix these emotions, educators may play an important role in legitimizing and supporting students' emotional responses to climate change rather than attempting to eliminate them.

2.3 Climate Emotions and Youth

Across studies, youth commonly report anxiety, fear, helplessness, stress, and sadness when learning about climate change (Burke et al., 2018; Clayton & Karazsia, 2020; Hickman et al., 2021). More recent scholarship suggests these experiences are rarely limited to negative emotions alone.

Much of this research has focused heavily around climate anxiety and emotional responses such as fear, depression, helplessness, stress, anger, and grief (Burke et al., 2018; Clayton & Karazsia, 2020; Hickman et al., 2021; Mah et al., 2020). Baker et al. (2021) observed that climate-related stress increases with age, although on average the youth surveyed experienced a moderate amount of anxiety (Aylward et al., 2024). In their 2018 study, Burke et al. differentiated between direct and indirect exposure to climate change and the impacts this could have on children. It was found that anger, fear, stress, anxiety and depression are common climate related emotions (Burke et al., 2018)

While this research is incredibly important in understanding youth and their responses to climate change, more recent scholarship has begun to challenge this narrow focus by conceptualizing responses to climate change as mixed experiences

which could include hope or optimism alongside anxiety (Galway & Field, 2023, Léger-Goodes et al., 2023; Martinsson & Ojala, 2024; Verlie, 2022). In their 2024 study, Levesque & Rocque identified that students who believed in positive changes for the climate, experienced both negative and positive climate related emotions. In their 2023 study, Galway and Field observed that Canadian youth are experiencing a wide variety of climate related emotions (sadness, anxiety, hope, grief, optimism) at varied levels of intensity.

Through a scoping review, Martin et al. (2022) suggest that present research focuses much more heavily on negative emotions, necessitating further investigation into widening the scope of emotions experienced by youth in relation to climate. Galway and Field (2023) suggest further research on coping and the role of schools and educators in facilitating and supporting coping skills. Baker et al. (2021) have suggested that a meaning-based approach to process climate emotions may be the most productive and helpful to youth. Burke et al. (2018) express a need for further research on coping and provision of psychological supports for young people struggling with climate emotions. Finally, Levesque & Rocque (2024) call for research which focuses on a broader range of emotions, alongside research which spans longer timeframes.

2.4 Coping and youth

Coping, generally, is a well-researched area and has incredibly broad research applications. Coping is defined as the way in which individuals manage stress (Frydenberg, 2008), and involves “cognitive and/or behavioral efforts to manage specific external and/or internal demands” (Lazarus & Folkman, 1984, p.141). The ways in

which individuals cope with stressors can vary greatly, depending on their experiences, genetics, culture, or proximity to threat (Brown et al., 2023). According to Frydenberg (2008), family, education, and therapeutic interventions often aid in how youth cope. Demographics, to some extent, can play a part in how a young person engages in coping. Anderson et al. (2024) identified that while older youth tend to experience higher levels of stress, they are more adept at engaging in coping skills to manage their emotions. Anderson et al. (2024) also found that girls tend to engage in coping processes at an earlier age, and engage in more complex coping strategies earlier than boys. In their 2022 research, Stapley et al. observed that experiences of adversity can impact how youth engage with coping. Further, resources available to youth, such as familial support, community support, or educational support can improve youth's capacity to engage in coping (Stapley et al., 2022). Although these frameworks use differing terminology, they converge around a common distinction between coping strategies that directly address stressors, those that seek to regulate emotional responses, and those characters by avoidance or disengagement.

Anderson et al. (2024) suggests that there are three types of coping that are commonly engaged in by youth: primary control, secondary control, and disengagement. Primary control occurs when an individual changes their reaction to a stressor or attempts to change the stressor itself (Anderson et al., 2024). Secondary control is more "cognitively complex" (Anderson et al., 2024, p. 12422), as it may involve changing thought patterns, thinking positively, or accepting a situation. Lastly, disengagement occurs when an individual avoids or denies a reality (Anderson et al., 2024). These coping pathways are similar to those presented by Lazarus and Folkman

(1984), who suggest emotions-focused, meaning-focused, and problem focused coping. Emotions-focused is similar to disengagement, meaning-focused is similar to secondary control coping, and problem-focused is similar to primary control. These coping pathways were taken up by Ojala, who applied them in a climate-focused setting in her 2012 research.

Constructive coping is conceptualized by the American Psychological Association (2018) as dealing with stress in a way that is positively oriented or adaptive, including strategies such as seeking help, reframing situations, or taking action. Bargiel-Matusiewicz & Omar (2015) expand on this, defining constructive coping as strategies which help individuals maintain and build resilience, and sustain cognitive and social functioning when dealing with stress. Drawing from Lazarus and Folkman (1984), Bargiel-Matusiewicz & Omar (2015) suggest that meaning-focused coping is the most aligned with constructive coping. In the context of adolescents, Sinelnikova & Udovichenko (2023) found that constructive coping mechanisms employed by youth lead to higher self-regulation, higher meaning in one's life, and problem solving over giving up when faced with an obstacle. Specific mechanisms which are employed in constructive coping include problem solving, seeking support, adjusting goals, positive reappraisal of situations, and drawing on positive emotions during times of stress (Bargiel-Matusiewicz & Omar, 2015; Lazarus & Folkman, 1984). While these general coping mechanisms provide a foundation, their application within the specific context of the climate crisis requires further nuance, particularly because climate change differs from many traditional stressors in that it is collective, ongoing, and largely out of direct control of the youth.

2.4.1 Youth and Coping with Climate Emotions

In a climate-specific context, youth and adults have been observed to engage in coping mechanisms in different ways (Galway & Field, 2023; Ojala & Bengtsson, 2019; Ojala 2012). This distinction highlights how the developing adolescent brain uniquely processes complex climate emotions compared to adults. Adolescent brains are undergoing emotional, cognitive, and social development, leaving them particularly vulnerable to complex climate emotions (Crandon et al, 2022). Most of the research on youth and climate coping draws from Ojala's 2012 research, where she identifies specific coping pathways youth struggling with climate emotions may take. These pathways include emotion-focused, meaning-focused, and problem-focused coping pathways, which were originally suggested by Lazarus & Folkman in 1984. These three coping pathways can be applied to a variety of situations where individuals may experience difficult or negative emotions.

2.4.2 Potential Coping Pathways

In her 2012 research, Ojala adapted these foundational coping frameworks to specifically address the unique psychological challenges that climate change poses. In an emotions-focused coping attempt, individuals will often replace negative thoughts about climate change with positive ones (Ojala, 2012). Brown et al. (2023) problematize emotion-focused coping in dealing with climate emotions, as it “centers on either denying that there is a problem or [distances] oneself from the problem” (p. 177). In turn, this discourages pro-environmental behaviour and further climate action. De-

emphasis is another branch of emotion-based coping, where individuals will disengage from climate related topics or deem them unimportant (Ojala. 2012). This type of coping, referred to as “avoidant” or “escape-oriented” by Ma (2022) can lead to undesirable mental health outcomes in the long term. However, in Macdonald et al.’s 2015 research, it was reported that “staying busy” as an escape-oriented coping mechanism resulted in positive mental health outcomes. Although some forms of emotion-focused coping may involve avoidance, evidence from these studies suggest that not all emotionally oriented coping strategies are inherently maladaptive. Those who engage in meaning-focused and or emotion-focused coping attempt to put faith in others, like science or politicians, to solve the climate crisis (Ojala, 2012). Finally, problem-focused coping occurs when individuals attempt to solve issues related to their stress, in this case, individuals may take action to combat climate change (Ojala, 2012). Frydenberg (2008) defines problem-focused coping as the ability to move from “the ‘problem state’, to where [one] wants to be, the ‘goal state’” (p.217). (Ojala and Bengtsson (2019) and Chawla and Gould (2020) have discovered positive correlations between problem-focused coping and proenvironmental behaviour and climate action. Further, Ojala (2012) states that children who engage in problem-focused coping tend to have lowered levels of stress related to climate change. In an educational context, coping must be considered when dealing with climate-related topics, as the way in which climate is taught can either encourage constructive or non-constructive coping.

2.6 Climate Education

Climate education has been an expanding field since the 1990s (Bhattacharya et al., 2021). Climate education is based on scientific concepts with a general goal of cultivating pro-environmental attitudes and behaviour within learners (Kolenatý et al., 2022). UNESCO (n.d.) defines climate education as “[helping] people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values and attitudes needed to act as agents of change.” Climate education can occur at any stage in life, in many different contexts, both formal and informal. For the purposes of this research, the term ‘climate education’ is used in a formal way, referring to the education individuals receive up until their final grade of high school. Bhattacharya et al. (2021) explain that climate education has increasingly become more dynamic than just knowledge acquisition about climate science, and is moving towards an approach which incorporates social, emotional, justice, and action oriented dimensions.

Effective climate education involves many different components. Ratinen (2021) asserts that effective climate change education contains four components: discussions about climate change, engaging with scientists, talking about climate misconceptions, and engaging in community/school-based action projects. Monroe et al. (2019) suggest that effective climate education must engage learners, be personally relevant, often involves experiential learning, exposes students to multiple perspectives, and creates opportunities for critical thinking.

Climate education does not come without its tensions and challenges. Hargis & McKenzie (2020) argue that most climate education focuses on the science of climate change, with an assumption that literacy will lead to pro-environmental behaviour.

However, Hargis & McKenzie (2020) suggest that more knowledge of climate change does not correlate with mobilization or change in opinion. Further, they argue that with increased knowledge of climate change may come increased anxiety, passiveness, and hopelessness, especially without being provided with tools to take action with. To address this gap, Hargis & McKenzie (2020) argue that climate education must “bolster the agency and empowerment of students to feel they, and society, can and is taking meaningful climate action” (p. 3). Pruneau et al.’s 2003 research on climate education corroborates this, as students who participated in climate action projects at school felt empowered and more knowledgeable about climate change. This supports Kagawa & Selby’s (2010) view of climate education, which is “to collectively envision a better future, and then to become practical visionaries in realizing that future” (4).

Bhattacharya et al. (2021) recognize that climate education extends beyond knowledge acquisition, and is “about supporting students in coping with the emotions and challenges associated with [global climate change]” (230). Bhattacharya et al. (2021) also argue that climate education, as it currently stands, is too focused on individual action to fight climate change, and points to a lack of research in “collective, systemic, and structural dimensions of climate action” (231) in relation to climate education.

Monroe et al. (2019) add that on top of ensuring a well-rounded climate education is provided, teachers also have the pressure of inspiring action within their students.

National survey data collected by Field et al. (2019) shows that educators are already struggling with climate education, with 50% of those surveyed reporting a desire for more professional development on climate change, and reported barriers to climate education such as lack of resources and professional knowledge. Collectively, this

literature suggests that effective climate education extends beyond scientific literacy to include emotional engagement, opportunities for action, critical reflection, and the development of agency.

2.6.1 Coping and Education

Climate education can play a key role in how students cope with climate change and their emotions. Both school settings and teacher support play a role in how youth experience climate emotions. It has been documented that following a climate change event, which may induce distress in youth, the social setting of school mixed with supportive classmates predicts less intense negative mental health outcomes like PTSD (Lai et al., 2015; Moore & Varela, 2010). Carnie et al. (2011), as well as Peek & Richardson (2010) found that post-climate exposure, students who received support from their teachers had an easier time coping with climate related emotions. However, based on the findings of Wu (2011) and Vigil & Geary (2008), teacher support and engagement in community programming has potential to increase negative mental health outcomes, as it can make the vulnerability of students more apparent.

As identified, both problem-focused and meaning-focused coping strategies have been proven successful in mitigating negative climate emotions and encouraging further climate action (Ojala, 2012). Increased climate education does not necessarily correlate to a decrease in climate emotions. In fact, increased awareness of climate issues can lead to increased negative climate emotions as individuals become more aware of the stark reality (Brown et al., 2023; Leger-Goodes et al., 2023). Increased awareness of climate change can elicit anxiety, stress, fear, anger, despair, grief,

sadness, and powerlessness (Fritze et al., 2008; Hayes et al., 2018). However, increased awareness can occur inadvertently outside of school contexts, for example through media exposure or interpersonal interactions (Pereira & Friere, 2021). While education cannot control such experiences outside of school, it does have the unique capability to provide students with tools to cope with exposure to climate topics.

The first step of including climate emotions and constructive coping in climate education is to train educators and provide strategies. Verlie et al. (2020) identified that teachers want to engage in constructive ways to deal with climate emotions with their students, but teachers do not feel that they have the support or skills to do so. In their 2021 Australian survey, Baker et al. identified the most effective way to educate about climate was to present information which is solution-based and “enables adolescents to maintain and increase a sense of efficacy as well as faith in more powerful societal actors” (700). This is corroborated by Sarrasin et al. (2022), who assert that opportunities for students to practice agency when learning about climate change can be incredibly important to their self-efficacy and willingness to act. According to Ma (2022), “integrating strengths-based and peer relationship building approaches within environmental and sustainability education may help establish protective factors for young people while also educating them on climate change” (9). Actions that students can take should be age-appropriate, and educators should provide concrete examples and steps for students who want to take further steps to mitigate climate change (Baker et al., 2021). However, the onus should not only be on individual teachers, as there is room for curriculum to become more reflective of students’ climate emotions (Galway & Field, 2023).

Ojala (2022) suggests incorporating “critical emotional awareness” into climate education. This awareness encapsulates how people express emotions, skills to understand emotions, understands complex emotions, and constructive emotional regulation (Ojala, 2022). Ojala argues that this awareness, based in psychology, could be integrated into teacher education, therefore providing a stronger response to coping with climate emotions. Ojala (2022) further suggests that educators must look inward to their own coping strategies and encourage students to talk openly with their classmates about coping strategies they use to deal with complex climate emotions. Together, these studies suggest that educational settings can either exacerbate or alleviate climate related distress, depending on the extent to which students are provided with emotional support, opportunities for agency, and avenues for engagement.

2.6.2 Climate Education, Hope and Action

Hope and climate change has been an increasingly researched topic in recent years, especially in the context of education (Fritze et al., 2008; Ojala, 2012; Li & Monroe, 2018; Ratinen, 2021; Finnegan & d’Abreu, 2024; Jadallah et al., 2025). Li & Monroe (2018) define hope as being integral to problem solving and engaging individuals. This is especially important in a climate context, as having hope can empower individuals to take climate action. Ratinen (2021) argues that the idea of a “constructive” hope can lead to climate action, as without this, “hopelessness leads to pessimistic attitudes towards the future and, ultimately, this does not help in mitigating climate change” (3). In her 2012 study, Ojala suggests that young people who had a high degree of worry about climate change but still retained hope engaged in pro-

environmental behaviours. Therefore, hope is an important emotion to garner for youth learning about climate change. Ojala (2012) states that hope “has a unique influence on pro-environmental behavior and, therefore, a focus on, for instance, values in environmental education cannot replace a focus on hope” (13). Jadallah et al. (2025) suggest that hope can be fostered in educational spaces by providing engagement in collective action, and providing opportunities for youth to engage in speculative design of alternative futures with the climate in mind. Li and Monroe (2018) echo this, as they state the role of educators is much more than communicating information, it is equipping students with problem-solving skills and empowering them to take action. Across these studies, hope is conceptualized not as passive optimism, but as an active orientation towards problem solving, agency, and climate action.

2.6.3 Action-Oriented and Participatory Learning

Education which can be participatory and action oriented has potential to aid in coping while creating meaningful social change. Jensen & Schnack (1997) categorize an ‘action’ as both an “activity targeted at solving [a] problem” and “students [being] involved in deciding what to do” (169). They also differentiate between direct and indirect environmental action within schools. Indirect actions include activities such as writing a letter to the editor or a politician. Direct actions include activities which are more “hands on”, like sorting recycling or planting a garden. Indirect actions usually address a more regional or national issue, whereas direct actions are grounded in students’ immediate communities (Jensen & Schnack, 1997). Both direct and indirect actions could be taken by students in an educational context. As suggested by Pereira

& Friere (2021), interventions to support coping are needed that go beyond learning about climate science. Jensen & Schnack (1997) echo this sentiment, arguing that action-oriented learning is a “necessary alternative to the traditional, science-oriented approach to environmental education” (163). Science-dominated environmental education is incapable of addressing root causes of environmental related issues, while action-based education holds potential to tackle these complex problems (Jensen & Schnack, 1997). Nusche et al. (2024) assert that while gaining knowledge about climate is important, this does not predict learners acting. This knowledge-to-practice gap can be addressed by prioritizing action-oriented learning and empowering learners to make changes. In their 2021 survey, Baker et al. found that schools are not supporting students enough to be involved in climate action, and that learners want action-oriented opportunities within their climate education. Galway and Field’s (2023) survey found that 50% of youth believe they can contribute to addressing climate change while 60% believe the formal education system should do more to teach them about climate change.

2.6.4 Impacts of Climate Education on Youth

Action-oriented climate education has many potential positive impacts, including constructive coping, pro-environmental behaviour, and skill development. The research of Baker et al. (2021), Galway & Field (2023), and Levesque & Rocque (2024) suggest that action-oriented education as a tool to assist with climate emotions. Galway & Field (2023) suggest that engaging in climate action can be a coping mechanism for individuals struggling with climate emotions. Similarly, Levesque & Rocque (2024)

suggest that the mix of climate emotions they identified were being experienced could motivate students to take further climate action. Participatory and action-oriented initiatives within climate education hold potential for further environmental action and proenvironmental behaviour (Baker et al., 2021; Brown et al., 2023; Galway & Field, 2023; Levesque & Rocque, 2024; Sarrasin et al., 2022).

Formal education can play a role in how youth engage in climate action. In their 2022 study, Kolenaty et al. argue that sufficient knowledge about climate change is needed for youth to take climate action. Brown et al. (2023) and Sarrasin et al. (2022) focus on environmental education settings and supporting youth. Brown et al. (2023) suggest that climate action initiatives in schools should go beyond individual actions, like using less water or cycling over driving. Thus, engaging in climate action creates a new level of engagement for students. Approaches which prioritize individual action of students can increase hopelessness in youth, as they may feel personally responsible for solving the climate crisis (Brophy et al., 2023). Verlie et al. (2021) assert that individualized action approaches can over-burden young people. Ojala (2012) offers engaging students in climate action through a collective lens, rather than focusing on an individual level. Conversely, Jensen & Schnack (1997) argue “the aim of environmental education must be to make present and future citizens capable of acting on a societal as well as a personal level” (167). It is possible that both individual and collective actions could aid in the coping of climate emotions, as both provide agency and opportunity for empowerment.

Participatory approaches within climate education have been proven as an effective strategy for learners (Monroe et al., 2019; Nusche et al., 2024). Engaging students in

climate education and action can develop skills such as communication, collaboration, and motivation (Brown et al., 2023). Brown et al. (2023) also suggest that students engage in solutions-focused learning activities which allow for agency and efficacy. Sarrasin et al. (2022) reported that students learning about climate change tend to be more willing to act for the environment when they work in group settings and share beliefs about collective efficacy. Educational settings have the potential to provide a space for teachers to instill collective efficacy in their students, while providing opportunity for said group work towards the climate (Busch et al., 2019). Further, Brown et al. (2023) found that youth involved in advocacy for the environment saw “increases in confidence and connection to land” (215).

2.7 Key Literature Gaps

Three key gaps emerge from the literature. Firstly, while climate emotions among youth have received increasing scholarly attention, less is known about how educational environments shape the ways students cope with these emotions. Secondly, existing research has primarily focused on documenting emotional responses rather than examining the specific coping strategies youth employ. Lastly, although action-oriented and hope-centered educational approaches are frequently recommended, limited research has explored how students themselves perceive the role of such educational experiences in supporting constructive coping and climate action.

Chapter 3: Methodology

This chapter outlines the methodology underpinning the study, prefaced by a discussion of researcher values and positionality. Following this, the chapter discusses the theoretical framework of the research, the research approach and design, data collection methods, data analysis methods, and participants and recruitment. Finally, this chapter outlines ethics and credibility, and discusses the strengths and limitations of the research.

3.1 Researcher Values and Positionality Statement

3.1.1 Researcher Values

To my pedagogical practice, I bring my background in human rights and my training as a social studies teacher. My pedagogy is grounded in transformative education, based in solutions and hope, and aims to be inclusive of experience and viewpoints. I aim to challenge traditional educational models, and focus on ways to make learning more relevant to students through passion projects, hands-on learning, and community based learning.

I have maintained a commitment to climate since my early teen years. I was raised in a small community in rural Manitoba, on the edge of the Canadian Shield, where I was able to deeply connect with nature throughout my upbringing. Because of this connection, I became increasingly protective of the environment as I became older and aware of more complex climate issues. Throughout my life, I have participated in climate rallies, assisted in climate-related community organizing, and worked in various settings which work to educate and empower young people to engage in climate work. I

am a member of the BC Green Party, and participate in party elections and events. Recognizing this position, I remained attentive to the possibility that my own values regarding climate action could influence data interpretation. In my daily life, I aim to make choices which are least invasive and detrimental to the environment, such as eating less meat and cycling to work. While individual action is important, I am of the belief that climate action must also be taken by governments, organizations, and corporations to fully ensure a healthy climate future.

I am no stranger to experiencing complex climate emotions. In the spring of 2021, a wildfire caused by a spark on a train track rapidly spread in Northwestern Ontario, near our family cottage at Willard Lake. The days while we waited for the fire to be contained were full of anxiety, fear, and worry. The fire destroyed approximately 580 hectares of forest, including forest surrounding lakes which my family has canoed in and camped at for almost ten decades. The aftermath of the fire was emotionally devastating. Seeing how the land has regenerated itself over the last four years has been a hopeful reminder. Working with students, especially in IGS, has been a powerful experience which helps me balance my climate emotions between more difficult emotions and maintaining a sense of hope and inspiration.

3.1.2 Positionality Statement

As a teacher and researcher, I engage with this study in a dual role. My perspective is informed by a pragmatist-interpretivist worldview, grounded in the belief that climate education must address the knowledge, experiences, and emotions of youth learning about climate. I recognize the power dynamics which are inherent in

studying students in educational settings, especially since I have known many of the students since I began working closely with the Institute for Global Solutions (IGS) at Claremont Secondary in 2021. I sought to mitigate these dynamics through voluntary participation, confidentiality, and the creation of open and respectful spaces for sharing. My interpretation of the students' experiences with climate education, emotions, and coping is inevitably shaped by my own values, pedagogy, and personal commitment to climate action. By acknowledging these influences, I aim to remain transparent about the ways in which my positionality informs the questions I ask, my methods, and the meaning I draw from the data I have collected.

As Nowell et al. (2017) suggest, prolonged engagement to understand the context of a study is key. I have been engaged with the IGS program as both a university student in an observational context and as a substitute teacher since 2021. In these four years, I have been able to follow certain cohorts from grade nine to grade twelve, be immersed in curriculum, assist with action projects, and chaperone trips. Because of my prolonged engagement with the IGS program, I have been able to witness and understand its goals, impacts, and student experience.

3.2 Theoretical Framework

This research is a case study drawing from pragmatic and interpretive approaches. The case study is intrinsic by nature (Stake, 1995) due to the researcher being a secondary teacher. As explored by Lukenchuk and Kolich (2013) interpretive and pragmatic worldviews interact with one another in complementary ways. These theoretical concepts provide a basis for the research design, framing, and analysis of

this research. Pragmatism supports the study's interest in education implications and practical outcomes, whereas interpretivism supports the exploration of participant experiences and meaning-making processes.

A pragmatist approach to research is solutions-oriented at its core (Merriam & Tisdell, 2016), which lends itself to investigating better supports for youth coping with climate emotions. A pragmatist approach is well-suited to this study, as it seeks to understand both student emotional experiences and identifies ways educational practices can better support constructive coping and engagement. In this sense, knowledge is generated with the intention of informing action within educational settings. An interpretive approach is also central to the research, as this study aims to understand how students make meaning of their emotional responses to climate change within a specific educational context. Instead of treating emotions as fixed, this perspective recognizes them as shaped by context and experience.

This research project is a mixed methods case study which uses surveys to quantitatively measure climate emotions in education and uses a focus group to qualitatively understand climate emotions in education. The integration of these methods reflects the complementary nature of both interpretivism and pragmatism. Survey data allows for a broader overview of patterns in student emotional responses, which aligns with pragmatism. The focus group allows for deeper exploration of lived experience, which is consistent with an interpretive approach. Merriam & Tisdell (2016) define a case study as an "in-depth description and analysis of a bounded system" (37). The participants in this study are students enrolled in Claremont Secondary's Institute for Global Solutions. As a unique program exclusive to this institution, it represents a

"bounded system" as characterized by Merriam and Tisdell, both institutionally and pedagogically.

3.3 Research Approach and Design

This research employed a survey and a focus group to examine how youth experience climate emotions and how they cope with these emotions as well as the role education plays in their coping. The research constitutes a case study as it focuses on a unique educational program situation within a single-school context. Participants engaged in two data collection methods. The questions guiding this research are:

1. What emotions do youth experience when learning about climate change?
2. What strategies do youth use to cope with climate change and its associated emotions?
3. How does a solutions-based approach to climate education provide an orientation to personal and collective action?

The research used an explanatory sequential mixed methods approach. As Creswell & Creswell (2018) suggest, this approach allows for quantitative results to then inform the design of the qualitative research which will follow. Focus groups following the surveys created richer data and created further insights, as it gives the opportunity to clarify and follow up on the quantitative data (Krueger & Casey, 2015). Krueger and Casey (2015) suggest that focus groups work well for understanding emotions, behaviours, and efficacy of programming. Surveys can help provide insights into more personal data, as well as providing numerical data on percentages of students who are

feeling climate emotions or percentages who identify with constructive/nonconstructive coping mechanisms.

3.4 Participants & Recruitment

Participants were recruited from one grade 10 class and one grade 12 class at Claremont Secondary from within the Institute for Global Solutions program. Students were recruited by the researcher, at a convenient time arranged by the grade 10 and grade 12 IGS teachers. Students had the opportunity to hear about the research project, ask any questions, and review the recruitment letter and receive the consent letter. Student participation was completely optional, and as per Saanich School District policy, all students required parental consent to participate in the study. Thirty-five students from the grade 10 class consented to participating in the survey, and twenty-six consented to the survey in grade 12. In total, 61 students participated in the survey. Students in both classes received their surveys separately during their own class time. Surveys took approximately twenty minutes for students to complete. The focus group consisted of eight students, four from each grade who were randomly selected from the consent letters. The consent letters were sorted into letters which indicated interest in focus group participation and those who did not indicate interest. The letters were then shuffled to randomize, and four students were then selected from each grade at random. The researcher then notified the IGS 10 and 12 teachers as to which students had been selected, who then notified the participants individually. The students in the focus group met in a comfortable, distraction free conference room within the school

during lunch hour. They were encouraged to eat their lunch during the focus group. The focus group took approximately 45 minutes.

The focus group design is consistent with recommendations of Krueger and Casey (2015), who suggest a focus group size of 10 or lower, and suggest participants are from one homogenous group. In this case, the group was homogenous to the IGS program, and does not involve students who are not in the program. Krueger and Casey (2015) also suggest that participants should have something meaningful in common to create trust and facilitate an open sharing environment. Participants all know one another, have all had experiences in IGS with one another working together on projects, and have been on trips together as part of the IGS program, such as overnight camping and train trips across the country. Krueger and Casey (2015) warn that friendships could impact peer influence during the focus group. Students were randomly selected to mitigate this, however the program is fairly close knit in nature and most students are already friendly with one another.

This research engages in purposeful sampling, more specifically criterion sampling and convenience sampling. Participants selected have relevant and valuable experiences in relation to the research questions. The youth involved in this research meet a criteria of being part of an environmental focused program which often engages in action-based and solution-based learning. This is particularly helpful as researching this group acts as a case study to define the efficacy and impact of such programming, and whether pedagogy focused on hope and climate action could be beneficial to students on a larger scale than IGS.

3.5 School and Program Profile

Claremont Secondary is a public grade 9-12 high school located in Cordova Bay, a suburb of Victoria, British Columbia. Claremont belongs to Saanich School district and is one of three secondary schools in the district. In the 2024/25 school year, Claremont's population was 1,096 students with approximately 100 staff members. The school offers a diverse range of programming and extra-curricular activities in athletics, academics, and the arts. Cordova Bay is an affluent area of Victoria.

The Institute for Global Solutions (IGS) was founded in 2012 at Claremont Secondary by educators Mark Neufeld and Dr. Graeme Mitchell. The program is focused on fostering individuals who are creative and critical thinkers, are resilient, and feel confident to tackle some of the complex problems our world faces. The pedagogy of IGS is based in transformative learning, interdisciplinary education, hope, and is solutions-oriented (Mitchell, 2018). IGS has approximately 40 to 50 students per grade, which approximates to 160-200 students in the program every school year. Students are accepted in grade nine on an application basis, and most continue with the program throughout their time at Claremont. The program has no fees for grade nine and ten. Once the students reach grades eleven and twelve, fees are \$175 and \$350 respectively. These fees cover guest speakers, field trips, and action projects.

IGS is co-taught between four teachers, with two teachers for each grade. The educators have backgrounds in science, social studies, and climate studies. IGS is an interdisciplinary program, focused on history, politics, social justice, and climate. For all IGS course offerings, BC curriculum is followed with special emphasis on these topics. Because curriculum in BC is geared towards teacher autonomy, IGS teachers have the

opportunity to enrich existing curriculum or focus on certain themes more than others. In grade nine, IGS is linear and follows the grade nine social studies and science curriculum. In grade 10, IGS is offered in the second semester, and follows grade 10 social studies and science curriculum. In grade eleven, IGS is offered in the first semester, and follows social justice twelve and political studies eleven curriculum. In grade 12, IGS is offered in the second semester and follows environmental science twelve curriculum. Students in all grades embark on community action projects, engage with local politicians and changemakers, and have frequent opportunities for hands-on learning. Once students reach grade 12, they engage in a semester-long capstone project which allows students to take on an issue within their community they are passionate about. Example projects from past years include fundraisers for local shelters, beach cleanups, intergenerational educational initiatives with elementary students, school garden revitalization, and school-wide naloxone training.

The program also centers experiential learning, as students have the opportunity throughout the program to travel to Galiano Island, Haida Gwaii, and participate in a cross-Canada train trip. On Galiano Island, students engage in workshops on the intertidal zone, permaculture, native plants, and renewable energy. On Haida Gwaii, students spend time at the local high school to exchange experiences with new peers . During the 'Rails to Relevance' trip, grade 11 students travel from Victoria, BC across Canada by train and plane. Students visit Jasper, AB, Winnipeg, MB, Quebec City and Montreal, QB, and Ottawa over ten days of travel. Throughout the trip, students learn about Canadian history, environmental issues, and Canadian politics. Former Green Party leader Elizabeth May often speaks to the students in Ottawa, giving them a tour of

the House of Commons. Every year, students complete an interview project along the way. In small groups, students create questions related to climate, politics, or social justice to ask willing participants they meet along the journey. In the 2024 trip, students interviewed residents of Jasper, AB, which proved to be especially poignant considering the recent wildfire which had destroyed significant parts of the town months previous. Not only does the trip deepen connections between students, but it encourages them to make connections with people they meet along the way. Students are exposed to people who are different from them, with diverse experiences, and with diverse viewpoints different from their own. Not only do students gain knowledge about Canada, but they build skills in communication, problem solving, creativity, critical thinking, while strengthening personal autonomy and confidence.

Many former students of IGS go on to be involved in community action, climate work, or policy work. Most notably, IGS alumni Emily Lowan was recently elected as the leader of the BC Green Party in October 2025. In his 2018 research interviewing former IGS students, Mitchell documented how the program's focus on community building, real-world experiences, and applying knowledge in meaningful ways had lasting impacts on the students. Community building through classroom experiences and field trips encouraged students to take risks, build confidence, reflect, and experiment (Mitchell, 2018). Engaging in real-world experience outside of the classroom to experience real challenges and solutions encouraged students to develop confidence as well, and deepen understanding of curriculum (Mitchell, 2018). By taking on meaningful projects during their time in IGS, participants reflected how their autonomy developed, helped them out of their comfort zones, strengthened team building, and strengthened conflict

resolution skills (Mitchell, 2018). Overall, students reflected on IGS contributing to their ability to transform perspectives, engage in rational discourse, reflective action, and critical self-reflection (Mitchell, 2018).

3.6 Data Collection

3.6.1 Survey Data

Data were collected both quantitatively through surveys and qualitatively through focus groups with students from grade 10 and 12 at Claremont Secondary's Institute for Global Solutions. The research instrument contained three sections: demographics; Li and Monroe's 2018 Climate Change Hope Scale (CCHS); and climate emotions and coping, informed by Galway et al.'s forthcoming 2025 research. The CCHS was created to measure hope in high school students within the context of climate change education (Li and Monroe, 2018). In 2018, Li and Monroe validated the CCHS as a tool to measure climate hope. Li and Monroe (2018) suggest that the CCHS can be used to assess the efficacy of climate change education programs. Although originally tested in the USA, Li and Monroe (2018) state that it can be easily adapted to students of different backgrounds or cultures. The survey consists of 11 questions, which can be responded to on a Likert scale of -3 (strongly disagree) to 3 (strongly agree). The questions on this scale correlate to Lazarus & Folkman's (1984) three types of coping, which is commonly discussed in the climate coping field. The questions also relate to mentions of individual versus collective action in regards to the climate crisis. Students were asked several questions about their demographics and identity, which serve to understand which perspectives are included in the data and which are not, which will

contribute to understanding the limitations of the findings. A question related to ethnicity from the Statistics Canada 2021 Census was used. Finally, one open-ended question was included at the end of the survey, which offered students the opportunity to outline their personal coping strategies related to climate change. Question numbers 2 & 3 are from Galway et al.'s forthcoming 2025 research and are informed by Galway and Field's 2023 study of climate emotions in young people, which suggests that climate anxiety is prevalent with Canadian youth, and that diverse interventions are needed both inside and out of the education system to support youth cope with climate emotions. To view the survey tool employed in the study, refer to Appendix A.

3.6.2 Focus Group Data

Eight students participated in the focus group, four from grade 10 and four from grade 12. Participants were chosen randomly from consent letters which indicated interest in focus group participation. Participants met with the researcher over the lunch hour as to not interfere with their classes. The focus group took approximately forty-five minutes. Participants introduced themselves, and described any previous involvement in climate action. Participants were encouraged to answer questions "popcorn style", and add on to one another's ideas. The focus group consisted of five questions, some with follow up questions based on how the group responded. See Appendix B for semi-structured focus group questions.

3.7 Ethics

This research project received ethical approval from Lakehead University in April of 2025, complying with policies and procedures of both Lakehead University and Saanich School District #63, where the research took place. The research project did not involve more than minimal physical risk or psychological harm to the participants, did not use high-risk testing instruments, did not involve discovery of involvement in illegal activities, did not involve members of a vulnerable population, and did not involve or impact First Nations, Métis or Inuit populations as an incidental representative group in research. There were no conflicts with any laws in British Columbia, and no incentives were offered to participants.

All participants were fully informed of the purpose, procedures and expectations of the study prior to participation. As required by Saanich School District's Administrative Procedure #290, both student and parental consent were obtained. Students were given two weeks to review the information letter and consent forms, ask questions, and return signed forms. To minimize potential researcher influence, the classroom teachers distributed and collected the consent forms. Participants were informed that their participation was entirely voluntary and that they could withdraw at any time, for any reason, without penalty. Focus group participants could withdraw up to one week following the focus group session. One student chose to withdraw, and another was randomly selected to replace them from the consent form envelope.

This project was not expected to offer more than minimal risk to its participants. There are no foreseen direct harms to the participants, however, some participants may experience emotions related to climate change, such as anger, anxiety, sadness, or grief during the surveys and focus group. The questions in the survey and in the focus

group were not designed to evoke emotional responses, but participants may have experienced some emotions during participation. Consequently, participants were reminded of the school counsellors at Claremont Secondary who were available to connect with students one-on-one if needed. Further, participants in the survey and the focus group received a resource sheet with information on coping with climate emotions.

The confidentiality of the participants was maintained throughout the project. Data collected from the focus group was coded using random identification codes and a log of the codes to participants was kept on a password-protected computer. In the information letter, participants were informed that research participant names will remain confidential throughout the project and in any written or oral reporting of the findings. Any potentially identifying information (information that may reasonably be expected to identify an individual, alone or in combination with other available information) was removed to ensure confidentiality. No true names will appear on any reports. Students who participated in the focus group were assigned pseudonyms. The grade 10 participant pseudonyms are Maggie, Drew, Casey, and Alexis. The grade 12 participant pseudonyms are Rachel, Beth, Jesse, and Stella. To the extent possible in qualitative research, the student researcher has aggregated findings in presentation of the data.

Only the research team had access to the survey and focus group materials and any identifiable materials (including the signed electronic consent form). As per Lakehead University policy, electronic files are stored on a password-protected computer. Files are stored on a password-protected folder on the researcher's

computer. Any hard copy materials are kept in possession of the student researcher. Data (audio recordings and transcripts) will be stored by Maren Tait for 7 years after the completion of the study. Hard-copies of any materials are kept in a locked cabinet at Maren Tait's home.

The student researcher is employed by Saanich School District as a teacher. Therefore, the researcher personally knows the students invited to participate in the study as she has taught them, and continues to teach them on occasion when their regular teachers are absent. To clearly separate roles, the students were made aware that participation in the study will not impact their grades or the student-teacher relationship, and that all data collected was confidential.

3.8 Data Analysis

Firstly, students participated in an anonymized survey which aimed to seek clarification as to how the group participates in coping with climate change, and how they view their climate education. These answers were then analyzed for themes and common responses, which informed the focus group. Secondly, participants engaged in focus groups on constructive coping around climate change broadly and education, specifically. The focus group provided further insights into gaps, grey areas, or patterns observed in the surveys.

Descriptive statistics were used to summarize the survey data ($n=61$). The survey data was cleaned for errors. The numerical survey data was input to a spreadsheet to calculate the averages, means, and distribution. For survey data on

climate emotions, responses were aggregated to determine the mean for each emotion. Responses were also aggregated by number of responses per question per ranking on the scale of 1 (not at all) to 5 (strongly) to visualize the distribution of responses. Descriptive statistics were used to analyze the survey data, as Li and Monroe (2018) used when developing the CCHS. For the CCHS data, individual survey responses were input to a spreadsheet, where each survey was assigned a number. Rankings for each question were then input for each survey, from -3 to 3. From this stage, an average “hope score” was calculated for each individual using the average of their responses. After all 61 individual responses were input, an average “hope score” for the group of participants was calculated. CCHS responses were also aggregated by number of responses per question per ranking on the scale to visualize the distribution of responses.. For survey data on coping skills, each coping skill was ranked by most frequently used, and then calculated into a percentage to visualize how participants are coping with climate change and climate emotions.

Subgroup analysis was used to determine any discernible differences between the grade 10 group and the grade 12 group. Subgroup analysis was not used to determine gender or ethnicity differences as this falls outside the scope and capacity of this research. To perform subgroup analysis, means, averages, and distributions of the climate emotions, CCHS, and coping skills were compared using visualizations. Overall, there were no outliers in the data, as all data points were very close in percentages, averages, and means for both grade 10 and 12.

At the end of the survey, participants were provided with an open-ended question which asked: “Is there anything you would like to add about the ways in which you cope

with climate change, or how you view education's role in helping young people cope?".

The open-ended survey question and the focus group data were coded together and coded inductively (Braun & Clarke, 2006), as there was no pre-existing coding

framework. As suggested by Braun and Clarke (2006), the transcript was read over multiple times to familiarize oneself with the data, then initial codes were generated.

Once codes were solidified, themes were identified to inform findings (Braun & Clarke, 2006). It should be noted that member checking was not used for the focus group.

3.9 Credibility

To enhance the credibility of this research, multiple strategies were used to ensure the findings are accurate and authentically represent the perspectives of the participants. Nowell et al. (2017) suggest transferability, dependability, confirmability, and reflexivity are key in research credibility. Throughout the study, I engaged in prolonged engagement with the participants, through classroom visits pre-research to discuss the project, distribution of surveys, and a focus group post-survey completion to allow for deeper responses. Peer debriefing was also ensured as my thesis supervisors, Drs Field and Galway, were consulted during the data analysis process to discuss interpretation. Data triangulation was used to enhance credibility by doing both surveys and a focus group. This, alongside documentation of every stage of work, has contributed to dependability of the research. A rich description of the IGS program and its participants has been provided, contributing to the transferability of this research should other programs like IGS be studied in a similar context. Confirmability and reflexivity have been considered, as the results are grounded in data, not personal bias.

3.10 Strengths and Limitations

Due to the scale and context of the study, there are a few limitations which may present themselves. Firstly, the sample size is limited to the IGS program. While this can provide unique insights into how specialized programming impacts students, it can also be limiting as findings of this study cannot be applied to the general student population. Due to capacity, funding, and time constraints, this study cannot be conducted on a larger scale and can only engage a small number of students. Secondly, representation of perspectives is a limitation within IGS. The students who are a part of IGS are generally in a middle-upper income bracket, meaning the perspectives of lower-income students are not necessarily included. Olsen et al. (2024) have noted a need for more diverse perspectives to be included in climate change education research. While this research did include multiple cultural identities and genders, it was limited as Claremont is located in a middle-upper class area. Further, this research did not seek to gain perspectives of specific groups of youth, rather youth within a specific program. Therefore, it does not and could not address certain gaps identified by other researchers in the climate education field.

IGS is also a program which attracts students interested in climate issues, therefore the findings from this study cannot be applied to the broader student population of Claremont or youth in general. Because of capacity and time constraints, it was not possible for data to be analyzed based on ethnicity and gender, as this fell out of the scope of the study. Youth may also have responded in ways they thought were “right” or “desired”, even if that was different from their experience, belief, or feeling. This may have also been influenced by my position in the school as a teacher. In the

open-response question of the survey, youth focused primarily on helpful modes of coping. While this is useful to the study, it should be recognized that youth may not be aware of the ways in which they cope constructively or non-constructively. Lastly, the context of the study may provide some limitations. The students are given the opportunity to share their experiences in both survey form and in focus groups with their peers. Surveys will be completely confidential, and participation in the survey and focus groups is completely voluntary. Since the surveys and focus groups had a focus on emotions, some students may not feel comfortable sharing their full experience as mental health is a highly personal topic. The focus group only ran for 45 minutes, which does not allow great depth in the data.

Challenges faced during the data collection phase mainly surrounded time and consent forms. It took significantly longer to get consent forms signed, partially because forms needed to go home to get parental signatures. Originally, students were given one week to return their forms. Because of the initial low return of forms, the deadline was extended by two weeks in order to get a sample size large enough for the research project. Because the research was conducted at the end of the school year, it was difficult to find time to get all students together for the focus group. Absenteeism was also a challenge, particularly for the grade 12 cohort, as about ten students were absent the day of the survey distribution. Because of the printed format, only 31/61 students answered question #11 as it was easy to miss. Therefore, the results of this question are potentially unreliable. Finally, this study does not use a pre/post design, so it is not possible to state with full confidence any impacts of IGS on emotions, coping, and climate action.

It should also be noted that as Wu et al. (2023) states, climate emotions are unstable and often fluctuate. Therefore, depending on what students were learning about, experiencing, and seeing in the media, their reactions to climate change may differ. This research took place in the spring of 2025, when wildfires were burning out of control in Manitoba and Ontario. Because of this, student responses may have been particularly impacted by the media coverage of this disaster. If this research were to be conducted during a different month of 2025, or in 2026, student responses may have varied due to aforementioned reasons.

Strengths of this research lay in its prioritization of youth voice and experiences. Participants benefit by having the opportunity to share their experiences with climate emotions, coping, and education. Participants also have a chance to make suggestions as to how the education system can better support students experiencing climate emotions, and better engage students in climate action. This study will benefit three areas of society. Firstly, it will expand the literature surrounding climate emotions, coping, and education, which is a fairly limited field. Secondly, it has potential to provide insights to educators, schools, and curriculum to better fit the needs of students facing climate emotions. Thirdly, the proposed research has potential to inspire further climate action initiatives within school settings, empowering young people to engage with their communities.

4. Findings

4.1 Overview of Findings

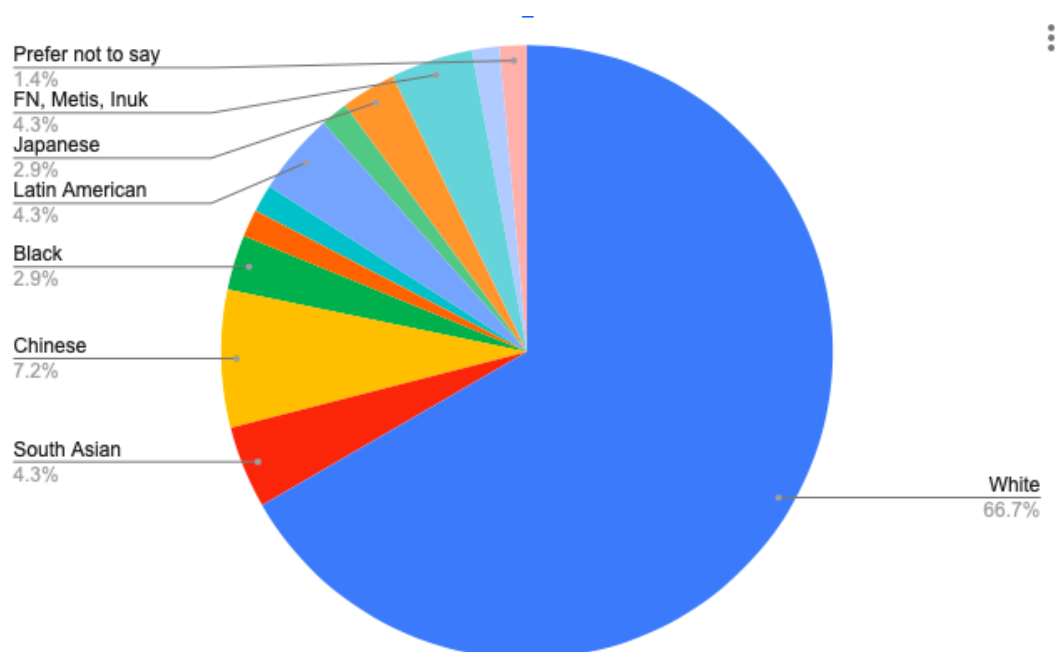
This chapter presents the findings from both the quantitative survey and the qualitative focus group data collected from participants in the IGS program, grade 10 and 12, in the spring of 2025. The findings suggest that youth in the IGS are experiencing a wide range of emotional responses in relation to their climate education, and frequently employ diverse coping mechanisms. Across both datasets, participants communicated the emotional complexity of climate change, and the data show a positive influence that hope-based and solutions-oriented education has on their learning and well-being. The grade 10 and 12 datasets have been combined, as there are no major differences or outliers in either dataset.

4.2 Demographics

In total, 61 students participated in the survey, with 35 students from grade 10 and 26 students from grade 12. The majority of participants identified as white (66%), with Chinese (7%) being the second most commonly reported ethnicity. Many of the respondents indicated more than one ethnicity. These proportions closely mirror the 2021 British Columbia census for the general population (Statistics Canada, 2021). For contextual purposes, the grade 12 cohort of 2025 contained a much higher international student proportion than previous years, at around $\frac{2}{3}$ of students being Canadian and $\frac{1}{3}$ being international. International students are learners from across the globe who are completing a short stay in Canada (six months to a year) and are not permanent residents. Because the survey did not specifically ask for country of residence or origin,

numbers of international students who participated are based on observations from spending time in the IGS program. 48% of participants identified as male, 45% as female, 3% as gender-fluid, 1.5% as non-binary, and 1.5% preferred not to say. 44% of participants were aged 16-17, 34% were 14-15, and 21% were 18 or over.

Fig. 1: Ethnicity demographics of survey respondents



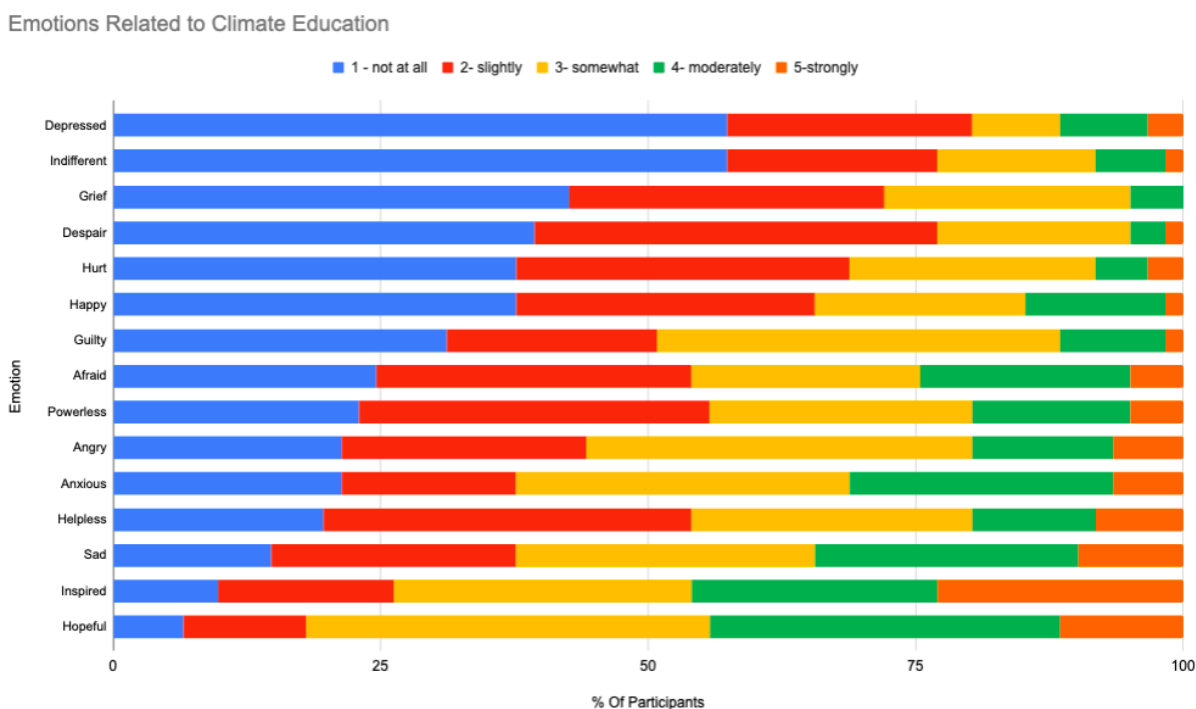
The focus group consisted of four grade 10 students and four grade 12 students. Pseudonyms have been assigned to protect the confidentiality of the participants. Grade 10 participants include Maggie, Casey, Alexis, and Drew. Grade 12 participants include Rachel, Beth, Jesse, and Stella. To protect the confidentiality of participants, further demographics were not asked of the focus group participants other than grade level.

4.3 Survey Findings

4.3.1 Climate Emotions

Survey participants were asked to reflect upon how learning about climate change makes them feel by rating their climate emotions. The specific set of climate emotions is based on Galway & Field's (2023) research on Canadian youth climate emotions. Some of the difficult emotions reported by youth are sadness, helplessness, anxiety, fear, anger, guilt, hurt, depression, despair, grief, powerlessness, and indifference. In the survey instrument, students rated their emotions according to the following scale: 1 (not at all), 2 (slightly), 3 (somewhat), 4 (moderate), and 5 (strongly). The IGS data indicate that youth are experiencing a wide range of emotions related to their climate education. The IGS cohort surveyed did not report a high prevalence of difficult emotions like depression, indifference, or despair at alarming rates. Based on survey data, the IGS participants demonstrated strong levels of hope and inspiration.

Fig 2: Climate emotions of participants



Note: Results were calculated by adding together the total number of ratings per frequency per emotion and finding the mean. Percentages were calculated by dividing the number of students who responded to a particular frequency divided by the total number of responses for one particular emotion.

Overall, the participants rated inspired (46%), hopeful (44%), sad (34%), and anxious (31%) as their most strongly felt emotions. These ratings are the “strongly” and “moderately” responses combined. Depressed (80%), indifferent (77%), grief (72%), and despair (77%) were their least felt emotions. The figures for these categories were derived by aggregating the “slightly” and “not at all” selections. The ratings for emotions such as inspired and hopeful are not rated as strongly on either end of the scale, compared to ratings for emotions like depression and indifference, which are notably rated strongly at “not at all”.

Table 1: Most/Least Strongly Felt Emotions When Learning about Climate Change

Most Reported Climate Emotions	Least Reported Climate Emotions
Inspired (23% Strongly, 23% Moderately)	Depressed (57% not at all, 23% slightly)
Hopeful (12% Strongly, 33% Moderately)	Indifferent (57% not at all, 20% slightly)
Sad (10% Strongly, 25% Moderately)	Grief (43% not at all, 30% slightly)
Anxious (7% Strongly, 25% Moderately)	Despair (39% not at all, 38% slightly)

Emotions with the greatest variation were anxious, sad, and inspired. Anxiety is the most varied, with 37% feeling “not at all” to “slightly”, and 31% feeling “moderately” to “strongly”, suggesting a considerable divergence in emotional response. Similarly, 27% of students felt “somewhat” sad, while 25% felt “moderately” sad and 23% felt “slightly” sad. While inspired was ranked as the most strongly felt emotion, it is also one

of the most divisive, with 46% feeling “strongly” to “moderately” inspired, and 26% feeling “not at all” to “slightly” inspired.

4.3.2 Climate Change Hope Scale

Within the survey, participants completed the Climate Change Hope Scale, developed in 2017 by Li and Monroe to understand an individual's degree of hope/hopelessness in the face of the climate crisis. Overall, participants demonstrated medium to high levels of hope, commonly agreeing with statements that position the climate crisis as solvable and disagreeing with statements that position it as out of control.

Participants mostly agreed with or strongly agreed with statements which indicate individual, collective, and societal efficacy in solving the climate crisis. Participants mostly disagreed or strongly disagreed with statements which position the climate crisis as insolvable and out of individual control. The most divisive statement was, “the actions I can take are too small to help solve problems caused by climate change.” Due to a formatting error, 13/61 respondents did not answer statement 11 as its placement within the survey may have limited visibility. Of the 48 respondents who did respond, 21% agreed with the statement, and 21% slightly disagreed with the statement, making it the most varied response. It should be kept in mind that these results are not indicative of all participant sentiments as they represent 48/61 participants.

The difference between the statement “I know that there are things I can do to help solve problems caused by climate change” and the statement “I know what to do to help solve problems caused by climate change” was notable. While 82%

agreed/strongly agreed they know there are things they can do, only 37%

agreed/strongly agreed they know *what* to do. Based on this evidence, students have a sense of high self-efficacy but lack concrete steps to take action on climate issues.

Fig 3: Climate Hope Scale Distribution of Response

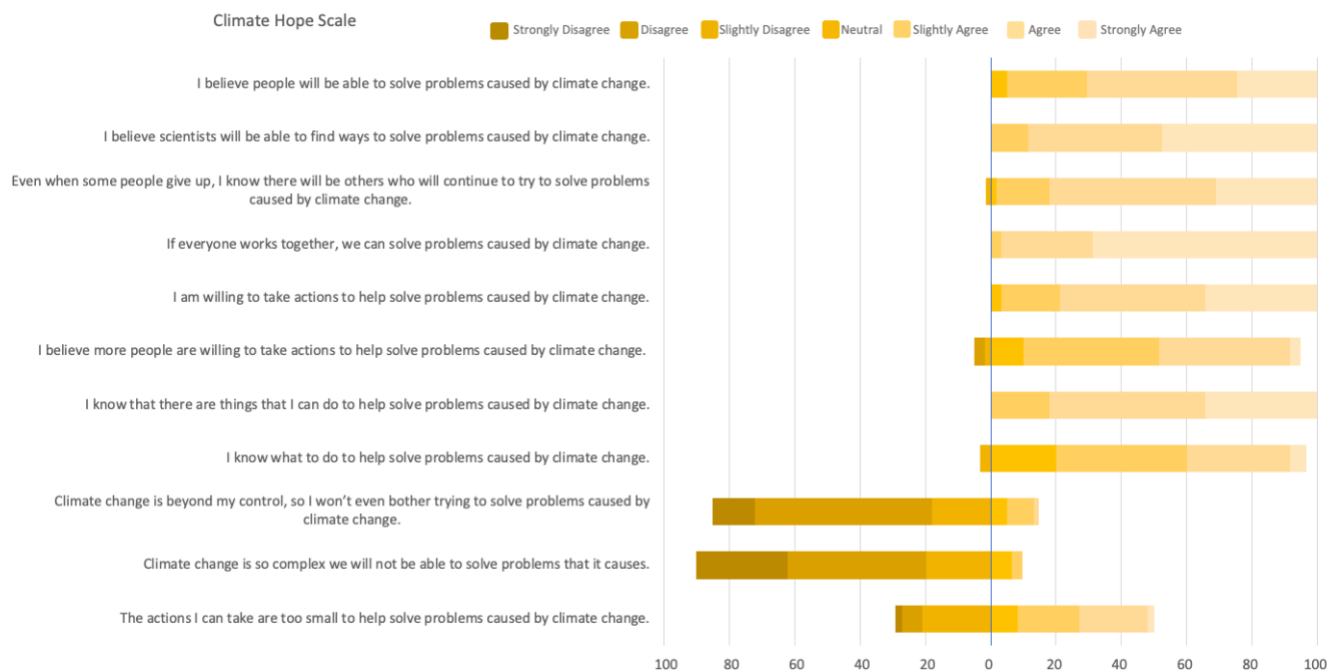
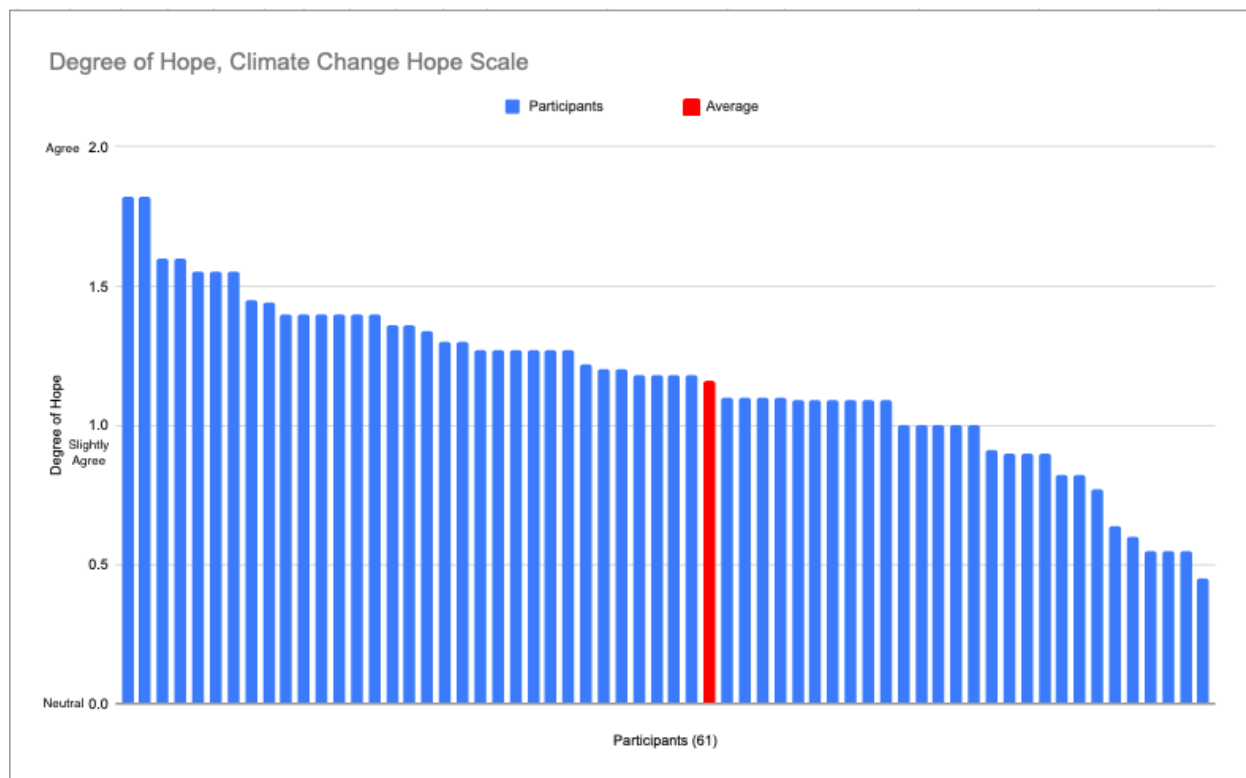


Table 2: Most Agreed Upon and Most Disagreed Statements from Climate Hope Scale

Most Agreed Upon (strongly agree + agree)	Most Disagreed Upon (strongly disagree+ disagree)
If everyone works together, we can solve problems caused by climate change (69% strongly agree, 28% agree).	Climate change is so complex we will not be able to solve problems that it causes (28% strongly disagree, 43% disagree).
I believe scientists will be able to find ways to solve problems caused by climate change (48% strongly agree, 41% agree).	Climate change is beyond my control, so I won't even bother trying to solve problems caused by climate change (13% strongly disagree, 54% disagree).
I know that there are things I can do to help solve problems caused by climate change (34% strongly agree, 48% agree).	

Even when some people give up, I know there will be others who will continue to try to solve problems caused by climate change (31% strongly agree, 51% agree).

Fig. 4: Degree of Hope from Climate Change Hope Scale



On a possible scale of -3 to 3, the average degree of hope among the participants is 1.16, translating to a “slightly agree-agree” response. This indicates a general trend towards mild-moderate hopeful perspectives. The highest degrees of hope were 1.82 (two participants), 1.6 (two participants), and 1.55 (three participants). The lowest degrees of hope were 0.45 and 0.55 (three instances). There were no participants whose hope was below zero or above two. Overall, the CCHS findings suggest that participants generally approach climate issues with a cautious hope,

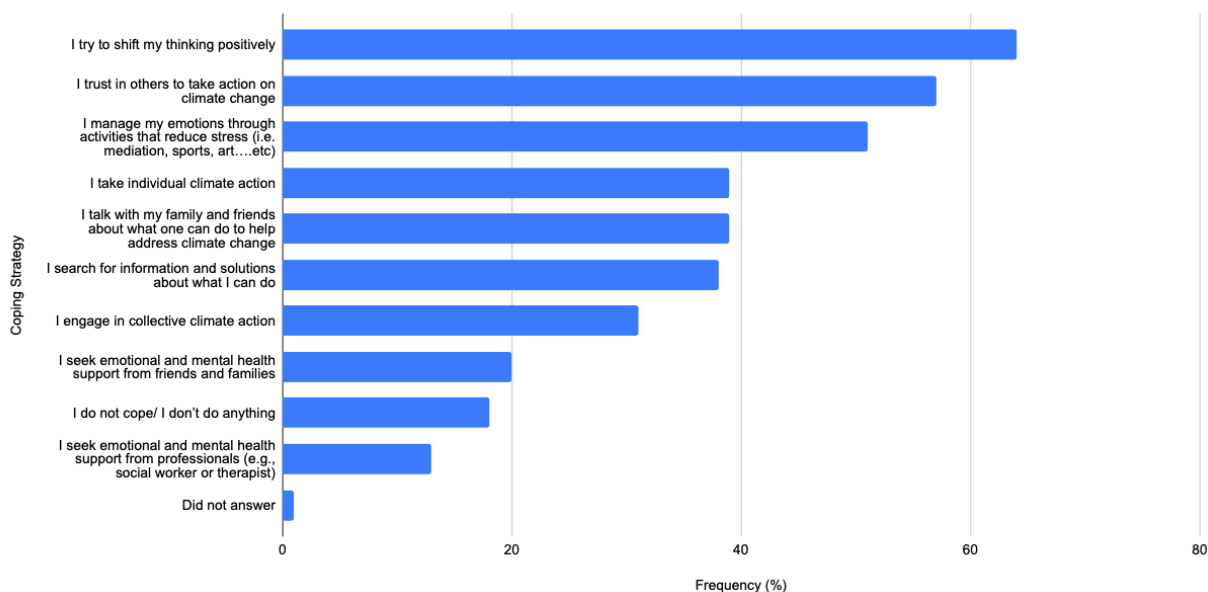
balancing awareness of challenges with belief in themselves and others to problem solve.

4.3.3 Coping

Participants reported engaging in multiple coping strategies to manage their climate emotions. The most commonly reported coping strategies include trying to shift thinking positively (64%), trusting in others to take climate action (57%) and managing emotions through activities that reduce stress (51%). Moderately common strategies include taking individual climate action (39%), talking with family and friends about what you can do to help climate change (38%), and engaging in collective climate action (31%). The least reported coping mechanisms included seeking emotional and mental health support from friends and family (20%), not coping or doing anything (18%), and seeking emotional and mental health support from professionals (13%). These patterns suggest that participants are engaging in cognitive reframing and holding trust in others and community to cope, while more formal coping behaviors are less utilized. It should be recognized that all participants chose multiple coping strategies, and while there were more frequently reported coping strategies, students are engaging in multiple coping strategies simultaneously.

Fig. 5: Coping Strategies

Coping Strategies



4.4 Focus Group and Open-Ended Questions

Qualitative analysis was applied to the focus group data and the open-ended question from the survey. The focus group was forty-five minutes with eight participants who were randomly selected from the grade 10 and grade 12 cohorts of IGS. The focus group had four from grade 10 and four from grade 12. The participants' pseudonyms are Maggie, Drew, Casey, Alexis, Rachel, Beth, Jesse, and Stella. Four major themes emerged from the thematic analysis of focus group data and open-ended question data. Firstly, the emotional aspects of climate change education are experienced in multidimensional ways. This can include both positive emotions and more difficult emotions. Secondly, participants expressed multiple ways of coping. This includes individual and collective strategies to manage emotional responses to learning about climate change. Thirdly, participants recognized the impact of transformative education on their climate emotions. Participants frequently identified hopeful and solutions

oriented learning as impactful on their management of climate-related distress. Lastly, participants frequently referenced the complex role of media. On one hand, it can act as a tool for awareness and advocacy, while on the other it can be a source of climate distress.

Table 3: Themes, Sub-themes and Codes

Themes	Emotional aspects of climate change education	Multiple ways of coping	Transformative Education	Complex Role of Media
Sub-themes	-Simultaneous emotions -Difficult emotions -Positive emotions	-Individual climate action as a coping mechanism -Collective action and community engagement as a coping mechanism -Action-oriented learning through IGS	-Value of hope based and solutions focused learning -Relational and experiential learning -Educational gaps across schooling	-Misinformation & emotional fatigue -Social media as a space for advocacy & education -Seeking hopeful/alternative media -Education as an antidote to misinformation
Codes	-Positive emotion -Difficult emotion	-Mention of IGS -Helpful coping -Unhelpful coping -Action as coping -Climate Action -Collective climate action -Individual climate action	-Education -Mention of IGS -Educational gap -Education & coping	-Media -Traditional media -Social media -Unhelpful coping

4.5 Emotional Aspects of Climate Change Education

Participants described experiencing a wide range of emotions when learning about climate change. They referenced learning through both formal education and informal routes, such as the media or self-interest in the topic. Participant accounts revealed a balance of positive and difficult emotions occurring simultaneously. Data in this section is derived from the focus group and from the open-ended question in the survey.

4.5.1 Focus Group

In the focus group, positive emotions were referenced five times, with hope, optimism, and love for the environment being mentioned. Difficult emotions were referenced eighteen times, which were frustration, anxiety, overwhelm, concern, dread, sadness, and uncertainty. The most commonly referenced emotions were anxiety, with four separate mentions, and dread, with three separate mentions. When referencing positive emotions, youth linked these feelings to their educational experiences within the IGS program. Maggie reflected on a TED Talk that one of her IGS teachers showed them, stating:

[H]e [IGS teacher] basically just outlined all the good things that's happening on a world aspect, like in China and in India and all across the world. And it was just so interesting to hear about that and I think it was really cool to see that and it definitely gave me a lot more optimism, and I still think about it...

Drew reflected that when thinking about climate change, his initial emotions about climate change are positive: "At the front of mind for me is this sort of optimistic, there's

so much we can do, there's so much technology, we can build this amazing future.” In the open responses, three students referenced climate emotions and how they appreciate a hope-based educational approach.

Seven of the eight participants attributed their experience of difficult emotions to climate-related information encountered via news and social media. Stella reflected that “since 2016 seeing stuff on the news just made me really anxious”, which was echoed by Alexis, who stated that last summer, she “was really emotionally affected by the news and media altogether...I couldn't really handle it emotionally.” When prompted to describe primary emotional responses to learning about climate change, Rachel expressed:

I think like frustration because so many people just don't listen and they don't understand that it is a real thing...it's just frustrating to see that so many people are doing things, but then so many people aren't doing things 'cause they just don't necessarily think that it's a real cause.

Drew expressed urgency when thinking about climate change, stating that: “there's the sort of looming dread underneath of like, we're not doing it fast enough”.

Stella expressed frustration about not feeling listened to, stating that:

[it] feels like, why does no one care about the kids' opinions or our opinions...and it can really shatter you as a person as well, I think. And then you cope by just isolating and not caring about your opinion, thinking no one's going to listen, so why even bother?

More difficult emotions were referenced more frequently than positive emotions throughout. Difficult emotions like anxiety or frustration were referenced eighteen times, while positive emotions like hope or optimism were referenced five times.

4.5.2 Open-Ended Responses

Within the survey, students were provided with an open-ended question to elaborate on their coping in relation to climate education. 30/61 students chose to respond to this prompt. Overall, the open responses were less focused on emotional responses to climate change and more focused on coping and educational experiences. In the open responses, one participant expressed they do not feel anxious at all, and trust in climate activists. One participant said they were fearful of climate change before learning more about it, while another commented that it takes an “emotional strain” on them.

4.6 Multiple ways of coping

4.6.1 Focus Group

Participants described using a range of coping strategies to manage their climate emotions. The most commonly referenced coping mechanism was taking climate action, with five out of the eight respondents commenting on using action to cope. All participants expressed participating in some kind of climate action at some point in their life. Jesse mentioned going to beach cleanups and taking action with IGS, Maggie mentioned hands-on work in their community with IGS, Rachel mentioned invasive species removal in local parks, and Stella mentioned being mindful of purchases and

holding friends accountable. Two participants mentioned the importance of educating oneself to reduce stress, as Jesse reflected that “educating yourself because I feel like obviously climate change is a big, daunting thing...But if you understand it more, then it becomes less scary.” All youth in the focus group reflected on engaging in various types of climate action, both individual and collective, including volunteering, attending rallies, invasive species removal, writing letters to politicians, beach cleanups, and online advocacy. Rachel reflected that taking climate action in your community is a way of coping, stating “that can kind of ease your mind a little bit and knowing that you are actually helping the problem and you're helping solve it instead of trying to take on these huge ideas that have been like put out in the media.”

At the same time, participants also recognized that some coping behaviours are not as helpful as others. Maggie reflected on how catastrophizing and compounding climate events can lead to feeling stuck.

4.6.2 Open-Ended Responses

Within the open responses, four participants described that they take individual action to cope. One student recognized how difficult this can be, as climate change can be a daunting concept to take on: “I believe that many people see climate change as something along the lines of “if it's only me, I can't make a dent in solving climate change. So if I can't make a difference, why should I do anything at all?”. Four participants mentioned how education is helpful in coping, with specific mention of how impactful teachers can be, and learning from professionals in the field of climate.

4.7 Complex Role of Media

4.7.1 Focus Group

Media emerged as a prominent theme throughout the youth's responses in the focus group. Media awareness and literacy is a central concept within the IGS program, especially beginning in grade 10. Students are encouraged to think critically about the news and media they consume. Messaging, point of view, politics, disinformation and bias are all key concepts discussed within the program. Participants referenced social media (mentioned 6 times), traditional media like the news (mentioned 6 times), and media as a general concept (mentioned 11 times). One youth, Stella, spoke about using social media to advocate for the environment. She also reflected on managing the various emotions connected to social media:

...social media is a good aspect to spread a word, but it is also very easy to get misinformation and to spiral...spend[ing] hours just looking at bad and bad and bad, even if you're advocating for good, you're still talking about the bad... you're helping spread a good message, but you're still seeing a bunch of stuff that's really draining every day ...and I think a lot of people start to feel hopeless and worthless because you don't feel as important...and it can really shatter you as a person as well, I think...then you cope by just isolating and not caring about your opinion, thinking no one's going to listen, so why even bother?

Rachel reflected on how misinformation and social media algorithms can influence how people view or think about topics like climate change. She spoke about her perception of how people may not think climate change is a real cause, causing inaction. Seven out of the eight youth expressed feeling anxious, upset, or stressed

because of media exposure. Rachel referenced feeling upset by seeing a Tik Tok of American president Donald Trump saying “drill, baby drill!”, a reference to extracting oil and gas. Alexis expressed that social media was negatively impacting her emotions around climate change, and taking a break from it for a month was her way of coping. Jesse admitted that his earlier attempts to “educate” himself on climate issues through doom scrolling were counterproductive, “[I thought] that I was educating myself, but instead I was just feeding myself negative information instead of any positive information.” Maggie emphasizes the value of school being an antidote to misinformation and doom scrolling:

...[school] is where we get most of our information, unless we doom scroll, unless we go down rabbit holes...it's more important that the information that we get in school is good, but it's also like explaining to us why it's happening, how it's happening, and what we can do to prevent it and what we can do to help it.

Casey reflected on using alternative media to cope, encouraged by one of his IGS teachers:

Something that I've started to do this year since being in IGS with [Mr] Mitchell, he always talks about this website...called Fix the News, where it's just a bunch of really, really good hopeful news articles...'cause you know, media doesn't really work that way, they always want to display like the worst stories to grab people's attention.

Stella, Jesse, and Beth all reflected on the impact that social media has on their coping, including going down media “rabbit holes” and the emotional drain that seeing

climate on their feeds so frequently can be. Alexis shared how she recognized the impact social media was having on her, and decided to detox from social media, pivoting to spending more time outside and with friends.

4.7.2 Open-Ended Responses

One student mentioned media in their open response section of the survey, stating that “almost nobody sees any of the positive things that people are doing about climate change (largely due to negative media coverage)...much of the population becomes hopeless and believes that no matter what they do no difference will be made”. Overall, while the media has played a role in motivating some students to act or be advocates, it was more often described as emotionally draining or misleading. Participants noted that the IGS program offers a balanced and solutions oriented framework, which serves to counterbalance the potentially overwhelming nature of their media experiences.

4.8 Transformative Education

4.8.1 Focus Group

In the focus group, participants identified ways in which IGS has been valuable to them in their climate education and identified gaps in their educational experiences. In the focus group, there were twelve positive mentions of IGS. There were no negative mentions of IGS specifically, rather sentiments on what climate education is lacking systemically. Within IGS, participants reflected that they appreciate not dwelling on negatives of climate change, having a hopeful outlook, and being solutions oriented.

One student reflected in the open response that “it’s helpful to learn about climate solutions and successes instead of only what’s going wrong”. One student reflected that they enjoy hearing from professionals working in the climate field, stating that “learning about climate change from the people that are working on that has inspired me to be more aware of the climate issues and how to address them”. Rachel from the focus group commented that a hope-based approach “keeps us engaged to try and fix these problems”. Maggie reflected that

“Part of the reason why IGS is such a good program is 'cause we actually get to get out there and do things that actually show us what we can do to help... Even in your classes, if you are learning about the good sides of climate change, it’s really hard to take those into a personal account if you aren’t kind of actually seeing for yourself what can be done to help...and giving yourself some accountability”

4.8.2 Open Responses

Within the open response, a small handful of students commented on educational experiences, but it was not a major focus. Two participants highlighted an insufficient emphasis on climate change within the education system. Participants expressed a preference for climate curricula that prioritize learning and tangible action strategies. One response contrasted this with studying solutions which feel less personally relevant to them, such as the electrification of transportation. Students also reflected on what they want out of their climate education, including more hands-on opportunities and focus on more specific actions they can take, rather than learning about big changes like switching society to electric vehicles, as one student responded. Two students suggested they don’t worry as much about climate change and do not feel

anxious or worried, citing trust in activists and society. Overall, the data suggest that youth perceive experiential, hope-based and solutions oriented learning as central to helping them cope with climate change. At the same time, they identified a continuing need for systemic improvement in climate education outside of their IGS experiences.

5. Discussion

5.1 Introduction to Discussion

This chapter situates the findings within the broader literature on climate emotions, coping, climate action, and climate education. In particular, the research will primarily relate to Galway and Field's 2023 research on climate emotions and Li and Monroe's development of the Climate Change Hope Scale in 2018. Next, the findings will be compared to research on coping with climate emotions, which leads into a brief section on climate action. A solutions based approach to climate education is also discussed, focusing on effective climate education strategies. Finally, the role of media will be explored, in relation to coping with climate change and perception of climate change. To conclude, this chapter will provide implications for climate education. Overall, the findings are largely consistent with existing research in areas of climate emotions, emotional coping, degree of hope, and effective climate education; however, there are also some important areas of difference, particularly in climate emotions and engagement in collective and individual climate action that this study contributes.

5.2 Emotions and Education

In both the focus group and survey data, it was evident that youth experience multiple climate-related emotions simultaneously, rather than exclusively positive or more difficult emotional responses. The survey data revealed that students felt inspired (46%), hopeful (45%), sad (35%), and anxious (32%) when learning about climate change. Focus group participants similarly reflected that learning about climate change can leave them feeling a mix of optimistic, hopeful, frustrated, dread, sadness, and

uncertainty. These findings are consistent with broader literature on climate emotions, including Pihkala (2022) and Wu et al. (2020) who found that individuals often experience a range of climate emotions rather than exclusively negative or positive emotions.

Notably, the most distributed emotional responses among IGS participants were fear and anxiety. This suggests substantial variation in emotional responses to climate education among participants. Some participants may be highly engaged in climate issues without using constructive coping strategies, leading to heightened feelings of fear and anxiety. Others may feel disengaged or suppress these emotions altogether. This variation further reflects the complexity and diversity of emotions youth experience when learning about climate change, and further research is needed here to fully understand the depth and nuance behind this distribution.

Within the focus group, it was notable that the participants referenced more difficult emotions much more frequently than positive emotions, at eighteen versus five explicit mentions. This differs from the survey data where positive emotions were the most commonly reported two emotions. A possible explanation for this divergence could be groupthink and negativity bias. Groupthink is defined by the American Psychological Association (2023) as a “strong concurrence-seeking tendency” during group decision making or discussion. The predominance of more difficult emotions expressed during the focus group may partially reflect adolescent tendencies. Irani et al (2024) argue that adolescents may “become especially motivated to maintain alignment with their peer group's norms and expectations” (2) in social settings due to heightened neural sensitivity to their peers. Participants may have felt that sharing concern about climate

change with like-minded peers would be socially desirable. Negativity bias could be another explanation, as Rozin and Royzman (2001) argue that humans are more likely to give greater weight or meaning to negative experiences or emotions. The participants may have leaned on others sharing their difficult emotions and experiences and felt inclined to do so themselves. The discrepancy between the focus group and survey findings may be partially explained by the influence of these psychological phenomena, which could have contributed to a greater emphasis on more difficult emotions during the participant discussion. It can also be argued that surveys and focus groups can capture differing aspects of emotional experiences, resulting in differing data.

Levesque & Rocque (2024) argue that a combination of both positive and more difficult emotions can motivate young people to engage in climate action. While much of the existing literature focuses broadly on climate emotions (Brophy et al., 2023; Crandon et al., 2024; Galway & Field, 2023; Wu et al., 2020), a smaller body of research has specifically examined the relationship between climate emotions and education (Levesque & Rocque, 2024; Rushton et al., 2023; Sarrasin et al., 2022). This literature suggests that climate education should incorporate opportunities for students to process climate emotions and engage with them through action. Similarly, findings from this research indicate that students find meaning in engaging with their climate emotions through climate action and through educational approaches that acknowledge both the positive and difficult aspects of climate change.

5.2.1 Climate Emotions Compared to Galway and Field

When compared with Galway and Field's 2023 Canadian survey on climate emotion among youth and young adults, there are several notable similarities and differences. Both studies show "anxiety" as the third most commonly reported climate emotion. The prominence of anxiety across both studies suggests that it may be a persistent feature of youth climate emotions regardless of educational context. Further, in this research, "inspired" and "hopeful" were the most frequently reported emotions, while Galway and Field found "afraid" and "sad" as the most frequently reported emotions. There are also similarities and differences in the least reported emotions. Galway and Field reported "hurt", "grief", "optimistic", and "indifferent" to be the least commonly reported. This is slightly different from the youth responses in this research, which found "depressed", "indifferent", "grief", and "despair" to be the least commonly reported. When comparing the data, it is apparent that students within the IGS program experience more optimistic emotions than the general youth population, but still experience some levels of more difficult emotions. These findings may suggest an association between participation in IGS and higher levels of hope and inspiration.

Galway & Field, 2023	Tait, 2026
Most reported emotions: 1. Afraid 2. Sad 3. Anxious 4. Helpless	Most reported emotions: 1. Inspired 2. Hopeful 3. Sad 4. Anxious
Least reported emotions: 1. Indifferent 2. Optimistic 3. Grief 4. Hurt	Least reported emotions: 1. Depressed 2. Indifferent 3. Grief 4. Despair

Table 4, Comparison of climate emotions between Galway and Field (2023) and IGS Participants

Several methodological differences should also be considered when comparing these findings. Galway and Field's research involved a substantially larger sample size (1000 participants), was a representative cross-Canada study, and included participants between the ages of 16-25. Further, their research was not specific to learning about climate change, rather focused on gathering insights to young people's emotional responses to climate change in general. Galway and Field's research also used a "yes/no" binary to rate emotions, whereas this research used a Likert scale for further insights.

5.2.2 Climate Change Hope Scale

In 2018, Li and Monroe developed the Climate Change Hope Scale (CCHS), which was validated through a study of approximately 1900 American high school students aged 14-18 between 2013 and 2015. Their findings indicated that students were moderately hopeful about climate change, particularly at the collective level (Li and Monroe, 2018). On a scale from -3 (not hopeful at all) to 3 (very hopeful), participants in their study reported an average hope score of 1.1. Similarly, in the CCHS section of the survey, IGS participants scored an average of 1.16 on the scale. This is notable, especially considering differences in geography and educational context. Despite similarities in average hope scores, hope appeared more prominently in participant emotional responses than in Galway and Field's 2023 sample.

The participants in Li and Monroe's validation study expressed greater confidence in collective climate action over individual actions. This pattern is similar to the IGS participants, who expressed high levels of agreement with statements of collective action on the survey. For example, 97% of participants agreed climate change can be solved by everyone working together, 89% placed confidence in scientists to solve climate change, and 82% agreed that when others give up, they know there will be others who will continue to try and solve climate change. It is worth noting that this research was conducted 7 years after Li and Monroe's, in which time climate change impacts have worsened.

5.3 Strategies Used to Cope with Climate Change and Climate Emotions

The findings from this study indicate that IGS students use a broad range of mechanisms to manage climate-related emotions, often simultaneously. The findings suggest a relationship between engagement in climate action, reduced feelings of helplessness, and the maintenance of hope. In the focus group, students reported a reduction in feelings of helplessness when engaging in climate action, either individually or collectively. Similarly, survey data show that 39% of IGS participants reported coping by engaging in individual climate action, while 31% reported coping through collective climate action. The IGS program provides students with opportunities to take action, reinforcing the idea that environmental education must include experiential and hands-on opportunities for students (Monroe, 2019; Ratinen, 2021).

Considering the tripartite coping framework suggested by Ojala (2012), coping is not limited to one pathway among IGS students. There is evidence of significant

meaning focused coping from the students surveyed, as nearly two-thirds reported replacing negative thoughts about climate change with positive thinking. This is regarded by Ojala (2012) as one of the most effective forms of coping.

Overall, IGS students demonstrate both problem and meaning focused coping strategies. This is done through engaging in climate action, and preserving faith or hope that as a society we can solve the climate crisis. This is supported by Maduneme (2024), who suggests that those who believe in group action are more likely to engage in climate activism. Ojala (2012) has identified that youth who engage in meaning focused coping generally experience optimism towards the climate crisis, and were more likely to engage in pro-environmental behaviours, and have higher levels of efficacy related to the environment. This is consistent with IGS students, as they are engaging in meaning focused coping, with 39% taking individual action and 31% taking collective action.

In comparison, Galway and Field (2023) coded for supports youth needed to cope with climate emotions. The most commonly reported mechanisms were seeking support through a therapist/friends/family, and taking collective or individual climate action, both being utilized by 25% of participants. In this research, the most commonly reported coping mechanisms were “shifting my thinking positively” and “trusting in others to solve the climate crisis”, which were utilized by 64% and 57% respectively. These findings suggest that cognitive coping strategies may play a particularly important role among students in the IGS program. However, different measurement approaches were used in this study, which may influence reported coping frequencies.

5.4 Climate Action

Within the survey and focus group, several notable findings emerged surrounding climate action. Participants indicated a stronger emphasis on, and trust in, collective climate action, with 69% of students strongly agreeing that working together can help us solve climate change. At the same time, 20% of participants felt their actions are too small to solve the climate crisis. In terms of behaviour, 39% of participants reported engaging in individual climate action and 31% engage in collective climate action. Although 82% agreed or strongly agreed they know there are things they can do, only 37% agreed or strongly agreed they know *what* to do. These findings suggest that participants generally believe they can contribute to climate action, but lack concrete steps to take action on climate issues. A knowledge-practice gap is present here, representing an educational challenge. This finding aligns with Schwartzberg et al.'s 2022 research, who observed that 70% of Canadian students believe that climate education should include information on how to take personal and collective action. Similarly, Hochachka (2024) argues that knowledge alone is insufficient to drive engagement in climate action, with factors of societal norms and structural barriers limiting individuals on what they can actually do. Early environmental education models have made the assumption that increased knowledge would naturally lead to climate action or pro-environmental behaviour, however Kollmuss & Agyeman (2002) argue that a “knowledge-practice-gap” exists in this space. Pro-environmental behaviour and climate action is not only shaped by knowledge, but also locus of control (internal vs external), emotional engagement, and sense of agency (Kollmuss & Agyeman, 2002).

5.5 Considering a Solutions-Based Approach to Climate Education

Students in the focus group identified ways in which climate education can be ineffective, based on experiences prior to entering the IGS program. Examples from both focus group and survey open responses suggest that approaches focused primarily on climate science content, eliciting fear, lack hands on or practical opportunities are perceived by students as ineffective ways of teaching climate change. In particular, students emphasized that instruction which does not provide information on how to take action or engage with solutions is less meaningful for their learning. This aligns with Hargis and McKenzie (2020), who argue that when climate education focuses exclusively on scientific content without providing tools for action, it can contribute to increased anxiety and feelings of hopelessness. Baker et al. (2021) suggest that avoiding climate change discussions due to concerns about emotional distress may undermine student ability to cope with climate change and the emotions it can generate. Sentiments expressed by students also reflected findings of Field et al. (2023), who suggests that climate education in Canada is often inconsistent, largely science-focused, and provides limited opportunity for student engagement in climate action.

A particularly important finding was that students explicitly connected positive emotional responses to the pedagogical structure of the IGS program, particularly its focus on hope and climate solutions. This finding is supported by Baker et al. (2021), who argue that students benefit from teacher support that prioritizes well-being and fosters hope in the context of climate education. In addition, Levesque & Rocque (2024) identified that fostering a balanced approach in educational settings where students feel

hopeful and urgent about climate change can increase engagement and resilience. Further, this approach can increase student motivation to become involved in climate solutions. Wu et al. (2020) state that educational approaches which prioritize solutions and collective action are positively linked to adaptive emotional responses in students. The findings in this study and from prior research (Baker, 2021; Levesque & Rocque, 2024; Wu et al., 2020) suggest that education plays an important role in actively shaping emotional responses to how young people feel about climate change.

Monroe et al. (2019) have identified two main ways in which climate change education can be effective in their systematic literature review. Firstly, education must focus on personally relevant and meaningful information. Secondly, education must use active and engaging teaching methods. Specific examples included engaging in discussions, interacting with scientists, addressing misconceptions, and implementing school or community projects. Through the focus group, it became apparent that IGS utilizes many of these strategies to engage students in their climate education.

Table 5: Comparing Facets of Effective Climate Education to IGS

Themes Discussed by Monroe et al. (2019)	Description	Examples from IGS
Personally relevant and meaningful	“To make the distant, global, and nebulous threat of climate change personally relevant”; “effect of local contexts on learning” (p.9)	Students learn about climate change and its impacts globally and locally. Students engage with local organizations in Saanich and Victoria to experience local ecosystems and how they are impacted by climate change, contextualizing climate change within their immediate community.
Engaging learners	“Used a variety of engaging, active, and student-centered teaching methods” (p.10)	IGS utilizes teaching methods that go beyond “teacher as expert”. Students are often encouraged to work collaboratively to discuss issues and

		solutions. IGS extends the “classroom” into the community of Saanich, often spending time outside or on immersive trips within BC and across Canada.
Moving beyond basics of climate science	“deliberative discussions”; “interact with scientists and experience the scientific process”; “uncover and address misconceptions” ; “designing and implementing school or community projects”	IGS often invites community members, researchers, politicians, and activists to give guest lectures to IGS students, showing students multiple perspectives and the chance to hear from experts on issues like climate. Students in IGS often engage in volunteer work and student-led community projects to put learning into action.

Chawla (2020) recommends several strategies that educators can use to help young people cope with climate change. Of the 8 strategies recommended in her 2020 publication, IGS is using at least 5 of these strategies in their approach and design. Firstly, IGS combines science education about climate change with information on how to make a difference, as it provides opportunities and examples for students to take action. Secondly, the program encourages positive reappraisal of problems, particularly through showing positive or hopeful news stories related to climate. Thirdly, it provides youth with opportunities to have agency, particularly through self-led projects and opportunities to engage with local politicians and decision makers. Fourthly, IGS works to connect young people with nature through volunteer work, field trips, and meaningful connection to the natural world. Lastly, IGS works to foster social trust by bringing youth together to work towards a common goal. These strategies were identified by both focus group participants and survey participants as overall having a positive impact on their learning, coping, and climate emotions.

5.6 Role of Media

The role of media emerged as an important theme in the focus group among the youth. Media exposure appeared to act as a double-edged sword for youth, holding potential for advocacy and knowledge acquisition, but also leading to misinformation, doomscrolling, and emotional strain. Research consistently suggests that media plays an important role in shaping youth climate emotions and perceptions. Schwartzberg et al. (2022) observed that 51% of Canadian students receive information about the climate through social media, while Maduneme (2024) and Shao & Yu (2023) found that media exposure to climate issues is a significant predictor of climate anxiety. Similarly, Maran & Begotti (2021) and Maduneme (2024) documented that media framing climate change in catastrophic terms may undermine self-efficacy and contribute to feelings of helplessness. These findings align with the experiences shared by youth in the focus group, who described feeling emotionally overwhelmed by the constant exposure to negative climate-related content online. Broader research on youth media consumption also supports these concerns, as Maras et al. (2015) reported that increased screen time in Canadian youth can lead to depression and anxiety. At the same time, media was not viewed solely as harmful, with students seeing it as a space to connect and learn. Field (2016) found that intentional media spaces, like Facebook, for youth to engage and collaborate with one another about specific issues like climate change can be powerful tools for action.

The students in the focus group saw school as corrective to misinformation and as a space for hopeful narratives, something they don't always see in mainstream or traditional media. Consequently, education serves a dual purpose of fostering climate

literacy while providing emotional stability. By teaching students to critically evaluate climate information, students are somewhat protected against media overload.

The emphasis on media likely emerged in the focus group as the IGS program prioritizes learning about and discussing the media, how it frames issues, and taking a critical lens to the media youth are exposed to. The program also focuses on media literacy and encourages students to take in multiple sources and perspectives, leading to a more well-rounded view of issues such as climate change. Although this research did not aim specifically to examine the impact media had on young people's climate perceptions, it emerged as a theme within the focus group, which could necessitate further research in this area.

5.7 Implications for Climate Education

These findings suggest that climate education should be intentionally integrating hope-based, solutions oriented, and experiential approaches in order to support coping with climate emotions and engagement with climate action. This is evidenced by moderate hope scores, low experience of emotions such as despair, depression, and indifference, and use of either collective or individual action to cope (70% engaging in either or both). This high percentage of engagement suggests that programming like IGS is effective in building perceived agency and efficacy within young people, potentially increasing climate engagement outside of school settings. Students surveyed and students in the focus group cited IGS directly as being helpful in their coping, climate action, and climate education. Integrating student-led climate projects, community based initiatives, and opportunity to engage civically with climate issues

deepens student experience of climate education and offers opportunity to combat apathy or disengagement.

A shift from traditional climate education models towards more multidimensional models may be beneficial. This study suggests that environmental education as a whole, (which is not confined to specialty programming such as IGS), may benefit students by shifting away from a purely science based approach, incorporating more social-emotional aspects of climate change. Traditional climate education typically emphasizes facts, data, and abstract systems. While these facets are incredibly important to climate education, it can lack integration of emotions, agency, and relevance to students (Chawla, 2020; Monroe et al., 2019). Ojala (2012) argues that climate education which integrates action is vital, as it can “encourage empowerment and avoid cynicism” (5). The integration of emotional literacy, opportunity for action, and experiential learning may provide a stronger educational experience for students, becoming more engaging and relevant.

Recognizing, considering, and engaging with student emotion when teaching about climate change is key. Student emotional responses to climate change are highly individualized, as is student coping. When bringing in emotional facets of climate change, educators should recognize that experiencing multiple emotions simultaneously in response to climate change is an incredibly normal and common occurrence. In students surveyed, many reported feeling positive emotions like hope, while at the same time experiencing more difficult emotions like anxiety or dread. Rather than seeking to resolve or overcome difficult emotions, climate education can encourage students to sit with the complexity and uncertainty of climate change and engage meaningfully with the

troubling realities it presents (Machado de Oliveira, 2021). Normalizing these emotions within educational practice helps students understand their emotional responses, rather than disengaging with them or suppressing feelings. This is particularly important, as unacknowledged emotions may contribute to avoidance, disengagement, or feeling helpless (Ojala, 2012). When students are supported in recognizing and processing these emotions, it may better equip them to engage in constructive coping strategies. The intentional integration of reflective practices in climate education through discussion or journaling alongside climate change content can be a powerful teaching practice.

However, these approaches are not universally effective and may present challenges in practice. Not all students may respond equally to hope-based approaches, based on their personal experiences, passions, and capacity. Engaging in action without connecting to broader climate issues may inadvertently lead to further disconnection or disengagement from climate action. Adopting flexible approaches to climate action is essential, as it can allow students to engage in ways which align with their interests, capacity, and emotional readiness. Implementing experiential and action based education can also be constrained by time, curriculum requirements, funding, and access to community. It should be stressed that integrating a hope-based approach does not mean complete curriculum redesign, rather embedding small opportunities for reflection, discussion, and action. Factors such as age group, community, school culture, and funding are variables that can dictate experiential and hope-based learning. Therefore, working with already existing systems and units can be an effective entry point for this model of learning.

Overall, these findings suggest that hope-based climate education plays an important role in supporting student emotional resilience, capacity for climate engagement and action, and increasing climate literacy. Designing meaningful learning experiences which are tailored to circumstances, learner, school, and community profiles may better equip young people to navigate, respond to, and engage with climate change.

5.7 Conclusion

This research broadly aligns with existing literature in the field of climate emotions and climate education, with added nuance considering the uniqueness of the IGS program. Participants expressed mixed emotions when learning about climate change, which is consistent with the findings of Pihkala (2022) and Wu et al. (2020). Compared to Galway & Field's 2023 research, IGS participants were considerably more inspired and hopeful in the face of climate change. Participants overall had a moderate degree of hope related to learning about climate change, which is consistent with Li and Monroe's 2018 study. Students in the IGS program reported engaging in both problem and meaning focused coping to deal with complex climate emotions. Most notably, participants expressed a greater involvement in collective and individual climate action as a coping mechanism, as compared to Galway and Field (2023). Participants expressed a slight knowledge-practice gap when it came to knowing what to do about climate change and how to engage specifically. There are certain facets of IGS' design which strongly connect to effective climate education pedagogy, such as student efficacy, hope, discussions, project based learning, community based learning (Baker,

2021; Chawla, 2020; Levesque & Rocque, 2024; Monroe et al., 2019; Wu et al., 2020). Participants also explored the impact of media on their climate emotions and engagement, which they saw as a double edged sword, providing space for advocacy and knowledge acquisition, but also increasing emotional strain, which is also supported by studies with similar findings (Field, 2016; Maduneme 2024, and Maran & Begotti, 2021). Remaining gaps in this research include long-term impacts of programming like IGS, the larger impact of media on climate emotions and climate action, and identity specific experiences such as gender or ethnicity.

Conclusion

This study found that youth are experiencing a breadth of emotions in relation to learning about climate change. Youth use a variety of strategies to cope with climate change and its associated emotions, including emotions-focused, solutions-focused, and meaning-focused coping strategies. Solutions and hope focused programs such as the Institute for Global Solutions provide students with a positive orientation to both personal and collective climate action. These main findings demonstrate the importance of educational models which acknowledge and support emotional dimensions of climate education while also fostering student agency. Further research is needed to examine the long-term effectiveness of such programming, as well as the effectiveness of various coping strategies to deal with climate change.

Future Research

There are a number of pathways in which further research could be beneficial to the field. Research which follows IGS students post-graduation and examining their relationship to climate action could provide insights as to the long term impact of a hope and action focused program. In order to get a more well-rounded understanding of the impacts of IGS, future research with the program could include a project which engages pre-post design to measure the impact of a specific intervention on IGS students. As IGS is a very hands-on program which promotes youth agency and participation, future research could employ a co-design method which includes the youth in the research. As this research was limited in its scope, future research could compare the perceptions of climate education and emotions within IGS to other classes in the school, particularly

socials or science classes which have curricular overlap with IGS. Further, a project which engages the IGS teachers alongside students in the research could provide further insights as to how the educators integrate climate emotions into their teaching. Research which engages the impact of media on climate emotions and climate action would be beneficial, specifically within the IGS program. There is also room to further investigate how one's sense of agency and their locus of control can impact their engagement in climate action, within the context of climate education. This research mainly focused on the experience of emotions in general, but there is space to explore the tension that exists between the experience of positive emotions and more difficult emotions while learning about climate change.

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Appendices

Appendix A: Recruitment Script

Hello Grade (10/12). My name is Maren Tait, and I am a graduate student at Lakehead University, completing my master's in environmental and sustainability. As part of my program, I am completing a thesis, which requires a research project. The research project I have developed is focused on how youth cope with the emotions associated with climate change and education's role in coping.

I am recruiting from the Institute for Global Solutions because of its focus on environmental issues and climate action. The research will involve a survey, which will take approximately 20 minutes to complete. In anonymized surveys, participants will be asked some demographic information and questions about their experiences coping with climate change and perceptions of education's role in this. It will also involve a follow-up focus group, with 8-10 participants who have been randomly selected. During the focus group, participants will be asked questions about how they perceive education's role in their coping and its role in encouraging climate action. Participation in both phases of the proposed research is voluntary and requires consent of a parent or guardian if you are under the age of 16.

Because many of you know me in a teaching role, it is important to clarify that my role with this project is solely as a researcher. Therefore participation or non-participation in the study will not impact your grades, or our student-teacher relationship. All information gathered in this study is confidential and will not be shared with anyone outside of the research team, nor will names be used in the final publication of the research.

Before you decide whether you would like to take part in this study, please read the information letter carefully to understand what is involved. After you have read the letter, please ask any questions you may have.

Appendix B: Survey

Part 1: Demographic questions

1. **Age:** 14-15 16-17 18+

2. **Gender Identity:**

Female Male Non-binary Gender fluid Two-Spirit Prefer not to say

identify as: (please specify if gender identity not listed) _____

3. **Ethnicity/Cultural Group of Origin (check all that apply)**

- ☐ White
- ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan)
- ☐ Chinese
- ☐ Black
- ☐ Filipino
- ☐ Arab
- ☐ Latin American
- ☐ Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai)
- ☐ West Asian (e.g., Iranian, Afghan)
- ☐ Korean
- ☐ Japanese
- ☐ First Nations, Métis, or Inuk
- ☐ Other group(s) — specify: _____
- ☐ Prefer not to say

Part 2: Climate Change Hope Scale

Definition: Climate change refers to changes in the Earth's climate including changes in temperature, precipitation, and wind patterns over a period of several decades or longer, primarily due to the emission of greenhouse gases from burning fossil fuels and land-use change. It may cause problems such as changes in sea level, more extreme heat events, fires and drought, more extreme storms, and floods. Scientists project that the problems caused by climate change could affect, for example, forest health, agriculture, freshwater supplies, coastlines, human health, economy, wildlife habitat, and human migration.

- | | |
|------------------------|---|
| -3 = Strongly disagree | 1 = Slightly agree |
| -2 = Disagree | 2 = Agree |
| -1 = Slightly disagree | 3 = Strongly agree |
| 0 = Neutral | X = I do not think climate is changing. |

1	I believe people will be able to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
2	I believe scientists will be able to find ways to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
3	Even when some people give up, I know there will be others who will continue to try to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
4	If everyone works together, we can solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
5	I am willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
6	I believe more people are willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
7	I know that there are things that I can do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
8	I know what to do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
9	Climate change is beyond my control, so I won't even bother trying to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
10	Climate change is so complex we will not be able to solve problems that it causes.	-3	-2	-1	0	1	2	3	X
11	The actions I can take are too small to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X

Part 3: Climate Emotions, Coping, and Education

1. Does learning about climate change make you feel any of the following?

1= not at all 2= slightly 3= somewhat 4= moderately 5= strongly

Sad	1	2	3	4	5
Helpless	1	2	3	4	5
Anxious	1	2	3	4	5
Afraid	1	2	3	4	5
Hopeful	1	2	3	4	5
Angry	1	2	3	4	5
Guilty	1	2	3	4	5
Hurt	1	2	3	4	5
Depressed	1	2	3	4	5
Despair	1	2	3	4	5
Grief	1	2	3	4	5
Powerless	1	2	3	4	5
Indifferent	1	2	3	4	5
Happy	1	2	3	4	5
Inspired	1	2	3	4	5

2. How do you cope with your feelings about climate change, if at all: (check all that apply)

- ☐ I seek emotional and mental health support from friends and families
- ☐ I seek emotional and mental health support from professionals (e.g., social worker or therapist)
- ☐ I take individual climate action
- ☐ I engage in collective climate action
- ☐ I manage my emotions through activities that reduce stress (i.e. mediation, sports, art....etc)
- ☐ I trust in others to take action on climate change
- ☐ I talk with my family and friends about what one can do to help address climate change
- ☐ I search for information and solutions about what I can do
- ☐ I try to shift my thinking positively
- ☐ I do not cope/ I don't do anything

3. Is there anything you would like to add about the ways in which you cope with climate change, or how you view education's role in helping young people cope?

Appendix C: Focus Group Questions

Begin by introducing myself and the context of this study. Define key terms of climate emotions, coping, and climate action. Establish guidelines for a safe and collaborative environment. This includes reminding participants to actively listen to one another, to not interrupt, to respect confidentiality, and to be respectful of the other participants and the researcher.

Interview protocol

Bolded questions are deemed a priority to ask. Unbolded questions are optional dependent on the responses from participants.

The focus group should be approximately 60 minutes.

Let's begin by introducing ourselves and share what grade you are in, any topics you are passionate about related to climate, and if you have ever participated in/taken part in a climate action. This can include things like writing a letter to a politician, attending a rally, or taking on a project within your school like a community garden.

1. **Think for a moment in your head about some of the main feelings that come up when you think about climate change. What are some of the main factors which impact your feelings about climate change?**
2. **Climate change can be an emotional subject which can elicit many different emotional responses from people, some of which can be difficult emotions. When we experience these difficult emotions, there are many ways that we can cope. Some of these coping strategies can be helpful in processing our emotions, while other strategies are not helpful. What do you think are some ways that people can cope with climate change and the emotions that come with it?**
 - a. If youth focus primarily on helpful coping: Do you think there are any ways that people cope with climate emotions that are not helpful?
 - b. If youth focus primarily on not as helpful coping: Do you think there are any ways that people cope with climate emotions that are helpful?
3. **How do you think that education supports youth cope with climate change currently?**
 - a. If students say it doesn't: How do you think education could better support youth coping with climate change?

- b. If they say it does: Are there any specific things your school or teachers have done that have helped you cope with climate change?
- 4. How, if at all, does education influence how you as youth cope with climate change and its associated emotions?**
- 5. In what ways, if any, does education shape how young people engage in climate action?**

Appendix D: Letter of Information and Consent

Dear Potential Participant:

You are invited to take part in my Master's Thesis study focused on how youth cope with the emotions associated with climate change and education's role in coping, specifically youth enrolled in the Institute for Global solutions program at Claremont Secondary in Victoria, BC. Taking part in this study is voluntary. This research study is being conducted as part of my thesis project at Lakehead University. Before you decide whether or not you would like to take part in this study, please read this letter carefully to understand what is involved. After you have read the letter, please ask any questions you may have. Because many of you know me in a teaching role, it is important to clarify that my role with this project is solely as a researcher. Therefore participation or non-participation in the study will not impact your grades, or our student-teacher relationship.

WHAT'S THE PURPOSE OF THIS STUDY?

The purpose of this study is to gain insights into how BC high school students in a climate-focused program process and cope with complex climate emotions and to determine how education and coping, in this context with these students, can lead to climate action.

WHAT INFORMATION WILL BE COLLECTED?

In anonymized surveys, participants will be asked questions about their experiences coping with climate change and perceptions of education's role in this. During the focus group, participants will be asked questions about how they perceive education's role in their coping and its role in encouraging climate action. Focus group audio will be recorded on the software Descript.

WHAT IS REQUESTED OF ME AS A PARTICIPANT?

Participation in this research is voluntary. The expectations for participants during each stage of the research include:

Phase 1 – Claremont Secondary at 4980 Wesley Road, Victoria, British Columbia, in April 2025. Participants will participate in a voluntary survey, expected to take 30 minutes or less. This survey is to gain understanding of how students experience climate emotions, cope with said emotions, and reflect on the role of education in coping. Additionally, some demographic information will be collected, like your age, gender, and ethnicity.

Phase 2- Actively participate in a 60-minute focus group at Claremont Secondary, 4980 Wesley Road, Victoria, British Columbia, in May 2025. During this focus group, participants will discuss their experiences with climate emotions, education, and climate action/pro-environmental behavior. Participants will have the opportunity to suggest strategies or ideas which may be helpful in their coping with climate emotions or engaging in climate action/pro-environmental behavior. 4-5 participants from each grade will be randomly selected to participate in the focus group, if they have indicated consent for both phases of the research. Please note that your selection to participate is not based on any information you have revealed in the survey or your

student-teacher relationship with me. Consent forms which indicate you would like to participate in the focus group will be shuffled and names will be pulled at random. I understand this may evoke some disappointment if you are not selected for participation, but there will be space to discuss the context of this study with your regular IGS teachers and have your thoughts heard. The focus group audio will be recorded using the software Descript.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

As a research participant, your rights include:

- the right to not participate; you are free to withdraw from the survey at any time by exiting the survey, or you can leave the focus group at any time.
- continued and meaningful opportunities for deciding to continue or withdraw from participation in either the survey or focus group
- Focus group participants can withdraw their data within one week after the group session has taken place.
- Privacy and confidentiality

RISKS AND BENEFITS

In this study, there are no perceived risks with participating in the survey. Focus group interview questions may foster negative emotions from participants. The questions have not been crafted to elicit immediate emotional responses; however, given the nature of themes of mental health, respondents may have emotional responses. A support sheet will be made available to all participants during and after focus group interviews. The Claremont counselling team, Ms. Giese and Mr. Pama, are aware of the research project and are available to support you if need be.

Educational settings and educators can provide promote and support coping for students through the way they learn and what topics they learn about. Educators can also provide the opportunity for action based, student led learning which allows students to engage in pro-environmental activities and take tangible actions for the climate. This proposed research has potential to inform educators, school boards, and curriculum to better suit the needs of students who are facing climate emotions.

HOW WILL MY CONFIDENTIALITY BE MAINTAINED?

Confidentiality as a participant in this research will be guaranteed, as far as possible.

- Surveys will be anonymized to protect your identity. When possible, data will be grouped as to not allow for identification. Data will not be linked to specific demographics. However, there is small risk that demographic details could allow for identification when reporting the makeup of participants.
- In focus groups, participant responses will be recorded. However, in reporting of the focus groups, no names or identifying information will be revealed. If you are a participant in the focus group, it is expected that you respect the confidentiality of the other participants, and not discuss personal reflections of others outside of the focus group.
- The objective is to maintain participant confidentiality of the focus group interviews, but it cannot be guaranteed as you will be in conversation with other individuals.
- All information, where requested, will be kept confidential and will only be accessible by

the researchers.

- The focus group will be recorded by Descript, a US company, which is subject to the USA Patriot Act and CLOUD Act. These laws allow government authorities to access the records of host services and internet service providers. By choosing to participate, you understand that your participation in this study may become known to US federal agencies.

WHAT WILL MY DATA BE USED FOR?

The results of this research will be published as a Master of Education thesis in Lakehead University's Knowledge Commons. I also hope to use this information in academic presentations.

WHERE WILL MY DATA BE STORED?

The data will be securely stored for a minimum of 7 years in a password-protected file folder on the researcher's computer.

HOW CAN I RECEIVE A COPY OF THE RESEARCH RESULTS?

Participants who would like to be informed when findings are published can write their email in the informed consent or email mtait@lakeheadu.ca for updates on the research progress.

WHAT IF I WANT TO WITHDRAW FROM THE STUDY?

You can withdraw from the study until the point of data submission. You can leave the survey at any time by exiting the survey. Once you submit your survey, your results cannot be withdrawn due to the anonymous nature of the survey.

During the focus group, at any point you can exit without penalty. If you are selected to participate in the focus group, you can withdraw but must try to inform the researcher ahead of time so an alternate participant can be arranged. If you are unable to inform the researcher ahead of time, you are not required to participate if you no longer wish to. If you want to withdraw from the study, then your statements from the focus group interviews and all collected data pertaining to you will be deleted and excluded from the analysis. You may withdraw from your data from the focus group up until one week after participation. Any identifiable information related to you will be anonymized to ensure your confidentiality. Your decision to withdraw will be respected, and your data will not be used.

RESEARCHER CONTACT INFORMATION:

Maren Tait, Master of Education Candidate

mtait@lakeheadu.ca

Dr. Ellen Field, Assistant Professor, Faculty of Education

efield@lakeheadu.ca

Dr. Lindsay Galway, Associate Professor, Health Sciences

lgalway@lakeheadu.ca

RESEARCH ETHICS BOARD REVIEW AND APPROVAL:

This research study has been reviewed and 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 at 807-343-8283 or research@lakeheadu.ca.

Consent for **survey** phase of research

MY CONSENT:

I agree to the following:

- ✓ I have read and understand the information contained in the Information Letter
- ✓ I agree to participate
- ✓ I understand the risks and benefits to the study
- ✓ That I am a volunteer and I may choose not to answer any question
- ✓ That I can withdraw from the study up until the point my survey is collected by my teacher, after which, my data cannot be withdrawn
- ✓ That the data will be securely stored in a locked file cabinet at the researcher's home for a minimum period of 7 years following completion of the research project
- ✓ I understand that the research findings will be made available to me upon request
- ✓ I will remain anonymous
- ✓ All of my questions have been answered
- ✓ By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

Name	Signature	Date
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Name of parent or guardian	Signature	Date
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Please provide your email, if you would like to be sent a copy of the research results:

Consent for **focus group** phase of research

MY CONSENT:

I agree to the following:

- ✓ I have read and understand the information contained in the Information Letter
- ✓ I agree to participate
- ✓ I understand the risks and benefits to the study
- ✓ That I am a volunteer and I may choose not to answer any question

- ✓ That I can withdraw from the study up until the point of participation in the focus group, after which, my data cannot be withdrawn
- ✓ That the data will be securely stored in a locked file cabinet at the researcher's home for a minimum period of 7 years following completion of the research project
- ✓ I understand that the research findings will be made available to me upon request
- ✓ I will remain confidential
- ✓ All of my questions have been answered
- ✓ By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.
- ✓ I understand that names will be selected at random for participation. If I am selected, and no longer wish to participate, I can withdraw from the study, and must inform the researcher ahead of time so an alternate participant can be arranged.

Name	Signature	Date
------	-----------	------

If the participant is under the age of 16, parental consent is required.

Name of parent or guardian	Signature	Date
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Please provide your email, if you would like to be sent a copy of the research results:

Appendix E: Focus Group Transcript

Maren: okay. So, I just want to begin by introducing ourselves very briefly and share what grade you're in, any topics that you're passionate about that are related to climate.

And if you're ever you have ever participated or taken part in climate action, so that can include things like writing a letter to a politician, attending a rally or taking on a project within your school.

Stella: I'm Stella, I'm in grade 12. I love the environment. Obviously, growing up on the island, being surrounded by nature. I hate to watch, like things happen to the world around us, so I like to advocate on social media and stuff like that. But honestly, I haven't really done a lot yet.

Maggie: I'm Maggie, I'm in grade 10, obviously, I also really love the environment. I do like, I've done, like lots of like invasive species pulling and beach cleanups and but mostly what I've done is been through school in the Institute for Global Solutions Program. So I think I wrote a letter to someone last year about a youth climate corp, I think it was a politician.

Drew: I'm Drew, I also wrote that letter to a politician about the youth climate corp. I'm really interested in environmentalism through architecture, and although I haven't contributed that much yet, I definitely plan on continuing to contribute through my life

Rachel: I'm Rachel, I'm in grade 12, and I've been in IGS for four years, so I've done a lot of projects, presentations, invasive species stuff. I've also written the letter. I think everyone in IGS has, and I'm very into, oh, maybe not everyone, but I'm definitely into helping the environment in any way that I can.

Beth: I'm Beth. I'm in grade 12. I can't say I've done too much. I have done, like, some environmental projects in IGS as well. But I definitely do want to contribute more to the fight against climate change, more in the future.

Casey: I'm Casey, I'm in grade 10. I've been in IGS for a couple years. I've been to rallies with my dad in my life cause he's big into climate change. And I was also one of the people that wrote that letters, I've done a bunch of projects, I've done a couple speeches where I answered a bunch of questions that different teachers ask.

Alexis: I'm Alexis. I'm in grade 10. This is my first year in IGS. I did not write the letter, but I've been to multiple climate protests in my life. I lived on the Gulf Islands, so climate was kind of like always around us and it's like a big part of my life and yeah.

Jesse: I'm Jesse. I'm grade 12. This is my fourth year in IGS. And where my interests are in political advocacy for climate solutions. In the future, at least, I want to go into political science and I've had the opportunity to speak to quite a lot of politicians and other climate activists throughout, especially IGS, but even out of IGS, and it's always been a topic around me and in my family, so I plan to pursue that in the future.

Drew: Two things I forgot to mention. Literally yesterday I met with Sonia Furstenau, the leader of the BC Greens. Um, and also in the end of 2023, I worked on a project called Mangoes Volunteering, which was oriented towards all sorts of volunteering and donations. But it was, one of those pieces was of course raising awareness for environmental volunteering and donating.

Maren: Ok, so I have five questions. I'm not gonna ask everyone to answer just because that would take way too much time, so if you have an answer right away, that's great, if you want to, follow up or like piggyback on what someone else has said or add something, just kind of, you know, give me a little hand up and I can bounce to you.

So, for a moment in your head, I want you to think about some of the main feelings that come up when you think about climate change. Once you've identified some of those feelings, think about some of the main factors that impact your feelings about climate change. So a factor could be, the way you learn about climate change or your community or your friends. [4:30]

Rachel: Um, I think like frustration because so many people just don't listen and they don't understand that it is a real thing and I think that definitely is like how people are educated about it and maybe social media can kind of influence people in different ways and like it's just frustrating to see that so many people are doing things, but then so many people aren't doing things 'cause they just don't necessarily think that it's a real cause.

Maren: Let's go Maggie then Beth, then Drew.

Maggie: I definitely feel like a sense of kind of dread when I think about climate change. Like the immediate, like images that like come to mind are like what I see on the media. So it's all like the beaches that are like covered in plastic or like, um, natural disasters or even like the, like the nuclear mushroom clouds. And I'm like, oh, like this is like

something that's like really awful that's happening. And I don't immediately, I'm not immediately like, oh, but we're doing all these things. It's always like the bad things that come to mind first.

Beth: Um, for me, I feel like it's feelings of like a lot of anxiety and just like stress for the future of our world. Um, and like even last night, like Rachel was saying, like social media, I saw this like TikTok about, it was like an edit of like Trump's line where he goes like, "drill, baby drill" and. It definitely did like invoke some of those emotions in me because it's just really sad to see such a big leader like that supporting those kinds of things.

Drew: I think my sort of emotions around climate change are almost the inverse of Maggie. At the front of mind for me is this sort of optimistic, there's so much we can do, there's so much technology, we can build this amazing future. But then on the other hand, there's the sort of looming dread underneath of like, we're not doing it fast enough, this is something we thought would've happened 10 years ago and it still hasn't happened. You know, it's always just that kind of back of mind thing that's like, it'll all, it feels like it'll just kind of always be there, but there'll never quite be that final push. And, you know, I hope to facilitate that final push, but you never know. You never know what the future will hold.

Maren: Okay, we'll go to Stella and then Jesse.

Stella: I think a lot of times when I think about climate change, it like, just makes me very sad. Because like, at least for me, like I grew up with my culture thinking of a lot of nature, just like as the same level as humans, right? I always have just been taught that from a very young age. Um, that the trees and the animals and the people, we all live in harmony and all this and that. And then since like 2016, seeing stuff on the news, it made me very like, anxious. I was like eight years old and watching Greta Thunberg, and being like, oh my gosh, why are people all making fun of this girl who just wants what's good for the earth? At such a young age. And it kind of really, I think, shaped how I view climate change because it's kind of, watching like at such a young age, how everyone clowned on someone who, a child who just wanted to save the earth and stuff like that, and then since then through media, right? And like during forest fire seasons and stuff like that, because like, I feel like I've always been so connected to trees it almost feels like a mourning period, and like in my family too, like it feels like we're mourning a, like not as big as a death, but like it, it's just very saddening when there's like smoke in the sky and you see it and you watch whole towns burn down and stuff like that.

Jesse: I'd say my view of, you know, the environment has changed a lot and climate change over time. Like when I was a kid, like a lot of other people, it was definitely anxiety. Like I was, I mean, in general I was an anxious kid, but, um, the amount of misinformation and fearmongering was like very anxiety inducing. Like I remember, you know, as a kid I was gullible like any other, I know 8-year-old and all the, you know, really drastic. I remember reading one article, it was like, "by 2025, like half of the world will be underwater" and it's just like that kind of like, disinformation was definitely very stressful because I also just didn't have the mental capacity or like the resources to fact check it. But like growing up now, since I've always been in a class that's been related to climate change showing like all the progression and the facts where it's like, you know, it's obviously it's an important situation, but it's not like, "oh yeah, in like five years we're all gonna be dead". That has definitely like relieved anxiety, and now it's more of like a knowing that it will be fine in the end because realistically, if we don't fight against climate change, whether now or later, then it will end up with the end of humanity in a far future. So, we know as humans, that that would never happen because we're going to preserve ourselves some way or another. So now it's more just a do it now rather than later, try to progress that as quickly as possible.

Maren: [11:04] Thank you, moving on to the second question. So climate change can be an emotional subject, which can elicit many different emotional responses from people, some of which can be difficult emotions, which a lot of you have already identified. So when we experience these difficult emotions, there are many ways that we can cope. Some of these coping strategies can be really helpful in processing our emotions while other strategies are not helpful. So, what are some ways that you think people can or do cope with climate change and the emotions that come with it?

Casey: Something that I've started to do this year since being in IGS with [Mr] Mitchell, he always talks about this website that his friends made called Fix the News, where it's just a bunch of really, really good hopeful news articles that people don't really talk about, 'cause you know, media doesn't really work that way, they always want to display like the worst stories to grab people's attention. So the other day I saw something that Trump said that kind of pissed me off and I was in a bad mood. So I went on to Fix the News and I searched up a bunch of articles about, so I'm an Indigenous person, and about how, you know, people like charging through what Wet'suwet'en territory, trying to place a pipeline. And I have seen a bunch of things about what people are doing about that, what people are doing in the world and how like in turn they're like sharing their knowledge about how they've always helped save the climate and how they've always been able to live and love the land. So there's a bunch of like little coping mechanisms like that really.

Maggie: I definitely like to get outside and do something, I find even just gardening makes me feel better, 'cause like I'm more connected to the earth and I'm like, "oh, there are things that we can do and there's things that we're doing". And like, it's so hard to, especially when you're really outside to imagine it actually like being harmed. So I think getting outside and doing projects and with IGS we've gotten to go places and kind of learn about the history of the environments and stuff. So it helps for me to see how amazing this is and how it's come back after being harmed. We just went to Tod Inlet and we saw the effects of industrialization and the cement factory and then how much it's bounced back since then.

Maren: okay, so Alexis and then Stella.

Alexis: so during the summer I was really like emotionally affected by just like the news and media altogether, to be honest. It was like just quite a lot of information kind of thrown at me and I had so much free time, I was kind of like constantly on there. Um, I had to take a detox for like a month from pretty much all social media. I couldn't really handle it emotionally. I was really engulfed by it and I was just like, kind of go outside, kind of try to hang out with people as much as I could. Try not to be, yeah.

Stella: one way is like, just trying to think that like every step does matter. Your small actions, like if you see a piece of trash, like picking it up, make being mindful about what you buy, how you act like those do matter and holding your friends accountable and stuff like that. Like if your friend's trying to litter, like pick it up because it's just, 'cause small groups, if you band together and you hold each other accountable and teach each other and without being annoying, just be like, "hey. It's not very good for the environment. There's a trash can right over there." Usually people, if they get mad about that, then you probably don't want them in your life either way. So just thinking about what you can do kind of puts your mind at ease and realizing, I have no power against Trump and political figures. I can spread my message online and I can talk to my friends, but I'm not gonna really be able to affect that that much. So doing what you can in your community still does like good things and it puts my mind at ease.

Maren: Okay. We'll go Rachel, Jesse, and then Drew.

Rachel: Um, I think like doing things that are in your control, like definitely helping out in your specific community or at your school or something like, I don't know, going to your local park and seeing if they have any like invasive blackberry bushes and taking them out and stuff. I definitely think that can kind of ease your mind a little bit and knowing that you are actually helping the problem and you're helping solve it instead of trying to take on these huge ideas that have been like put out in the media, like any incredibly

huge beach cleanup, which would be awesome, if everyone can band it together and do that, but like realistically that's very hard to do, especially if you don't have like a big organizer or anything. So I think just doing little things in your community and like Stella said, like telling your friends like, "Hey, like there's a trash can right there, put your tissue in the garbage and stuff". I think that can eventually help, If everyone started doing that, then it wouldn't just be one person or like five people. It would be like 20 people and then it would just be, grow more from there.

Jesse: I'd say definitely what helped me the most, kind of what Casey said is educating yourself because I feel like obviously climate change is a big, daunting thing. It's a very complex, nuanced thing that's happening in the world. But if you understand it more, then it becomes less scary. If you just, if you realize that like, you know, like. The earth, you know, goes through different, you know, cycles, you know, the ice age and kind of things like that. It's really just climate change is just an imbalance in nature that's caused by humans and that there are things we can do to combat it. And in theory not that difficult of a thing to do if people work together to get it done, which I feel like is definitely a lot more calming than, you know, all the bad news out there.

Drew: my first point, which kind of goes off of what Jesse was saying, is it could be a false notion, but I feel like there is kind of this notion that, you know, humanity survived the ice age. Right or no, Wrong, wrong name, but we've, we've, humanity has survived for my brain is, it's okay. It's okay. Wrong means take a minute. Take a minute. Okay. We, we can survive. So many things. COVID-19, the Spanish Flu to World Wars. So there could be this sort of false, possibly false, you know, um, notion that humanity will prevail. Uh, secondly is a more direct coping mechanism. You know, I, I look at things from sort of an architectural standpoint, so I will conceptualize, I'll, I'll draft and try and find ways of finding solutions in, in a built environment.

Maren: Okay. So I feel like you all really identified some positive ways that are helpful in coping with climate, but do you think there are some ways that are not so helpful in coping? Maggie, Jesse and then Beth.

Maggie: Um, I think like, is it catastrophizing? Like you think, you kind of go on a downward spiral, right? Like if you learn about something, I'm like, oh my gosh, this is so awful. Like there was just this huge wildfire in Washington and now all the smoke is here. And then you hear about, oh, the giant wildfires in LA and then, um, the wildfires in Alberta and BC and you're like, oh, this is just getting worse. And it's almost suffocating to kind of to hear about it, and then you kind of go on like, what else is bad? Like everything else bad is happening too. Like with all these things, what can I even

do? It's not like I can do anything about it. I'm not there and I'm not helping, so I'm just kind of stuck here. Yeah.

Stella: Um, I think one that I probably do a lot is like, the social media is a good aspect to spread a word, but it is also very easy to get misinformation and to spiral and to only see the bad, right? And to spend hours just looking at bad and bad and bad, even if you're advocating for good, you're still talking about the bad, you know? So I think a lot of people just go into their phone if you're commenting, liking reposting and stuff like that, you're helping spread a good message, but you're still seeing a bunch of stuff that's really draining every day and stuff like that. And then I think a lot of people start to feel hopeless and, I guess worthless because you don't feel as important, like why isn't anybody taking...Like what me and the others want and feels like why does no one care about the kids' opinions or our opinions and things like that. And it can just get very, it can really shatter you as a person as well, I think. And then you cope by just isolating and not caring about your opinion, thinking no one's going to listen, so why even bother? Things like that.

Jesse: I'd say it was more of an issue a few years ago, but I was definitely like a doom scroller. Not necessarily on social media. Like I've never really been a super social media person, but news was a big thing. When I still saw, you know, like a therapist or whatever, like she was like, you just gotta take a break from news. Because that's where it was coming from. It wasn't really like even disinformation, but it was like what other people said. The fact that the news puts out just a lot of negative things and not a lot of positive information. Then it presents itself that climate change is a lot worse, or it's just bad and not good at all. So I'd say definitely doom scrolling was something that was a bad coping mechanism, me thinking that I was educating myself, but instead I was just feeding myself negative information instead of any positive information.

Beth: I feel like my point was already said, but I was also just gonna comment on rabbit holes. Like you just keep going and going and going and it just feeds you more stuff and you can get so off track and you just have to remind yourself to turn it off and take a break. And there's so much misinformation, you just can't listen to it all.

Maren: Ok, so next question, how do you think that education supports youth to cope with climate change currently? [22:24]

Drew: so I can have two sides to this answer. One side is what to follow on one side is what not to follow. IGS is a beautiful model for the fact that it teaches critical thinking skills and shows the optimistic side of things. These are the technologies that we have today and these are the technologies of tomorrow, and this is how we can solve these

problems. It's the Institute for Global Solutions, not global problems, but thinking back to my pre-high school experience in elementary school and middle school, most teachers just kind of focused on the problems. You know, they didn't show us what the solutions were being made and often had out of date information on those solutions. So I think teachers themselves need to be much more educated. And institutions as a whole need to focus more on critical thinking and showing both sides of the story.

Stella: Um, I think obviously education is really, really important for the youth. Um, I don't know if we're at the best right now. Like a lot of times I'll, I learn a lot of things online, right? But you gotta double check. But I'll mention things to friends and stuff like that, and there's just so much stuff that people have no idea about or issues involving climate change that people just don't think about. So if you educate and you actually teach like, "No, this is important, but we can move forward and this is how we can do it. Like this is what's good for the earth, this is kind of what's bad" And like you not just focus on the negatives, but also teach kids how to move forward in life and what kids can do, which I think it's a little better. IGS is a really good program, but a lot of schools don't really do that. I've been to a lot of schools and a lot of them just kind of talk about the bad or try not to mention it at all.

Maren: Any other thoughts on this one?

Rachel: I definitely think there needs to be more, um, like things like IGS, where like it is telling you more about the good parts and like different ways that we can help the environment instead of I don't know, other social classes that are like, "oh, the icebergs and stuff are melting and whatever". I think it's just telling you so much more negative things that students either don't want to try and help or they just think that there is no way to help because there's no solution to it. And that's why I think IGS is such a good thing because it's kind of telling us like, "no, there are good solutions and we can help, and like this is how we can do it" And it kind of tells us different ways, and it encourages you to do it. And then it keeps us engaged to try and fix these problems and they're kind of like a guideline for us and they influence us and they keep us going and stuff.

Maggie: I think part of the reason why IGS is such a good program is 'cause we actually get to get out there and do things that actually show us what we can do to help. And that's a lot of problems. Even in your classes, if you are learning about the good sides of climate change, it's really hard to take those into a personal account if you aren't kind of actually seeing for yourself what can be done to help and how you could be helping and giving yourself some accountability for what you can be doing. So I think lots of schools and programs should have more hands-on experiences and like programs for how you get out and help your community and your life.

Maren: Are there any specific things that your school or teachers have done that have helped you cope with climate change?

Drew: I think, you know, going back to IGS just showing what's being done, you know, showing all the work that's being done, I think that's a big piece. So I thank my IGS teachers for showing us that.

Jesse: I'd say again, IGS related, giving us the opportunity to talk to like policy makers and like people who actually have greater power and being able to question them about these important things and seeing that most of them, you know, care about it and lots of them try to actively do things to, you know, support solving climate change. So I think showing people, you know what Drew said, that things are getting done or at least people are trying to get them done. You know, the people who have the power to, um, is definitely more nice to know. It's nice to know that that's happening.

Stella: I think going out on field trips and stuff like that, and then even the IGS Haida Gwaii trip we just got back from just being in nature and with nature and kind of far from humans. It's realizing that yes, there is climate change going on, but things are still thriving, like forests aren't completely dead. Some have burnt down, but nature has still thrived. And going out and seeing it with your own eyes and realizing, oh, okay, not everything's gone. Like, we're not the middle of a huge catastrophe. Like there's time, these trees have been here for like hundreds of years and they're still standing, you know, it just reminds me when we go out and see it. And as a kid, picking up trash and stuff like that. I feel like we probably could've kept doing that throughout school. Because I feel like by high school, most people just start throwing it on the ground when we used to pick the stuff up off the ground in elementary school.

Alexis: I'm gonna like, it's kind of like a broad answer, but I think just having a conversation with the teacher, like I know some people aren't able to have those conversations about the world and what they're feeling and what they're experiencing with someone who actually has an understanding and beliefs. But it is just having those connections and having the personal conversations about what's going on in your emotions and how you feel. I feel that, yeah, I feel like that gives a lot.

Maggie: Um, I think especially in IGS and Mr. Mitchell's really focused on the idea of hope and stuff. We watched a really interesting Ted Talk, and I'm gonna butcher his name, but it's Yuval Harari, and he basically just outlined all the good things that's happening on a world aspect, like in China and in India and all across the world. And it was just so interesting to hear about that and I think it was really cool to see that and it

definitely gave me a lot more optimism, like to see that and I still think about it, like the great green wall in China and stuff. Um, but like expanding on those thoughts further would've also been really nice.

Maren: Okay. Anyone else? Any other final thoughts on that one? Okay. So in what ways, if any, does education shape how young people engage in climate action?

Beth: I feel like in class, that's our main way of taking in information. And we just assume that in class, you're not gonna learn any misinformation. You know? You just think it's what's true. And so I think people have been saying, constantly learning those more sad aspects of climate change. If that's all you're learning, that's all you're gonna think that there is. So if we do really focus on the hope side, then we're gonna learn like, oh, I can do this and I can do that. And it's not all bad.

Rachel: I always say that kind of same thing, but I think depending on the teacher that you have, I know teachers aren't necessarily supposed to put in their, like, personal views and stuff, but I know being in IGS for four years, I definitely know Ms. Linger's and Neuf's and Mr. Mitchell's personal feelings towards climate change and stuff, and I think that honestly helps my love for it because I actually understand where they're coming from, whereas learning it in science it's just more of a broad sense of it and you kind of just learn about it. You don't learn about the solutions for it. You don't necessarily learn about those other things. And so I think because school is such a big place for students to learn, and this is where we get most of our information, unless we doom scroll, unless we go down rabbit holes and stuff. So I think it's more important that the information that we get in school is good, but it's also like explaining to us why it's happening, how it's happening, and what we can do to prevent it and what we can do to help it. But I also think there's a lot of things in school that we'll learn about that aren't necessarily good. We can definitely learn about the bad parts about climate change, which I think the teachers just need to be realistic with us sometimes, and you can't always do all of these amazing, fantastic things because we are still teenagers, we're not gonna be able to go out and like start an entire protest or something. We're gonna have to start fairly small unless you can get into a bigger group that can organize these things for you. But I don't know, I think just being a little bit more realistic would be good, but still influencing enough to try and do something.

Jesse: I think something that teachers do that's good right now is like they do provide opportunities, Pro climate change, you know, solution stuff like doing things yourself, like cleaning up beaches or going to, you know, these biodiverse planting sites and helping out local farmers and doing that kind of stuff and just giving the opportunity, but then also providing resources to proceed. With doing things yourself, even past high

school, a certain class would be useful. I don't know, just where protests happen and local, organizations there are to help against climate change and stuff like that would be useful.

Stella: I know this is about high school and stuff, but I think education, It really starts from a young age and like getting habits and having root beliefs, like core values and stuff like that, those all stem from a very young age. And obviously we shouldn't be teaching crazy things to young kids, but I think it is really important to have age appropriate education about what you can do and how you can act with climate change and what is going on. Again, age appropriate at a young age and continue that throughout school because I think it really, the foundations are built. I think it would be good to look at the good from a young age as well.

Maggie: I think like building on what you said, like in elementary school, we're all taught you know, you need to take care of yourself, you gotta wash your hands, pick up your litter. And we have these ideas ingrained in us that we need to be like good citizens. Because that's what they teach us from a young age. Because they want us to be good citizens when we're older, right? But then in high school we learn about how climate change is actually happening and what we can do and all the effects in different parts of the world, but then in middle school and that in between, it kind of falls off a little. Like we don't learn as much. We're old enough that the teachers see, we don't need the constant reminders to be good citizens, but that they don't think we're like, I guess knowledgeable enough to talk about how it's harming us and other places and what we can do. So it's like there's kind of this gap in where we could be doing more for ourselves than others.

Jesse: I'd say something that, you know, like what people said already is important, especially when you're young, is to teach students to change their mindset around their relationship with nature rather than like it being like a resource solely for our use. But you have to think of it as something that's also living as something that we rely on and that we can't just abuse and neglect all the time. So I think it's instilling that early on definitely helps with, you know, building people's ideas around climate change. Also you know, not instilling fearmongering. Not that teachers do that, but preventing that and giving people a false sense of what's happening in the world. And then as they grow up giving them more what's realistically happening against climate change is really to develop their opinions of climate change throughout their life.

Drew: Primarily to add on to what Maggie had said, and I'm not gonna go too far into this because I could go on this little tangent, but, I do generally think that middle school is kind of this gap in a lot of things and there needs to be change in order to make it a

more meaningful time, more productive time in and in our educational journey. And that definitely correlates to our view of climate change.

Maren: Okay. Does anyone have any other thoughts on that question? Okay. Does anyone have any final thoughts that they feel like they want to share or something that they've been thinking about? Any kind of note that they want to end off with, Maybe something you feel like you wanted to say but haven't yet?

Jesse: I mean it might just be bias but there's always been forest fires every year for as long as I can remember. This year so far it has not been directly affecting where we live. But, more recently it's been directly affecting my family and things like that. I mean, Manitoba's always had a lot of forest fires, but now just hearing that, like, now it's my family that's evacuating and now it's my parents' childhood memories which are being burned down. The also correlation with that is that like, I feel like this year so far, there's not been a whole lot of focus on what's going on with the forest fires and stuff like that. Like they're, you know, they've always been bad, but they're still really bad. And I think that we can't forget about what is going on. It's more of an issue for our news agencies and our government that like, we still have to focus on this a lot and we should put more money into like preventing forest fires still, and getting rid of them because they're just happening way too much and it's in the long run going to affect us a lot.

Drew: The ones in Manitoba are going back to that kind of looming dread feeling. I think that they may go a little bit beyond looming dread because they are pretty bad. The smoke has hit mainland Europe, I could be wrong, maybe. We just haven't really paid attention to this in the past, and this has happened before, but I've never heard of Canadian forest fires hitting France. So, you know, it is concerning and I hope, I really do hope that there's work being done to not only to stop the fires, but to prevent them in the future. And I think there is, but yeah, that's pretty scary.

Maggie: I think like we as a society, we like to focus on the thing that seems like most pertinent to us at the moment. So right now, and especially in Canada, it's the US politics, right? Which are a huge thing. We need to be focusing on that, but we keep shoving all the other important issues to the back burner. Like you said, you haven't heard much about the forest fires, but in previous years we've heard lots about the forest fires because all of our newspapers are talking about US politics and what's happening, and we kind of ignore our other issues because we see this as so important. And yeah, while it is we need to be still doing things and still focusing on what we can be doing for climate change and for issues that have arisen previously and stuff.

Rachel: Mine is completely different from all of their points. I was thinking, we talked about this one thing in IGS where it was like "How can we convince people that climate

change is real?" And I think one of the main things that we talk about is how like COVID, everyone banded together mainly everyone banded together and tried to stop it because like we saw that it was a real threat and it was right in front of our eyes. Like people were dying, people were hospitalized, everything shut down. And I think for climate change, so many people are like, "oh, well, in 10 years. Or in a year or in the future, this will happen" and I think people need to stop saying in the future, they need to be like, "tomorrow, like a tree is gonna burn down or something". Obviously that's a little, not catastrophic, but you know what I'm trying to say? Like I think people need to realize that it is actually a real thing that's happening and that it'll affect you sooner than you think it will. Because COVID, when everyone heard about it at first, I know a lot of people were like, oh, that's not real, it's just a cold and stuff. But the moment it kind of hit your family or if you got it yourself, you were like, "oh, this is actually a real thing." And I think for climate change, it's like we just have forest fires, it's not actually going to affect us or anything. And so I think these things need to be said more as they are going to affect you and they're going to affect you sooner than you think they are. Instead of saying like, oh, in 10 years thinking like the world will go to crap or something.

Drew: To add on to that, or to connect with that, the climate crisis is kind of a silent killer because like air pollution and stuff is sort of injured or it's, the statistics suggests that it indirectly caused like respiratory issues and the numbers, I can't remember the exact...

Casey: 7 million a year?

Drew: 7 million a year. It's astounding, but people don't, because it's not something that's, you know, it's not a physical entity that's slaughtering, that connection isn't made in a lot of people's brains and that's unfortunate. But I hope there are ways we can still address it without having that sort of active force.

Casey: Drew kind of said exactly what I was gonna say, but I'm just gonna build off Rachel's point a little bit. I do understand that making plans for our future is very important, but just like Drew said, every year another 7 million people will die and then it is just going to get worse and worse until we actually do something about it tomorrow.

Stella: Yeah. I also just think we need to keep in mind that like the earth and the nature and the climate, like it is our original home and it is our home. I know we built all these houses and we put up all these walls and we think we're a different species and not connected to the land, but we still are, like we're still animals that rely off the land and I think it's very important to keep that in mind. Because no one will want their house burning down. Like, why are you fine with forests burning down if you wouldn't want your house to burn down? Doesn't make sense.

Maren: Okay, so thank you all. I'm gonna stop it here.