Climate Action Among Generation Z: The Association between Ingroup Identification, Collective Efficacy, and Collective Action Intentions and Behaviour

by

Breanna McCreary
B.Sc. (Hons.), Queen's University, 2017

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We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands, and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

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Abstract

The majority of today's emerging adults view climate change as the defining challenge of their generation (Amnesty International, 2019). Young people's climate concern has translated to unprecedented collective climate action, such as the youth climate strikes of 2019. However, young people and their relevant social identities are underrepresented in research on collective climate action. Following the social identity model of pro-environmental action (Fritsche et al., 2018), the current study assesses the extent to which emerging adults identify with Generation Z, or *Gen-Z*, as a relevant ingroup. In a Prolific survey of 296 participants aged 18-24 and currently living in Canada, I examined young people's Gen-Z ingroup identification, perceived collective efficacy of Gen-Z, and three collective action outcomes: intentions to follow youth climate groups on social media, intentions to engage in future collective climate action, and participation in sending an advocacy message to the B.C. Minister of Environment and Climate Change Strategy. I hypothesized that the interaction of ingroup identification and collective efficacy would predict collective climate action outcomes above and beyond the influence of each construct individually. This hypothesis was not supported. While Gen-Z ingroup identification and perceived collective efficacy each predicted intentions to follow youth climate groups on social media and intentions to engage in future collective action, the interaction term added no explanatory power to the models. Neither Gen-Z ingroup identification nor collective efficacy predicted participation in the advocacy message behaviour. These findings underscore the importance of systematically investigating broad social identities in the field of collective climate action, which has predominantly focused on specific environmentalist groups. The current study also highlights the need for further investigation of predictors of behavioural outcomes.

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Dedication

To the brave young women in my life whose collective action inspires me every day – you know who you are. Thank you for encouraging me to stick with graduate school, and for motivating me to create change for all the young women to come.

Introduction

> "It is true that youth have always felt like they are on the crest of a wave of change. But today, the crisis we are facing ... is of a nature that our parents' generation never had to deal with." – Anjali Appadurai, 2012, 1:51

While Greta Thunberg may be the best-known youth climate activist today, she was by no means the first young woman to gain widespread attention for speaking frankly to world leaders about their failure to address the climate crisis. In 2011, Anjali Appadurai (then 21 years old) addressed the United Nations Climate Change Conference and demanded, on behalf of the youth delegation, that world leaders "respect the future of [their] descendants" and "get it done" (Appadurai, 2011). Both Anjali Appadurai and Greta Thunberg have travelled worldwide advocating for climate change mitigation and adaptation. Each have bolstered organizations that coordinate across many countries and are defined by youth engagement on climate issues. Both have inspired future waves of young people to get involved in collective action, whether through school strikes or political campaigns. It is worth highlighting that for some time now, young people have been at the forefront of environmental activism, and there are countless examples of youth leaders like Appadurai and Thunberg all around the world.

It does seem that the majority of people under 25 years of age today, around the world, view climate change as the defining challenge of their generation (Amnesty International, 2019). This is perhaps unsurprising given evidence that young adults experience high levels of worry and anxiety due to climate change, with 45% of 16-25-year-olds in a recent multinational survey reporting that this affects their daily life (Hickman et al., 2021). Slogans seen on youth climate protest signs such as "you will die of old age; we will die of climate change" highlight not only

the existential dread some young people are feeling, but also how young people conceptualize the generational inequities of inaction on climate change. Altogether, today's generation of young people share the most profoundly common fate since the Lost Generation – the cohort of people who came of age during the First World War, and who subsequently faced the worst effects of the 1918 influenza pandemic; (see e.g., Spinney, 2018). It is worth attending to whether and how young people form and express a shared social identity as a result of this common fate, and whether and how this promotes corresponding climate action.

In the current study, I examine the shared social identity of Generation Z, or *Gen-Z*, a term for the cohort born in 1997 or later, and now 24 years of age or younger (Dimock, 2019). To assess the extent to which Gen-Z social identity may promote action on climate change, I adopt the social identity model of pro-environmental action (Fritsche et al., 2018). With this theoretical model, I examine the extent to which young people born in 1997 or later adopt Gen-Z as a social identity, the extent to which they view Gen-Z as capable of effecting change on climate issues, and in turn the extent to which each of these factors influence their climate action intentions and behaviour. In the following sections, I begin by reviewing psychological literature on climate action, and collective action (such as public protests and civic engagement) more specifically. I then review psychological theory on social identity, and describe its relevance to the study of collective climate action among young people in particular. I situate the social identity model of pro-environmental action within this field of work, and summarize key research findings relevant to Gen-Z identification and perceived capacity for effecting political change that inform the current research project. Finally, I briefly highlight issues of measurement related to collective action before outlining the objectives, research question and hypotheses of the study at hand.

Psychological Theory and Research on Climate Action

Psychologists have long sought to understand the psychological factors that motivate action to mitigate the climate crisis. Since the early 2000s, the field has focused on understanding predictors of *pro-environmental behaviours*, which are actions taken to reduce the harmful environmental impacts of one's activities (Kollmuss & Agyeman, 2002). Most of this research has centered individual-level action or behaviour change (e.g., Clayton et al., 2015; Gifford, 2011; Steg & Vlek, 2009; Stern, 2011). However, individual mitigative behaviours often require personal sacrifice with little observable or immediate impact, making them difficult to adopt and sustain. In addition, favourable outcomes depend on the actions of many (or even most) people over time. Thus, in the past five years, climate experts have repeatedly argued that individual-level behaviour change will not be sufficient to achieve the speed and scale of emission reductions that are necessary to curb the most harmful effects of climate change (e.g., Intergovernmental Panel on Climate Change [IPCC], 2018). Furthermore, the individualistic approach has overemphasized psychological contributors to individual inaction while neglecting the many cultural and societal influences on pro-environmental behavior (Schmitt et al., 2020).

In recent years, this neglect of cultural and social influences has led some psychologists to urge the field of environmental psychology to "deal more systematically with societal transformation processes and the role of psychological factors within these processes," (Schulte et al., 2020, p. 1). Such societal transformation is the explicit goal of many pro-environmental social movements, which agitate for environmental protection through protest, political participation, and joint action (e.g., the Earth Day movement of the 1970s, Idle No More, Extinction Rebellion). Psychological research must attend to these meaningful forms of collective action, and in turn, attend to their group-based antecedents (Schmitt et al., 2020) –

especially if we are seeking to promote and remove barriers to effective, mitigating, climate action. Indeed, several social scientists (e.g., Rees & Bamberg, 2014; Thomas et al., 2016) have encouraged a more dedicated research focus on collective action, and work in this area is rapidly emerging in environmental psychology.

Collective Action

Collective action comprises the behaviours undertaken by an individual, not for their personal benefit, but rather for the betterment of the whole group, or collective, to which they belong (S. C. Wright et al., 1990). Collective action can include many behaviours that aim to raise awareness of, challenge, and prevent the discrimination, oppression, and injustices faced by a particular group (van Zomeren & Iyer, 2009). Although public protests and demonstrations easily come to mind as prototypical forms of collective action, it is important to highlight that a behaviour can be characterized as collective action even if it is not performed with a group. For instance, voting, signing petitions, posting on social media, and writing letters to elected officials are mostly performed individually, but these actions constitute collective action when the expressed goal is to improve collective conditions (van Zomeren & Iyer, 2009). Usually, only a small proportion of group members engage in collective action on their group's behalf, often as part of public initiatives or through organizations that support such efforts (Klandermans & Oegema, 1987). Thus, the majority of research on collective action examines the factors that promote participation for some people while not for others.

In a seminal sociology article on participation in social movements, Klandermans and Oegema (1987) outline four stages through which individuals are mobilized to participate in collective action. First, a person must hold sympathetic or positive attitudes toward the group or cause of interest and thus have *mobilization potential* (p. 519). For example, before any pro-

environmental activism can occur, a person must have positive attitudes toward climate action and environmental protection, or be sympathetic to relevant environmental groups. Second, a person must be the target of *recruitment networks and mobilization attempts* (p. 520). At this stage, individuals are informed of opportunities to participate in the movement through media coverage, by organizations, or by friends, family, and existing community networks. Individuals have to know when, where, and what collective actions are happening before they can decide to join in (van Stekelenburg & Klandermans, 2013). Thus, at this second stage someone may be invited to become a member of an environmental organization, or may learn the dates and times of protests happening in their area. Third, individuals must be *motivated to participate* in a particular collective action (Klandermans & Oegema, 1987, p. 520). Here, not only must the individual have positive attitudes toward the issue and be aware of the opportunity to participate, but they must also have a positive attitude toward the behaviour at hand and intend to engage in it. For example, a member of an environmental group may be very motivated to attend protests and vote for environmental candidates, but may not intend to promote the cause on social media or engage in acts of civil disobedience. Finally, individuals must overcome *barriers to participation* (p. 520) before successfully and meaningfully engaging in collective action. For example, to attend a protest, the individual must travel to the location where the protest is occurring. Barriers to overcome may then include the availability of public transit or secure bike racks, inclement weather, and perceived physical safety and freedom to associate with the protest.

In psychology, research on collective action has primarily explored intergroup dynamics, with attention to social movements targeting (in)justice between social groups (e.g., based on gender, race, sexual orientation). Early research was tasked with understanding the factors that

promoted collective action among members of disadvantaged groups, while later research further explored how advantaged group members are also motivated to agitate for equality and justice (van Zomeren & Iyer, 2009). More recently, researchers have explored opinion-based groups, who may not experience differential status in relation to another social group but rather are defined based on shared ideas, values, or opinions (McGarty et al., 2009; van Zomeren & Iyer, 2009). Thus, it is only recently that psychological research on collective action has moved to examine environmental activism. In this area, environmental organizations and activists have primarily been considered as opinion-based groups – sharing pro-environmental goals and values as opposed to sharing identity-based characteristics that influence status in relation to other groups.

Psychological research has also explored the mechanisms at each stage of mobilization outlined by Klandermans & Oegema (1987) by drawing on three major theoretical perspectives: relative deprivation theory, resource mobilization theory, and social identity theory (van Zomeren & Iyer, 2009). The relative deprivation and resource mobilization theories posit that perceived disadvantages between social groups engender anger and resentment, which in turn motivate participation in collective action when there are sufficient resources to do so (see McCarthy & Zald, 1977; Walker & Smith, 2002). In contrast, social identity theory examines how an individual comes to value their group membership in and of itself, and how this in turn promotes behaviours that support the group (Tajfel & Turner, 2001). Notably, whereas relative deprivation and resource mobilization theories have applied mainly to the research on disadvantaged versus advantaged groups, the social identity perspective allows for examination of opinion-based groups as well. Social identity constructs have thus been most widely adopted in research seeking to understand the determinants of pro-environmental collective action.

The Social Identity Perspective

The social identity perspective (e.g., Hornsey, 2008; Reimer et al., 2020) refers to the combination of the central tenets of self-categorization and social identity theories. Altogether, the social identity perspective provides a theoretical basis for "explaining how individuals perceive, and act as a consequence of, their membership in social groups," (Reimer et al., 2020, p. 10). Individuals are likely to categorize themselves into social groups based on shared characteristics with other group members (Turner et al., 1994), when group members are perceived as proximal and sharing a common fate (D. T. Campbell, 1958), and when the group is cognitively salient or accessible (Reimer et al., 2020; see also Turner, 1999; Turner et al., 1987). For example, individuals may categorize themselves as belonging to a social group when they share values, lived experiences, or observable traits or features; when they are easily able to interact with similar others due to spatial or temporal proximity; when they perceive a shared affectedness by various forces; and when each of these factors is highly visible or in conscious awareness. Further, individuals identify as members of particular social groups when group membership is personally relevant, valuable, and emotionally and socially significant (Reimer et al., 2020; Tajfel, 1981). Altogether, the social categories that people perceive themselves as belonging to and claim as a feature of their social identities are termed *ingroups*. An individual's identification with a particular ingroup can influence them to internalize and adopt the attitudes, norms, goals, and behaviours consistent with their ingroup, including (in)group-based collective action.

The social identity perspective thus allows psychologists to identify mechanisms that explain why some people are more or less susceptible to each stage of mobilization. If an individual's social identity is compatible with a group or cause at the heart of a social movement,

then the individual is likely to have more sympathetic attitudes and thus have higher mobilization potential (e.g., Jiménez-Moya et al., 2019). Furthermore, as an individual identifies with their ingroup and its members, they may experience increased exposure to recruitment networks and thus may be more susceptible to mobilization attempts (Klandermans & Oegema, 1987). When an individual values their ingroup identification, they are more likely to be motivated to engage with issues relevant to their ingroup, and may develop stronger intentions to support various forms of collective action. Finally, as Klandermans and Oegema (p.520) highlight: "The more people are motivated, the higher the barriers they can overcome." Thus, an individual whose ingroup identity highly motivates them to act may be less restricted by material or social barriers than an individual whose ingroup identification is weaker. Psychological research in this area must therefore identify relevant ingroups for which pro-environmental behaviours and activism are highly valued, normative, or necessary, in order to better understand how various social identity processes motivate collective climate action.

Young People's Collective Action on Climate Change

It may be the case that pro-environmental behaviours are highly valued, normative, and necessary among today's emerging adults in particular. To this end, Gen-Z constitutes an important social group in which to study collective climate action. As introduced at the outset of this paper, adolescents and emerging adults who belong to Gen-Z have demonstrated consistent collective action on climate issues. This is perhaps most evident through global school strikes for climate action. From September 20th to 28th, 2019, more than 2,500 climate protests were held in more than 150 countries, led by and prominently featuring school-aged children and teenagers (Barclay & Resnick, 2019). Two hundred and ninety-five school strikes for climate were registered that week in Canada alone (Fridays for Future, 2021). Altogether, close to 6 million

people worldwide participated in collective climate action that week as a part of or in support of the youth-led movement (Taylor et al., 2019).

Moreover, in recent years, collective climate action among Gen-Z has been sustained and strategic. For example, teenagers in many countries have sued their governments for failing to protect their human rights by delaying or failing to take mitigative climate action (Taylor et al., 2021; The Canadian Press, 2021). Furthermore, several youth climate organizers have agitated for lowered voting ages, while others have carried out mass voter registration drives to encourage young people to vote for political candidates with strong climate policies in their platforms (Ogilvie, 2019; Sunrise Movement, 2020). One recent survey found that in the U.S., one third of respondents under the age of 25 had participated in climate actions like writing to an elected official, attending a protest, or volunteering for an environmental cause in the past year (Tyson et al., 2021). In a study commissioned by Elections Canada, results showed that young Canadians aged 16-22 were the most politically active demographic, participating in environmental protests or volunteering significantly more than older Canadians (Mahéo & Bélanger, 2021).

Yet adolescents and emerging adults have been underrepresented in social identity research on collective climate action. To date there have been only three studies of collective climate action that purposely and exclusively sampled adolescents and emerging adults (Brügger et al., 2020; Velasquez & LaRose, 2015; Wallis & Loy, 2021). Velasquez and LaRose (2015) explored the extent to which university students involved in several campus clubs intended to share political messages on social media and organize activities for their group. Although one of the campus clubs was an environmental organization, this study focused on political participation more broadly and it is unclear the extent to which the intended messages would qualify as

collective action. Brügger and colleagues (2020) surveyed 14- to 25-year-olds in Switzerland and examined what factors predicted past participation in the Fridays for Future school strikes in 2019. Wallis and Loy (2021) surveyed both German school strikers age 15-25 and a wider sample of German young people recruited through an online panel. Similarly, they sought to understand what factors predicted participation in the school strikes. Altogether, each of these studies adopted a social identity approach: Velasquez and LaRose (2015) examined the role of self-categorization within the campus clubs, while Brügger and colleagues (2020) and Wallis and Loy (2021) examined young people's social identification with other school strikers and the Fridays for Future movement.

Each of these three studies exemplify the focus on environmentalists and environmental activist identities that dominate the collective climate action literature. Although young people constituted the population of interest, the social identities under investigation were all based on specific environmentalist organizations (i.e., environmental campus club or the Fridays for Future school strike groups). However, there is reason to investigate whether a shared social identity based solely on being a young person at this time in history independently promotes collective action on climate change. As highlighted at the outset of this paper, many members of Gen-Z view climate change as the defining issue of their generation, and as an issue that affects their age demographic disproportionately. This sense of shared fate may bolster self-categorization and identification with their generational cohort as a whole (e.g., D. T. Campbell, 1958). The cognitive salience of environmental issues for Gen-Z may further bolster social identity formation in this population (Hornsey, 2008; see e.g., Amnesty International, 2019; Hickman et al., 2021).

Furthermore, social identity processes are particularly influential in the psychological and social development of people under the age of 25. The developmental period between ages 18 and 25, termed *emerging adulthood*, often includes a great deal of identity exploration (Arnett, 2000). Emerging adults experiment with different worldviews, and experience a need for belongingness that makes them more susceptible to social influence than older adults (Arnett, 2000; Renström et al., 2021). These factors help to explain why young people, on the whole, are more likely to participate in social collective actions like public protests than older adults (Renström et al., 2021). Furthermore, experiencing the mass mobilization of young people during the global climate strikes of 2019 may have further bolstered a shared social identity among Gen-Z (Brügger et al., 2020). Largescale political events are often very influential on the formation of emerging adults' political beliefs (Fillieule, 2012; Guerrero et al., 2021), and the climate strikes served to signal political norms for this generation of young people in particular. Therefore, I propose that theoretical frameworks that seek to explain collective climate action among today's young people will need to accommodate more than just environmental activist identities. To this end, I use the social identity model of pro-environmental action to examine a broader social identity shared by emerging adults, specifically, their shared generational identity.

The Social Identity Model of Pro-Environmental Action

The social identity model of pro-environmental action (Fritsche et al., 2018) is one psychological framework well-suited to the study of social identity motivators of collective climate action among Gen-Z. The social identity model of pro-environmental action describes how group-level psychological factors can interact and influence both appraisals of and behavioural responses to a collective crisis (see Figure 1). In this model, a collective crisis prompts collective emotions and motivations that shape how individuals experience *ingroup*

identification, which is the self-categorization and social identification of an individual with a relevant ingroup. Furthermore, collective emotions and motivations shape the *norms* associated with the ingroup, which are the accepted and adopted attitudes and behaviours that are perceived to be characteristic of the ingroup and its members. Building on other models of collective action (e.g., the social identity model of collective action [SIMCA], van Zomeren et al., 2008; and the encapsulation model of social identity in collective action [EMSICA], (Thomas et al., 2009), the social identity model of pro-environmental action also includes *collective efficacy beliefs* as an integral predictor of collective action. Collective efficacy beliefs encompass an individual's perception of the ability of their ingroup (or collective) to organize amongst its members, execute plans as a unified force, and be effective in achieving results as an outcome of group action (Bandura, 2000). Altogether, the central tenet of the social identity model of pro-environmental action is that ingroup identification, ingroup norms, and perceived collective efficacy interact to influence the likelihood that an individual will engage in a behaviour that benefits the ingroup (in Figure 1, this interaction is represented by the encircled 'X').

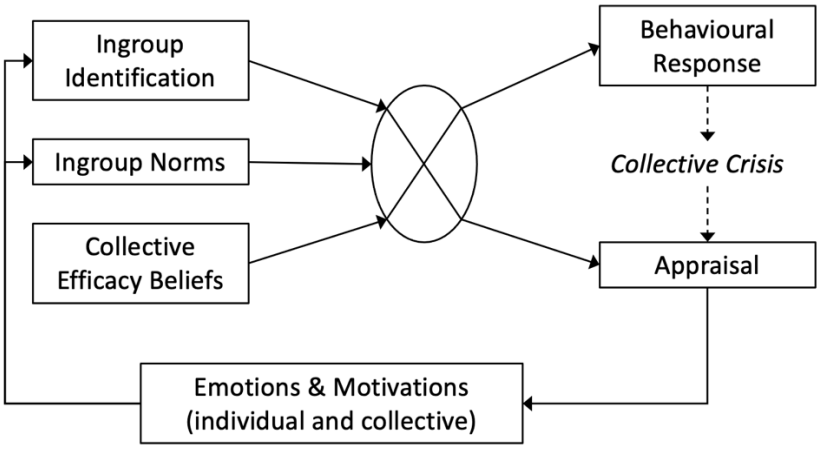

Figure 1. The social identity model of pro-environmental action, adapted from Fritsche and colleagues (2018).

Whereas other models of collective action have mainly considered ingroup identification and collective efficacy as unique predictors or pathways to collective action (e.g., SIMCA; van Zomeren et al., 2008), the social identity model of pro-environmental action suggests that these elements interact and are associated with the norms of the ingroup (Fritsche et al., 2018). In other words, the degree to which a person's ingroup identification influences their propensity to engage in collective action will depend not only on the norms associated with the ingroup, but also the individual's perceived collective efficacy in relation to their ingroup and to the collective action at hand. Because young people have for the past several years consistently demonstrated strong pro-environmental attitudes and norms, the scope of the current study will be focused on young people's ingroup identification, associated collective efficacy beliefs, and the degree to which these factors interact to explain collective climate action.

Ingroup Identification as a Predictor of Climate Action

As introduced above, ingroup identification captures the extent to which an individual perceives themself to be a member of an ingroup (self-categorization), and the extent to which

they value this group membership and view it as a characteristic of their person (social identity). Even before the seminal work in psychology that led to the study of self-categorization and social identity (now subsumed under the social identity approach; e.g., Hornsey, 2008; Reimer et al., 2020), theorists in sociology conceptualized group identification as involving these two distinct yet related elements. Leach and colleagues (2008) describe how prominent sociologist Émile Durkheim distinguished between *mechanical solidarity*, which describes how individuals consider their similarities with other group members, and *organic solidarity*, which describes "the subjective sense of purposeful self-investment in an in-group" (p.148). German sociologist Ferdinand Tönnies defined *gemeinschaft* as a shared "kinship" based on common fate and shared characteristics while *gelleschaft* captures the intentional alignment with a group based on its goals and values (as described in Leach et al., 2008, p.148). In their influential and well-validated two-dimensional model of ingroup identification, Leach and colleagues (2008) bridge these sociological models with the social identity approach from psychology, and define the sub-components of ingroup identification as *self-definition* and *self-investment*, respectively. In turn, an individual's ingroup identification determines whether they will adopt the shared goals, attitudes, and behaviours of their ingroup, including the propensity to engage in collective action.

To date, most research that seeks to predict pro-environmental collective action focuses on environmentalist ingroup identification. People who identify as environmentalists or as members of environmentalist groups are more likely to report that they engage in pro-environmental activism (McFarlane & Boxall, 2003; McFarlane & Hunt, 2006). One study even observed that identification with an environmentalist social identity accounted for 60% of the variance in self-reported pro-environmental activism among study participants (Dono et al., 2010). In another study, people who reported high ingroup identification with a local

environmental group reported greater intentions to participate in the group's regular activities (Bamberg et al., 2015). Notably, ingroup identification predicts activist behavioural intentions above and beyond the influence of environmental attitudes, perceived behavioural control, and other well-studied psychological variables (Fielding et al., 2008). Greater identification with environmentalist ingroups is also associated with greater self-reported participation in pro-environmental collective action, such as protests and civil disobedience (Furlong & Vignoles, 2021; Schmitt et al., 2019). A recent meta-analysis further confirms that environmentalist ingroup identification predicts intentions to engage in pro-environmental collective action (Schulte et al., 2020).

People's broader social categorizations, such as their ingroup identification with their neighbourhood or community, are also associated with some forms of pro-environmental action. For example, Van Vugt (2001) conducted a field study on water conservation efforts and found that individuals who had stronger ingroup identification with their community saved more water in comparison to those with weaker community identification. In contrast, Nigbur and colleagues (2010) observed that neighbourhood identification did not predict recycling behaviours above and beyond theory of planned behaviour variables, but this null effect may be explained by the choice of an individual, low-effort behaviour (recycling) as an outcome measure, which was unlikely to reflect collective or group-based influences (Reese & Junge, 2017; see for example Geiger et al., 2020). Together, these findings suggest that collective action can be bolstered by ingroup identification, even when the issue at hand does not form the basis for ingroup membership (i.e., neighbourhood ingroup identification is seemingly unrelated to environmental collective action, whereas environmental collective action is an integral feature of environmentalist groups).

It is important to note that the degree to which an individual identifies with environmentalist or neighbourhood ingroups may depend on their other intersecting social identities. Environmentalist groups and movements have been criticized for being largely influenced by White, affluent, and neo-liberal capitalist and colonial assumptions. In many instances, mainstream environmentalism and environmentalists have excluded the Indigenous, Black, and other marginalized communities and peoples who are subjected to environmental racism, disproportionately impacted by climate inaction, and who have in many instances received little to no recognition for their historied leadership and collective action on environmental issues (for further reading see: Curnow & Helferty, 2018; Gibson-Wood & Wakefield, 2013; McGregor, 2018; Rainey & Johnson, 2009). Research has shown that the term "environmentalist" signifies Whiteness and class inequity, and as such high environmental concern is more easily underestimated (or worse, ignored) in marginalized and low-income groups (Pearson et al., 2018). Furthermore, in different national and community contexts, individuals who experience marginalization as a function of their various social identities may not identify strongly with their country or community, regardless of whether their environmental attitudes or values align with those of the larger group.

Fritsche and colleagues (2018, p. 249) argued that "environmental action might often be a norm for members of groups and social categories that are not inherently related to environmentalism, such as nations, generations, or even gender groups," [underline added]. Indeed, the social identity model of pro-environmental action aims to address the research gaps that have resulted from the somewhat narrow focus on environmentalist social identities and ingroups. Age-based ingroups may represent a fruitful opportunity to address the limited scope of past work on environmentalist and neighbourhood ingroups; individuals are in some respect

"born into" these categories, and many generational cohorts are popularly characterized as having norms and shared values. In this regard, some generational ingroups may share features of opinion-based ingroups, in that they may be characterized by shared opinions on social issues (Bliuc et al., 2007; McGarty et al., 2009). Despite this important possibility, I was only able to locate one study that examined generational or age-based ingroup identification as a predictor of participation in collective action. Simon and colleagues (1998) showed that ingroup identification with older people predicted seniors' willingness to participate in collective action on seniors' issues.

Gen-Z Identity and Collective Action

When examining emerging adults' ingroup identification as a predictor of participation in collective action, past research has been inconsistent in ingroup categorization and measurement. For example, though Sabherwal et al., (2021) also used the social identity model of pro-environmental action to inform their study, they used age as a proxy for social identification with young people. However, as described above, ingroup identification is a psychological construct distinct from simply meeting criteria for group membership. Furthermore, the extent to which ingroup identification promotes collective action seems to be associated with the specificity of the ingroup term used and the ingroup boundary itself. For example, in the study by Simon and colleagues (1998), although ingroup identification with older people was predictive of collective action on seniors' issues, the association with collective action was even stronger when individuals identified with a Gray Panthers seniors' issues group. More specified or defined ingroups allow individuals to more easily self-categorize, as tighter group boundaries allow for increased cognitive accessibility and an easier assessment of comparative and normative fit (Hornsey, 2008). In other words, when an ingroup's specificity is increased, the salience of the

ingroup is heightened, and the ability to assess one's similarity with typical group members (and to differentiate from outgroup members) is facilitated. Furthermore, Schulte and colleagues (2020) suggest that "in terms of relevance to action, broad social categories should be the least relevant, with opinion-based groups representing the missing link between these very broad categories and specific activist groups," (p. 3). However, in line with the social identity model of pro-environmental action, it is possible that in some cases generational cohorts may take on the features of such opinion-based groups when a cause is central to that generation and/or when norms surrounding that cause are already established (Fritsche et al., 2018).

Therefore, in this study I examine young people's identification with Generation Z, or Gen-Z, as an ingroup[1]. Gen-Z is the generational cohort born in or after 1997, who are now 24 years of age or younger (Dimock, 2019). For my purposes of evaluating ingroup identification, the identity label "Gen-Z" will probably be more effective and salient than a term like "young people." The generational label is widely used in North America, especially in the online networks and spaces that young people occupy (e.g., YPulse, 2020). Thus, while this generational identity term may not be as widely accepted or generalizable in countries other than Canada and the U.S., participants in my survey (emerging adults aged 18-24 living in Canada) should be familiar with the term. In the North American context, there are both visible and non-visible features of prototypical Gen-Zs (e.g., wearing centre-parts and no skinny jeans, Bansal, 2021; believing governments should take action on social issues, Parker & Igielnik, 2020).

[1] Although many have identified conceptual limitations of defining and validating generational cohorts (e.g., Campbell et al., 2017; Rudolph et al., 2020), in the current research my focus is on young people's *identification* with Gen-Z as an ingroup, and not on the validity of distinguishing the social psychological characteristics of Gen-Z as a whole. Just as other social categories have fuzzy boundaries (e.g., gender, race), the extent to which an individual identifies as a member of that category is psychologically relevant in shaping both their experience of the world and their actions as a member of that category.

Furthermore, the denigration of outgroups including Boomers (i.e., people born between 1946 and 1964) and Millennials (i.e., people born between 1981 and 1996; Meisner, 2020; Strapagiel, 2020) suggests that young people experience their Gen-Z membership as a component of their social identity that bolsters self-esteem or is worth defending against others. Altogether, emerging adults surveyed in my research study should be able to easily assess and report whether they are similar or dissimilar to prototypical Gen-Zs (self-categorization), and the degree to which being a member of Gen-Z is an important aspect of their identity (social identification). Following the social identity model of pro-environmental action, the extent to which Gen-Z ingroup identification predicts collective climate action will also depend on the perceived collective efficacy of this group.

Collective Efficacy and Climate Action

Collective efficacy has been conceptualized and applied differently in sociology, psychology, and political disciplines. In sociological literature, the concept focuses on the perception of group cohesion (Gearhart, 2019). In political research, the concept is applied to the perception that the group's collective action can be effective in achieving desired results (Hornsey et al., 2006). Among psychologists, collective efficacy beliefs capture the "perceived collective capacity to take coordinated and interdependent action on issues that affect [one's group]" (Collins et al., 2014, p. 328), or the "sense of control, influence, strength, and effectiveness to change a group-related problem," (van Zomeren et al., 2008, p. 513). Most simply, it is the perceived ability of one's group to organize members, execute plans, and achieve desired results (Bandura, 2000). Importantly, psychological research on collective efficacy has uncovered that such desired results are diverse, and may vary among members of the ingroup itself. For example, valued goals for some might include the desire to effect political and social

change while for others the desire to build support for the movement and build solidarity among group members may predominate (Hornsey et al., 2006). Thus, focusing solely on "perceived effectiveness" or outcome expectancies, as is common in research on political activism, may not capture the full range of collective efficacy beliefs that influence engagement in collective action. In the current study, I adopt the broad conceptualization of perceived collective efficacy, and seek to capture young people's beliefs about Gen-Z's ability to organize, coordinate, and execute collective action that is meaningful in various ways.

Available research evidence shows that stronger collective efficacy beliefs are associated with greater likelihood of pro-environmental intentions and behaviours (Barth et al., 2016; Cohen-Chen & Van Zomeren, 2018; Hamann & Reese, 2020; Jugert et al., 2016; Thaker et al., 2019). However, when examining collective action more broadly (i.e., on social issues not limited to climate change) evidence from one meta-analysis shows that collective efficacy beliefs are associated with greater engagement in collective action, with nearly equivalent effects shown across causal experiments and correlational studies (rs = .36, ps < .001; van Zomeren et al., 2008, p. 516). Importantly, the majority of research examining how collective efficacy can promote collective action has focused on public protests, comparing participants who are usually identified as activists or non-activists.

Although there has not (as of yet) been an empirical test of the central interaction of the social identity model of pro-environmental action, some research evidence hints that such an interaction may well exist. For example, one study showed that those who were more strongly identified with environmental activists experienced a stronger sense of collective efficacy than low-identifiers (Wallis & Loy, 2021). Other findings from the literature on protest participation among activists, and support of the movement by non-activists, suggest that ingroup

identification may moderate the influence of collective efficacy beliefs. For example, Hornsey and colleagues (2006) found that individuals who identified less strongly with an activist group or movement were more influenced by the perceived effectiveness of the collective action at hand, while those with high identification with these ingroups were more concerned about the solidarity of their group, their ability to express important values, and bringing new members into the movement. These findings highlight the possibility that the association between each component of perceived collective efficacy and collective action may vary as a function of ingroup identification. For example, perceived collective efficacy may be more strongly associated with collective action among weak ingroup identifiers than strong ingroup identifiers, suggesting that high identifiers may be less concerned about the effectiveness of collective action than low identifiers (Blackwood & Louis, 2012). Similarly, Velasquez and colleagues (2019) showed that collective efficacy beliefs were more strongly related to online political expression for low identifiers than high identifiers. Taken together, these results demonstrate the need to assess how ingroup identity and collective efficacy interact to more fully understand and predict people's engagement in collective action.

Measuring Collective Action Outcomes

Existing research on collective climate action has examined a limited scope collective action outcomes. Past research has focused heavily on intentions to engage in collective climate action and self-reported activist behaviours as the outcomes of interest. Few studies to date have focused on actual behaviour as the collective action outcome of interest, at least in the domain of climate-related collective action. This oversight may be due to practical considerations. Collective action behaviours are multiply-determined, and thus associations between measures of collective action and any single predictor are likely to be small and difficult to detect (van

Zomeren et al., 2008, p. 510). Yet researchers need to know how to predict behaviour if they want to inform policy and intervention efforts, because behavioural intentions and self-reported behaviour are often weak and inaccurate proxies for true behaviour, especially in the domain of pro-environmental action (e.g., Kormos & Gifford, 2014; Lange & Dewitte, 2019). Furthermore, it is important to explicitly identify instances when intentions do not translate to behaviour. Why might some collective action intentions translate into behaviours but not others? Why is it easier for some people to overcome barriers to participation in collective action than others? Answering such questions is important not only for developing a stronger theoretical model of the stages of social mobilization (see Klandermans and Oegema, 1987), but seeking such answers will also allow researchers to understand the strengths and limitations of social identity factors for promoting collective action. Thus, the psychological study of collective action will benefit from including outcome variables that are both self-reported and observed, and that correspond to multiple stages of social mobilization.

Objectives of the Current Research

The first objective of this research is to examine the extent to which young people identify with a relevant ingroup identity, Gen-Z. The existing literature on social identity motivators of collective climate action have focused primarily on environmentalist and activist ingroup identities, whereas broader social identities (e.g., generational groups) have yet to be systematically evaluated. Second, I aim to explore the extent to which the Gen-Z ingroup identity may promote collective action on climate change. Pro-environmental attitudes are strong in this group and Gen-Z has established norms of collective climate action. A third objective is to empirically test the assumption of the social identity model of pro-environmental action that "high ingroup identification... [may be] responsible for catalyzing the collective efficacy effect,"

on collective climate action (Fritsche et al., 2018, p. 254). To date, only two empirical studies have adopted the social identity model of pro-environmental action (Li et al., 2019; Sabherwal et al., 2021). While both of these studies make useful contributions to understanding the larger model (including the components of appraisal and collective emotion), neither directly tested the interaction central to the model in predicting collective action. Finally, I aim to test the interaction of ingroup identification and collective efficacy as a predictor of multiple collective action outcomes roughly corresponding to multiple stages of mobilization. I assess participants' likelihood of following youth environmental groups on social media platforms, corresponding to their exposure to *recruitment networks and mobilization attempts*. I further assess participants' reported intentions of engaging in various forms of collective climate action, or their *motivation to participate*. Finally, I measure a real behaviour of collective climate action: writing an advocacy message to the B.C. Minister of Environment and Climate Change Strategy. In essence, those who write a message to the Minister effectively overcome *barriers to participation*.

Research Questions & Hypotheses

In the current study, I seek to answer the following research question: How do young people's ingroup identification with Gen-Z and perceived collective efficacy of Gen-Z together predict the likelihood of collective action on climate change? If the social identity model of pro-environmental action is correct in suggesting that the combination of these factors best predicts climate action, I hypothesize that the interaction of ingroup identification with Gen-Z and the perceived collective efficacy of Gen-Z will predict collective climate action outcomes better than each predictor will individually. My hypotheses concerning the exact form this interaction will take remain exploratory, as the literature suggests multiple patterns of effects. Following the

social identity model of pro-environmental action, it could be that collective efficacy catalyses the effect of ingroup identification (Fritsche et al., 2018). If this is the case, the influence of collective efficacy beliefs on collective action outcomes should be strongest for those who highly identify with Gen-Z. However, other research has suggested that collective efficacy beliefs may be most motivating for those who do not have other compelling reasons such as felt solidarity or belongingness with other group members (e.g., Hornsey et al., 2006). If this is the case, the influence of collective efficacy beliefs on collective action outcomes should be weaker for those who highly identify with Gen-Z and stronger for those who do not identify with Gen-Z.

Method

The participants sampled and measures collected in this study belong to a subset of a larger research project testing the social identity model of pro-environmental action on both Gen-Z climate action and Gen-Z engagement in COVID recovery efforts (see Appendix A for a complete list of measures). I will only report results for the subset of participants who completed the measures that were relevant to the current research.

This study was granted full ethics clearance by the University of Victoria Human Research Ethics Board (protocol number 21-0064).

Participants

Participants were recruited through the Prolific online recruitment platform and participant pool (Palan & Schitter, 2018) from June 23rd to June 26th, 2021. Popular convention demarcates 1997 as the earliest birth year for members of Gen-Z (Dimock, 2019), and I adopted this cut-off for this study. Therefore, only those born in the year 1997 and later were eligible to participate in the study. Furthermore, participants were eligible only if they were currently residing in Canada. Only Prolific members who met these criteria based on their Prolific profile information were able to view the study listing, and opt-in to participation. Altogether, a population of 1,697 Prolific members met these criteria, and 317 participants opted to participate in the survey.

Participants whose responses to the eligibility questions differed from their Prolific profile were excluded (n = 15), as were those who did not complete any questions on the survey (n = 1). Participants who had not seen or heard the term “Generation Z” or “Gen-Z” used before were further excluded from analyses (n = 3). Participants who did not complete any of the three outcome measures were also excluded before analyses (n = 2). The final sample included 296

participants, of which 144 (48.65%) reported identifying as a man, 8 (2.70%) as non-binary, and 143 (48.31%) as a woman. Furthermore, 13 participants (4.39%) identified as Black, 100 (33.78%) identified as East Asian, two (0.68%) identified as Indigenous, 16 (5.41%) identified as Mixed Race/Ethnicity, 36 (12.16%) identified as South Asian, 105 (35.47%) identified as White, and 24 (8.11%) specified additional racial and ethnic identities (the most common of which included Filipino, Persian, and Arabic). Eight participants had not yet completed high school (2.7%), and 65 participants graduated high school and had no further education at the time of the survey (21.96%). The majority of participants had completed some college or university (n = 119, 40.20%), and 20 participants had completed a professional diploma (6.76%) and 79 had completed a bachelor's degree (26.69%). Five participants were enrolled in a graduate program at the time of the survey (1.70%). Participants were compensated $3.25 USD for approximately 20 minutes of time for participation, according to Prolific policies for fair compensation of research participants (Palan & Schitter, 2018).

Procedure

All participants self-selected to participate in the study through their Prolific account. Once on the study landing page on Prolific, participants were redirected to participate in the online survey, administered using Qualtrics. After being presented with the letter of information and consent form, participants were first asked to indicate their birth year. Any participants born prior to the year 1997 were excluded from the study, and thanked for their interest before exiting the survey.

All eligible participants were first provided with a definition of Gen-Z, namely the generational cohort that includes persons born in the late 1990s and early 2000s. As a control measure, participants were asked if they had ever seen or heard the term Gen-Z (or Generation

Z) before this study. Participants then indicated the degree to which they identify as being a member of Gen-Z (i.e., their ingroup identification) by answering the ingroup identification questionnaire items. Participants then responded to items assessing their perceived collective efficacy of Gen-Z.

Following the completion of these measures, participants were provided the opportunity to draft a message expressing their views on climate action, as a member of Gen-Z, that will be compiled and emailed to the B.C. Minister of Environment and Climate Change Strategy. At this point, participants were told that if more than half of the study participants draft a message at the time the study is completed, the researcher (I) would format their messages into social media posts and launch a Gen-Z advocacy social media account, to share these messages tagging the provincial Minister (see Appendix A). Participants then indicated whether they wanted to draft a message to the Minister (a yes/no selection item). If yes was selected, participants were provided with a text box in which they could write their message. Importantly, the advocacy message writing task was presented before the intentions measures to minimize any behavioural spillover effects (for further reading see: Maki et al., 2019; Nilsson et al., 2017; Thøgersen, 2012; Truelove et al., 2014).

Following the message-writing page, participants completed the questionnaire assessing their intentions to participate in future collective climate action. They were then asked if they were likely to follow several youth-led or youth-centred groups who are engaging in climate action in Victoria, B.C. and Canada. Finally, participants were thanked for their participation and debriefed about the full purpose of the study. Information about the youth climate groups were again provided in the debriefing letter as well as resources for further reading.

Measures

Ingroup Identification

I measured ingroup identification using the two-dimension scale developed by Leach and colleagues (2008; see Appendix A). This scale captures both dimensions of ingroup identification, namely self-definition and self-investment. It is well-validated (Leach et al., 2008) and shown to be generalizable and invariant across several social groups (Roth et al., 2019). The self-definition dimension assesses the extent to which individuals perceive shared characteristics and features with other members of Gen-Z (e.g., "I have a lot in common with the average Gen-Z person"), while the self-investment dimension assesses the extent to which individuals perceive shared goals and values, and a shared fate, with other members of Gen-Z (e.g., "I feel solidarity with Gen-Z," and "Being a Gen-Z is an important part of how I see myself,"). Participants indicated their agreement with all ingroup identification items on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*).

Before performing inferential analyses, I analyzed the two dimensions of the ingroup identification scale (Leach et al., 2008) to confirm that a mean score across both dimensions was reliable and valid in assessing ingroup identification. Past research has shown that self-definition and self-investment are highly correlated ($r = .68$, $p < .001$; Velasquez et al., 2019). In this sample, both subscales were again highly correlated ($r = .66$, $p < .01$, 95% CI [.59, .72]). Thus, I calculated a single mean score for ingroup identification comprised of all items on both the self-definition and self-investment subscales. Higher mean scores on this measure of ingroup identification indicate a stronger identification with Gen-Z. This scale showed high internal consistency (Cronbach's $\alpha = 0.93$).

Collective Efficacy Beliefs

Participants indicated their agreement with a series of items assessing their confidence in Gen-Z's capacity to take action on climate change, following the question stem recommended by Bandura (2006) for measuring collective efficacy. I adapted several items from previous studies (Bamberg et al., 2015; Hart & Feldman, 2016) and several were developed for the current study (see Appendix A). Several items refer to achievable outcomes such as "Together, Gen-Zs can convince elected officials to enact strong climate policies." Other items focus on movement building such as "Gen-Zs can influence each other to care about climate change." Further items touch on Gen-Zs' ability to engage in coordinated action, such as "Through joint action, Gen-Z can make an effective contribution to climate action." All together, these items capture participants' beliefs in Gen-Z's abilities to organize, execute and achieve desired results (Bandura, 2000) on climate action using a 7-point Likert-type scale (1 = *cannot do at all* to 7 = *certainly can do*). I averaged the items to create a mean score of Gen-Z collective efficacy with high internal consistency (Cronbach's $\alpha = 0.88$). Higher mean scores on this scale thus indicate greater perceived collective efficacy of Gen-Z.

Intentions to Follow Youth Environmental Groups on Social Media

This measure was designed to assess participants' intentions to follow various youth climate organizations on social media (e.g., Instagram, Facebook, Twitter). This outcome measure corresponds to the degree to which individuals become targets of mobilization attempts and gain exposure to recruitment networks in Klandermans & Oegema's (1987) model of collective action mobilization. If participants follow relevant youth environmental groups on social media, they will be more likely to gain awareness of future initiatives or joint actions. Four environmental groups were presented separately, with a short description of each group (e.g., "The Youth Climate Lab is a Canadian organization that provides training, resources, ad access

to a wide social network, all to support young people as they become lifelong climate leaders. They work with a variety of community partners to develop and scale-up youth-led climate action. You can follow @youthclimatelab on Instagram, Facebook, and Twitter, and find more information at https://linktr.ee/youthclimatelab/"; see Appendix A). Importantly, all organizations included for this measure are active, Canadian groups with the central goal of engaging young people 25 and under in meaningful climate action. Participants were asked to indicate how likely they were to follow each organization's social media account(s) on a 5-point Likert-type scale (1 = *definitely will not*, 3 = *don't know, need more information*, 5 = *definitely will*). Participants could also indicate if they already follow the group on social media. Participants were excluded from analyses using this measure if they indicated that they do not have accounts on any of the listed social media platforms. Responses to all four items (corresponding to the four youth climate groups) were averaged to create a single mean score with high internal consistency (Cronbach's $\alpha = 0.94$). Higher mean values on this measure indicate stronger intentions to follow the youth climate groups on social media.

Collective Action Intentions

I further assessed participants' intentions to participate in various forms of collective action. This outcome measure corresponds to Klandermans and Oegema's motivation to participate. I employed a single-factor measurement scale developed by Sabherwal and colleagues (2021), which demonstrated high reliability in their previous research (Cronbach's $\alpha = 0.96$). Participants indicated the likelihood that they would engage in various forms of collective action if a person they liked and respected invited them to, such as "sharing information about climate action on social media," "donating money to an organization working on climate action," and "attending a political rally, speech, or organized protest about climate

action," (see Appendix A). Responses were measured on a 5-point Likert-type scale (1 = *definitely would not do* to 5 = *definitely would do*), and then averaged to create a mean score of collective action intentions with high internal consistency (Cronbach's $\alpha = 0.88$). Thus, high mean scores on this measure indicate strong intentions to engage in various forms of collective action on climate change.

Advocacy Message Writing Task

The behavioural assessment of collective action in the proposed study follows the operational definition of collective action provided by S. C. Wright and colleagues (1990), namely that it encompasses any behaviour undertaken for the benefit of a group, to achieve the goal(s) of the group, and not solely for the individual's personal gain. Participants were provided with the opportunity to draft a short message expressing their views on climate action to British Columbia's Minister of Environment and Climate Change Strategy (as of this writing, Hon. George Heyman; see Appendix A). Participants were informed that following data collection, their messages would be compiled and emailed to the Minister. Whether a participant wrote a message to the Minister of Environment and Climate Change Strategy or not serves as the categorical binary outcome. This outcome variable represents whether participants were able to overcome barriers to participation (as in Klandermans & Oegema, 1987) and engage in a real form of collective action.

Furthermore, the task employed for this measure was framed to characterize the messages as requiring some element of interdependence to be maximally effective. This is likely to allow for better assessment of the role of collective efficacy in promoting collective action, as the perceived interdependence of collective actions has been shown to moderate the influence of collective efficacy beliefs on young adults' online political expression on behalf of their ingroup

(Velasquez & LaRose, 2015). In one study, Velasquez and LaRose (2015) found that the more interdependent a task was deemed to be, the stronger the influence of collective efficacy on participation in online group activity and expression. To this end, participants were not only told that their messages would be emailed to the Minister, but also that they may be shared on social media. Participants were informed that if (and only if) more than half of participants wrote a message to the Minister, the researchers would create a social media account to share these messages publicly, tagging the relevant Minister on each post, and potentially generating an even greater social impact of the messages.

Results

Data Diagnostics

First, I examined responses on the focal predictor variables for missing data. A priori exclusion criteria included casewise exclusion for any participant missing data on: two or more items of the self-investment subscale, one or more items on the self-definition subscale, or two or more items on the collective efficacy scale. No participants met any of these casewise exclusion criteria, and mean scores were created with no imputations for single missing values. I also examined missing data for demographic and outcome variables, and I will describe those results in the sections pertaining to their respective analyses.

I also examined the data for univariate, bivariate, and multivariate outliers. While I detected one possible outlier via univariate boxplots and bivariate scatterplot matrix, no multivariate outliers were identified (i.e., no values of Mahlanobis distance were greater than the critical threshold). Upon further inspection of the potential bivariate outlier, all item values were within the full range of possible and logical values on each scale. There were no observable response patterns characteristic of inattention, and all responses were logically aligned (e.g., age and educational attainment were commensurate). Survey response time for this case was consistent with attentive responding. Therefore, I retained this case for all subsequent analyses. As a final check on robustness, I performed all focal analyses a second time with the outlier removed, and no differences in results were observed. All findings stayed constant, with no changes to the significance or magnitude of any effects.

Preliminary Descriptive Analyses

Descriptive statistics and correlations for all continuous measures are provided in Table 1.

Table 1

Descriptive Statistics and Correlations of Continuous Variables

Variable	*M*	*SD*	1	2	3	4
1. Birth Year	1999.43	1.73				
2. Gen-Z Ingroup Identification	4.01	1.10	.14* [.02, .25]			
3. Perceived Collective Efficacy	5.09	1.04	.03 [-.08, .15]	.30** [.19, .40]		
4. Social Media Follow Intentions	2.94	1.05	.04 [-.08, .16]	.29** [.18, .39]	.22** [.10, .33]	
5. Collective Action Intentions	3.46	0.78	.06 [-.06, .17]	.35** [.24, .45]	.33** [.22, .43]	.67** [.60, .73]

Note. *M* = mean; *SD* = standard deviation. Values in square brackets indicate the 95% confidence interval for each correlation. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

The correlation matrix in Table 1 reveals some interesting associations that are worth interpreting. The positive correlation between birth year and Gen-Z ingroup identification indicates that younger participants reported higher identification with Gen-Z. This finding is novel, as researchers have not previously examined "Gen-Z" as an ingroup identity. One explanation for this age effect may be that younger participants are more easily identifiable to society in general as belonging to Gen-Z (for example, they appear younger, have only recently graduated high school). In comparison, older participants in this generation may have been (mis)identified by others as Millenials, especially if these participants were in high school before the term "Gen-Z" gained prominence. Another explanation may be that younger participants see

prototypical Gen-Z members (e.g., Greta Thunberg, Emma Gonzalez, Lil Nas X) as more similar in age and interests to them, whereas older participants may see prototypical Gen-Zs as younger or distinct in other ways. Whatever the reason for this age effect, it raises the possibility that age is a confound for Gen-Z identity in my research, a possibility that I will account for in my focal analyses.

The positive correlation between Gen-Z ingroup identification and perceived collective efficacy of Gen-Z is also worth highlighting (see Table 1), once again because it is novel. One explanation for this association may come from classic psychological theories concerning the function of ingroups, namely that ingroup identification can bolster self-worth (see for example, Correll & Park, 2005). According to this principle, an individual will ascribe positive characteristics to their ingroup and view their ingroup favourably to protect their individual self-esteem. Therefore, high ingroup identification with Gen-Z might be associated with high perceived collective efficacy because it is considered a positive quality for the ingroup and thus ascribing such a characteristic to the ingroup protects the self-esteem of the ingroup member. Another, perhaps complementary explanation may be that past Gen-Z collective action, including the school strikes for climate action, bolstered both identification with Gen-Z and the perceived collective efficacy of Gen-Z. If collective action is a key characteristic of Gen-Z, it follows that ingroup identification and perceived collective efficacy would thus be positively associated.

Measure Validation

To assess the criterion validity of my outcome measures, I first examined the correlation of the social media follow intentions measure (which was developed for this study) with the previously-validated scale measuring collective action intentions (Sabherwal et al., 2021). Both

measures were highly and positively correlated (see Table 1), suggesting reasonable criterion validity. Next, I conducted two binomial logistic regressions to examine whether social media follow intentions and collective action intentions were positively associated with the advocacy message writing measure, which was also created for this study. Results from these analyses are reported in Appendix B (see Tables 9 and 10). Both social media follow intentions and collective efficacy intentions significantly predicted advocacy message-writing (see Appendix B, Figures 5 and 6). Once again, the positive association between this novel dependent measure and a validated measure of collective action intentions supports the internal validity of my new measure.

Analytic Strategy

I used hierarchical regression for my focal analyses. Under this approach, the predictor variables are entered into the regression model in a series of steps. With each additional step one can evaluate whether the addition of new variables improves model fit, and whether new variables account for more of the overall variance than variables input at earlier steps. For this reason, hierarchical linear regression is of particular use when testing the relative importance of specific variables (or their interaction) in predicting an outcome. At the first step in the hierarchical model, control variables are entered. Variables pertaining to known constructs are entered in subsequent steps, while variables for novel constructs or previously untested associations are entered last in the model.

In the current study, the first step for each hierarchical model consisted of entering all demographic variables as potential control variables. For social media follow intentions, collective action intentions, and advocacy message writing, I anticipated that certain demographic characteristics might be associated with the outcomes of interest, and thus wanted

to control for such associations. For example, age, gender, and education have been shown in previous research to predict various collective climate action outcomes (e.g., Brügger et al., 2020). Furthermore, racial and ethnic identities may predict individuals' propensity to engage in various forms of environmental and political actions due to a diversity of cultural norms, anticipated consequences of such actions, and the intersectionality of racial and environmental issues (see Earl et al., 2017, p. 5). Thus, for each regression model, I first regressed each collective action outcome on birth year, gender, racial identity, and education and retained in the first step of the model those demographic variables that significantly predicted the outcome variable. In the second step of the model, I entered Gen-Z ingroup identification and perceived collective efficacy as predictors.

At the second step, the continuous variables of ingroup identification and perceived collective efficacy were entered untransformed (rather than mean-centered) so that the model output could be interpreted in the context of the scale values (rather than in the context of the sample mean). Because Gen-Z ingroup identification has never before been explored, I deemed this valuable. To control for multicollinearity when adding the two-way interaction of ingroup identification and collective efficacy to the model in the third step, I first mean-centered these continuous variables before calculating the interaction term (following Aiken & West, 1991). Thus, at the third step of the model includes the mean-centered predictors of ingroup identification and collective efficacy, as well as their two-way interaction. Examining the change in model fit at this third step in the hierarchical model allowed me to test whether the interaction between ingroup identification and collective efficacy predicted collective action outcomes above and beyond each predictor individually, as proposed by the social identity model of pro-environmental action.

Intentions to Follow Youth Climate Groups on Social Media

Participants who did not have accounts on any of the social media platforms listed in this measure (n = 15) or who already followed more than one of the youth climate groups on social media (n = 9) were excluded from analyses on this outcome variable. Mean scores on social media intentions were calculated with no imputations for single missing values for all remaining participants. One participant did not report their gender, and thus was excluded from subsequent analyses of social media follow intentions, leaving a final sample of n = 271 on this outcome. All demographic variables (birth year, gender, race/ethnicity, and education) were first tested as predictors of social media follow intentions. Only gender was a significant predictor, and thus retained in the focal hierarchical model.

The results of the hierarchical regression model of social media follow intentions are summarized in Table 2. For each step of the model, assumptions of linearity, normality, homoscedasticity, multicollinearity, and independence of errors were satisfied. In Step 1, gender was entered as a predictor, with two dummy-coded contrasts with women as the comparison group (man = 1, woman = 0; non-binary = 1, woman = 0). Overall, the model fit was significant, R^2 = .04, $F(2, 268) = 5.02$, p = .007, 95% CI [.00, .08], and gender (man vs. woman) was a significant predictor of social media follow intentions. On average, men showed weaker intentions to follow climate action youth groups than did women. In Step 2, Gen-Z ingroup identification and perceived collective efficacy were added to the model. The model fit was significant R^2 = .13, $F(4, 266) = 9.95$, $p < .001$, 95% CI for R^2 [.05, .20], and importantly this model was a significantly better fit than the first step with gender alone (ΔR^2 = .09, $F(2, 266) = 14.38$, $p < .001$). Both Gen-Z ingroup identification and perceived collective efficacy predicted social media follow intentions. When holding collective efficacy and gender constant, a one-unit

increase in Gen-Z ingroup identification was associated with a 0.22 unit increase in intentions to follow youth climate groups on social media. When holding Gen-Z ingroup identification and gender constant, a one-unit increase in perceived collective efficacy was associated with a 0.16 unit increase in social media follow intentions.

I added the interaction of Gen-Z ingroup identification and perceived collective efficacy to the model in Step 3. Although model fit was significant at this step ($R^2 = 0.13$, $F(5, 265) = 7.93$, $p < .001$, 95% CI for R^2 [.05, .19]), this was not a significant improvement over Step 2 ($\Delta R^2 = .00$, $F(1, 265) = 0.03$, $p = .871$). The addition of the interaction term did not explain more of the variance in social media follow intentions than did the previous model testing main effects at Step 2. There was no significant interaction between Gen-Z ingroup identification and perceived collective efficacy (see Figure 2). At this step, I further examined the additional statistical assumption for an interaction effect, namely that the association between the predictor and the outcome is linear at each level of the moderator. This assumption appears to have been violated (see Appendix C, Figure 7). Due to concerns about interpretability and lack of necessary power, I did not explore potential curvilinear associations between these three constructs.

Table 2

Hierarchical Regression Results for Social Media Follow Intentions

Variable	*β*	*b* [CI]	*SE*	*t*	*p*	Δ R^2	*F*
Step 1 (df = 268)						0.00	
Constant		3.08 [2.90, 3.25]	0.09	34.34	< .001		
Gender – Man vs. Woman	-0.15	-0.32 [-0.57, -0.07]	0.13	-2.49	.013		
Gender – Non-Binary vs. Woman	0.09	0.61 [-0.17, 1.40]	0.40	1.54	.126		
Step 2 (df = 266)						0.09	14.38***
Constant		1.36 [0.69, 2.04]	0.34	4.00	< .001		
Gen-Z Ingroup Identification	0.22	0.22 [0.10, 0.34]	0.06	3.65	< .001		
Gen-Z Collective Efficacy	0.16	0.16 [0.04, 0.28]	0.06	2.57	.011		
Gender – Man vs. Woman	-0.11	-0.23 [-0.48, 0.01]	0.12	-1.89	.059		
Gender – Non-Binary vs. Woman	0.11	0.70 [-0.05, 1.45]	0.38	1.83	.069		
Step 3 (df = 265)						0.00	0.03
Constant		3.04 [2.86, 3.21]	0.09	34.38	< .001		
Gen-Z Ingroup Identification[a]	0.22	0.22 [0.10, 0.34]	0.06	3.64	< .001		
Gen-Z Collective Efficacy[a]	0.16	0.16 [0.04, 0.28]	0.06	2.56	.011		
Ingroup Identification[a] X Collective Efficacy[a]	0.01	0.01 [-0.09, 0.11]	0.05	0.16	.871		
Gender – Man vs. Woman	-0.11	-0.23 [-0.48, 0.01]	0.12	-1.89	.060		
Gender – Non-Binary vs. Woman	0.11	0.70 [-0.05, 1.45]	0.38	1.83	.068		

Note. CI = confidence interval. *SE* = standard error. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.
[a] Variables are mean-centered.

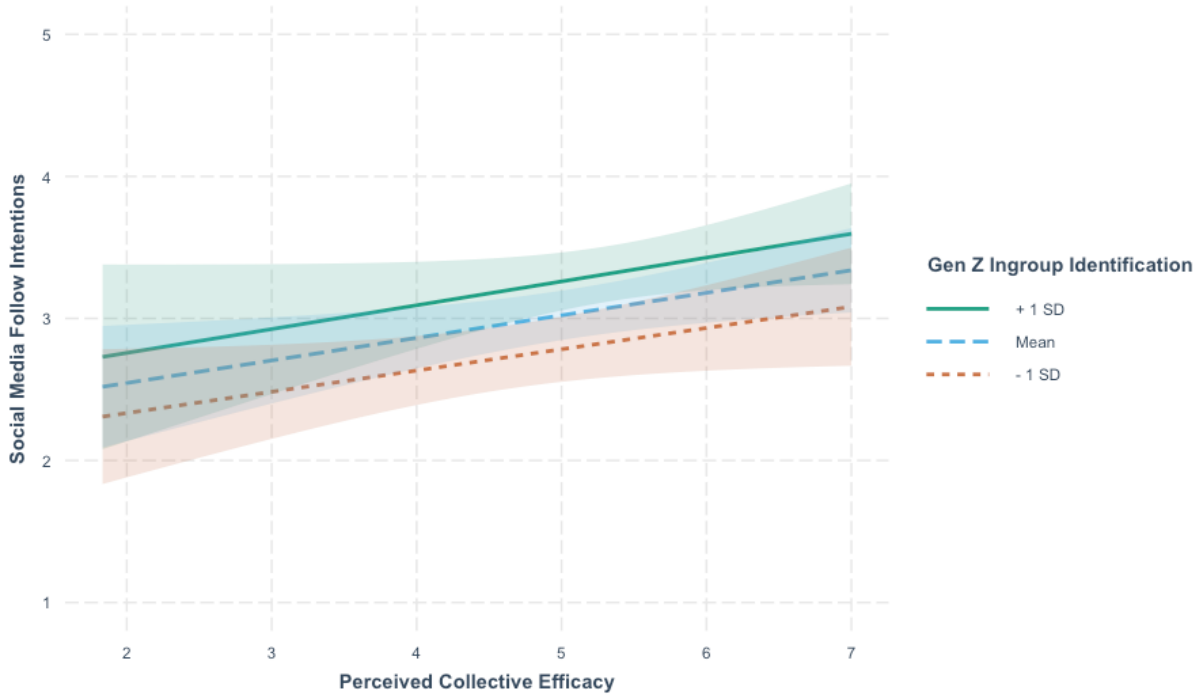

Figure 2. Association between Gen-Z ingroup identification, perceived collective efficacy, and intentions to follow youth climate groups on social media. Note that no interaction effect is present.

Intentions to Engage in Collective Action

Following the protocol used by Sabherwal and colleagues (2021), participants who did not respond to more than two items on this scale (n = 10) were excluded from analyses of collective action intentions. Mean scores for collective action intentions were created with no imputations for single missing values for the rest of the sample. One participant who did not report their gender was excluded from analyses, therefore n = 285 for all subsequent analyses on collective action intentions. Again, only gender was a significant predictor of collective action intentions, and thus retained in the focal hierarchical model as a control variable.

To analyze collective action intentions, I used the same approach to the hierarchical regression analyses described above for social media follow intentions. Results for the collective

action intentions models are summarized in Table 3. For each step of the model, assumptions of linearity, normality, homoscedasticity, multicollinearity, and independence of errors were satisfied. At Step 1, the model fit was significant, $R^2 = .06$, $F(2, 282) = 8.35$, $p < .001$, 95% CI for R^2 [.01, .11], and gender (man vs. woman) was a significant predictor of social media follow intentions, such that men reported weaker collective action intentions than women. The model fit at Step 2 was also significant, $R^2 = .21$, $F(4, 280) = 18.48$, $p < .001$, 95% CI for R^2 [.12, .28], and once again this model was a significantly better fit than the first step with gender alone ($\Delta R^2 = .15$, $F(2, 280) = 27.06$, $p < .001$). Both Gen-Z ingroup identification and perceived collective efficacy predicted collective action intentions. When holding collective efficacy and gender constant, a one-unit increase in Gen-Z ingroup identification was associated with a 0.17 unit increase in collective action intentions. When holding Gen-Z ingroup identification and gender constant, a one-unit increase in collective efficacy was associated with a 0.19 unit increase in collective action intentions.

As with social media follow intentions, although model fit at Step 3 was significant, $R^2 = .21$, $F(5, 279) = 14.86$, $p < .001$, 95% CI for R^2 [.12, .28], this was not a significant improvement over the model at Step 2 ($\Delta R^2 = .06$, $F(1, 279) = 0.50$, $p = .482$). The addition of the interaction term did not account for any more of the variance in collective action intentions than did the previous model with Gen-Z ingroup identification and perceived collective efficacy entered separately, and no significant interaction effect was observed (see Figure 3). Once again, I examined the additional interaction assumption that the association between the predictor and the outcome is linear at each level of the moderator, which again appears to have been violated (see Appendix C, Figure 8). Again, due to issues of interpretability and lack of necessary power, I did not further explore curvilinear associations between these three constructs.

Table 3

Hierarchical Regression Results for Collective Action Intentions

Variable	*β*	*b* [CI]	*SE*	*t*	*p*	Δ R^2	*F*
Step 1 (df = 282)						0.00	
Constant		3.64 [3.51, 3.77]	0.06	56.36	< .001		
Gender – Man vs. Woman	-0.24	-0.37 [-0.56, -0.19]	0.09	-4.06	< .001		
Gender – Non-Binary vs. Woman	-0.01	-0.05 [-0.60, 0.50]	0.28	-0.18	.854		
Step 2 (df = 280)						0.15	27.06***
Constant		1.97 [1.50, 2.43]	0.24	8.33	< .001		
Gen-Z Ingroup Identification	0.23	0.17 [0.09, 0.25]	0.04	4.06	< .001		
Gen-Z Collective Efficacy	0.25	0.19 [0.11, 0.28]	0.04	4.50	< .001		
Gender – Man vs. Woman	-0.19	-0.30 [-0.47, -0.13]	0.09	-3.52	< .001		
Gender – Non-Binary vs. Woman	0.00	0.01 [-0.49, 0.52]	0.26	0.05	.960		
Step 3 (df = 279)						0.00	0.50
Constant		3.62 [3.50, 3.74]	0.06	59.13	< .001		
Gen-Z Ingroup Identification[a]	0.24	0.17 [0.09, 0.25]	0.04	4.10	< .001		
Gen-Z Collective Efficacy[a]	0.24	0.18 [0.10, 0.27]	0.04	4.27	< .001		
Ingroup Identification[a] X Collective Efficacy[a]	-0.04	-0.02 [-0.09, 0.04]	0.03	-0.70	.482		
Gender – Man vs. Woman	-0.19	-0.30 [-0.47, -0.13]	0.09	-3.53	< .001		
Gender – Non-Binary vs. Woman	0.00	0.01 [-0.50, 0.51]	0.26	0.02	.982		

Note. CI = confidence interval. *SE* = standard error. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.
[a] Variables are mean-centered.

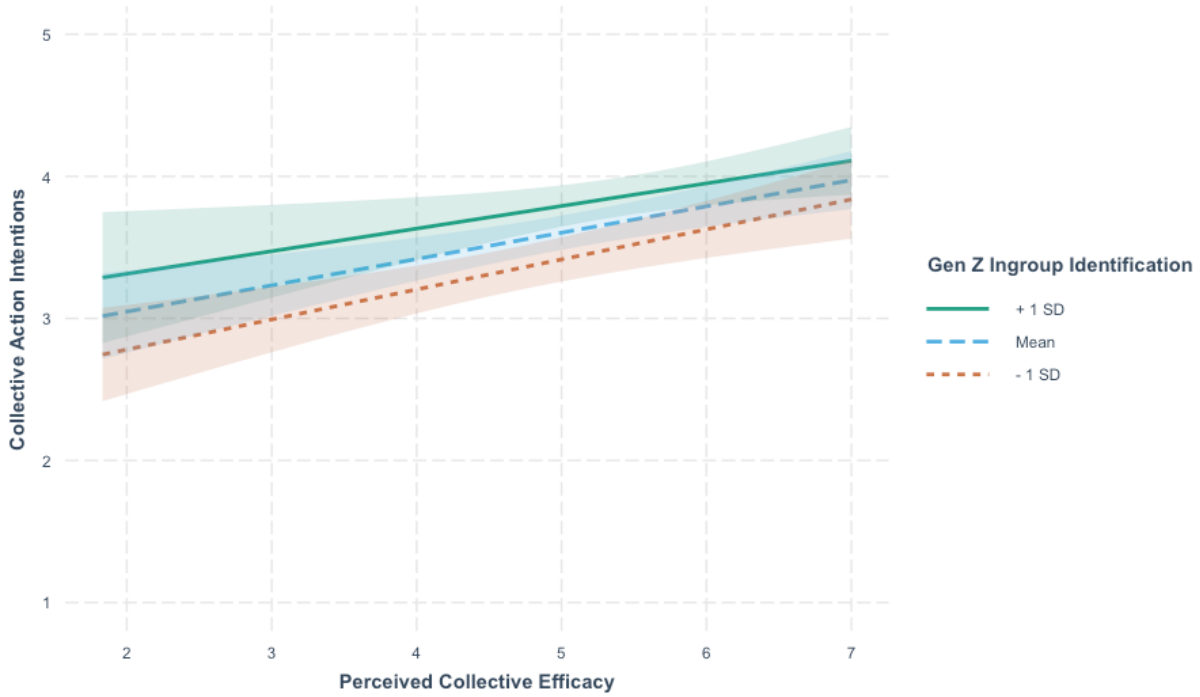

Figure 3. Association between Gen-Z ingroup identification, perceived collective efficacy, and collective action. Note that no interaction effect is present.

Advocacy Message

Ninety participants wrote a message to the B.C. Minister of Environment and Climate Change Strategy, while 206 participants opted not to write a message. All messages that contained a coherent statement or independent clause related to climate action or Gen-Z were included in the focal analysis (n = 86). Four messages were excluded from analyses because they were comprised only of random words, nonsensical letter strings, or focused on a substantially different topic (e.g., COVID vaccines) with no relation to climate action or Gen-Z. Thus, 292 responses were included in the focal analysis, and 86 messages were compiled and emailed to the Minister.

I used a hierarchical binomial logistic regression to predict advocacy message writing (see Table 4). Advocacy message writing was dummy-coded, with those who did not write a message coded as 0 and those who did write a message coded as 1. First, I tested all demographic

variables as predictors, and none significantly predicted advocacy message writing. Thus, I did not include any control variables in this model. At Step 1, I added Gen-Z ingroup identification and perceived collective advocacy message to the model. This model did not adequately fit the data, $\chi^2(2) = 2.33$, $p = .312$, Nagelkerke's $R^2 = 0.01$. Furthermore, neither Gen-Z ingroup identification nor perceived collective efficacy predicted whether participants wrote an advocacy message or not. Next, I added the interaction of Gen-Z ingroup identification and perceived collective efficacy to the model in Step 2. The addition of the interaction did not improve the model fit above and beyond Step 1, $\chi^2(1) = 0.50$, $p = .480$. There was no significant interaction between Gen-Z ingroup identification and perceived collective efficacy.

Table 4

Hierarchical Logistic Regression Results for Advocacy Message Writing

Variable	OR [95% CI]	*b*	*SE*	*z*	*p*	Δ R^2_N	χ^2
Step 1 (df = 289)						0.00	
Constant	0.17 [0.04, 0.70]	-1.77	0.73	-2.41	.016		
Gen-Z Ingroup Identification	1.17 [0.92, 1.50]	0.16	0.12	1.32	.188		
Gen-Z Collective Efficacy	1.04 [0.81, 1.35]	0.05	0.13	0.35	.730		
Step 2 (df = 288)						0.00	0.50
Constant	0.40 [0.31, 0.52]	-0.91	0.13	-6.74	< .001		
Gen-Z Ingroup Identification[a]	1.16 [0.91, 1.49]	0.15	0.13	1.21	.225		
Gen-Z Collective Efficacy[a]	1.06 [0.81, 1.38]	0.06	0.13	0.42	.674		
Ingroup Identification[a] X Collective Efficacy[a]	1.08 [0.87, 1.32]	0.07	0.10	0.71	.475		

Note. OR = odds ratio. CI = confidence interval. *SE* = standard error. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.
[a] Variables are mean-centered.

Exploratory Analyses

I conducted exploratory analyses to examine the intersection of various social identities in this sample. In particular, I was interested in examining whether various social identities moderated the association between Gen-Z ingroup identification and the dependent measures, because Gen-Z is a novel ingroup identity that has not been studied until now. Thus these exploratory analyses could make a novel contribution to the field.

First, I tested whether demographic factors predicted identification with Gen-Z. For each of these analyses, I held no direct a priori hypotheses as to whether Gen-Z ingroup identification would differ based on other social identities. Rather, I aimed to ensure that intersectional aspects of identity are considered when drawing conclusions about the implications of Gen-Z ingroup identification, and I sought to identify possible limitations of the use of Gen-Z as an ingroup of interest. My results showed that birth year, gender, and racial identity all significantly predicted ingroup identification with Gen-Z (see Table 5). Younger participants were slightly more likely to identify with Gen-Z, while men were less likely to identify with Gen-Z than women. White participants showed greater Gen-Z identification than did BIPOC (Black, Indigenous, and Persons of Colour) participants.

Table 5

Multiple Regression Results for Gen-Z Ingroup Identification

Variable	*b*	*SE*	95% CI for *b*
Intercept	-184.26*	86.86	[-355.23, -13.29]
Birth Year	0.09*	0.04	[0.01, 0.18]
Gender – Man vs. Woman	-0.42**	0.13	[-0.68, -0.17]
Gender – Non-Binary vs. Woman	-0.10	0.39	[-0.87, 0.67]
Racial Identity – White vs. BIPOC	0.36**	0.13	[0.10, 0.62]
Education – Some HS vs. Some Uni	-0.46	0.39	[-1.23, 0.32]
Education – HS vs. Some Uni	0.04	0.17	[-0.28, 0.37]
Education – Diploma vs. Some Uni	0.15	0.26	[-0.37, 0.66]
Education – Bachelor's vs. Some Uni	0.04	0.18	[-0.31, 0.38]
Education – Graduate vs. Some Uni	0.61	0.50	[-0.37, 1.58]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^{2} = .093^{**}$, 95%CI [.02, .13]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Next, I tested whether each of the demographic variables that predicted Gen-Z ingroup identification (birth year, gender, and racial identity) moderated the association between Gen-Z identification and both social media follow intentions and collective action intentions. In each model, I controlled for the effect of collective efficacy beliefs. Full details for these analyses are provided in Appendix C (Tables 11 to 15). Out of six analyses, only one interaction effect between a demographic variable and Gen-Z ingroup identification was significant: racial identity moderated the association between Gen-Z ingroup identification and collective action intentions (see Table 6, Figure 4). This pattern held constant when I controlled for gender, thus results are reported here without gender in the model, for simplicity.

Table 6

Multiple Regression Results for Collective Action Intentions with Racial Identity as a Moderator

Variable	*β*	*b* [CI]	*SE*	*t*	*p*
(Intercept)		2.18 [1.61, 2.75]	0.28	7.51	< .001
Racial Identity – BIPOC vs. White	-0.49	-0.81 [-1.45, -0.17]	0.32	-2.45	.013
Gen-Z Ingroup Identification	0.14	0.10 [-0.03, 0.22]	0.06	1.57	.117
Collective Efficacy	0.25	0.19 [0.10, 0.27]	0.04	4.35	< .001
Racial Identity X Gen-Z Ingroup Identification	0.48	0.17 [0.02, 0.33]	0.08	2.18	.030

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^{2\,=}$ .192***, 95%CI [.11, .26].
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

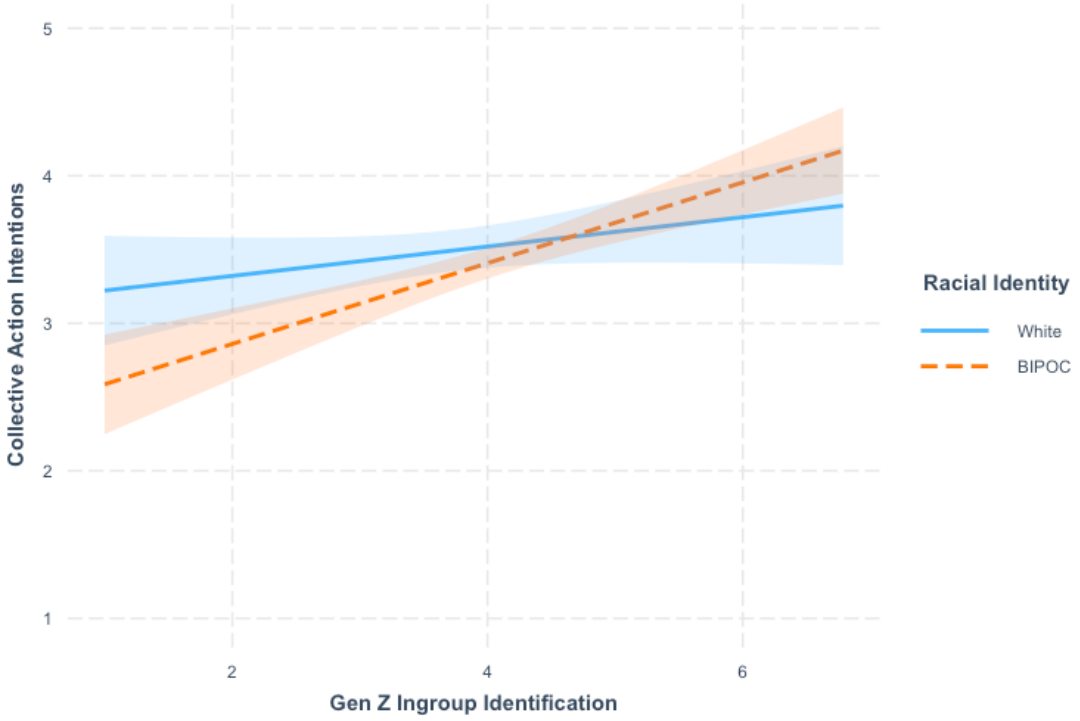

Figure 4. Association between Gen-Z ingroup identification and collective action intentions as a function of racial identity.

The results of the simple-effects analyses decomposing the interaction between Gen-Z ingroup identification and racial identity are detailed in Tables 7 and 8 (following the recommendations of Aiken & West, 1991). The association between Gen-Z ingroup identification and collective action intentions was stronger for BIPOC participants than for White participants. Furthermore, the racial difference in Gen-Z ingroup identification was most pronounced at low levels of Gen-Z ingroup identification, and disappeared at average or high levels of Gen-Z ingroup identification. Altogether, these findings suggest that high Gen-Z identification is associated with collective climate action intentions for both White and BIPOC participants, but the association is stronger for BIPOC participants than White participants and racial differences in collective action intentions is most pronounced when Gen-Z identification is low.

Table 7

Association between Gen-Z Ingroup Identification and Collective Action Intentions for Racial Identity Groups

Moderator Level	*β*	*b* [CI]	*SE*	*t*	*p*
Racial Identity = BIPOC	0.38	0.27 [0.17, 0.38]	0.05	5.26	.013
Racial Identity = White	0.14	0.10 [-0.03, 0.22]	0.06	1.57	.117

Note. CI = 95% confidence interval. *SE* = standard error.

Table 8

Association between Racial Identity and Collective Action Intentions for Various Levels of Gen-Z Ingroup Identification

Moderator Level	*β*	*b* [CI]	*SE*	*t*	*p*
-1 SD Gen-Z Ingroup Identification	-0.18	-0.30 [-0.54, -0.07]	0.12	-2.54	.012
Mean Gen-Z Ingroup Identification	0.14	-0.11 [-0.29, 0.07]	0.09	-1.23	.219
+1 SD Gen-Z Ingroup Identification	0.05	0.08 [-0.18, 0.34]	0.13	0.61	.542

Note. CI = 95% confidence interval. *SE* = standard error. Racial identity dummy-coded with 0 = white, 1 = BIPOC.

Discussion

The primary objectives of this study were to examine whether ingroup identification with Generation Z promotes collective action on climate change, and test the central assumption of the social identity model of pro-environmental action that ingroup identification catalyzes the effect of collective efficacy beliefs (Fritsche et al., 2018). I further aimed to examine these constructs in the context of multiple collective action outcomes, including both intentional and behavioural measurements at various stages of mobilization (Klandermans & Oegema, 1987). I hypothesized that the interaction of ingroup identification with Gen-Z and the perceived collective efficacy of Gen-Z would predict collective climate action outcomes above and beyond each predictor individually. This hypothesis was not supported for any of the three collective action outcomes: intentions to follow youth climate groups on social media, intentions to engage in future collective action, and participation in writing an advocacy message to the B.C. Minister of Environment and Climate Change Strategy. While ingroup identification with Gen-Z and perceived collective efficacy of Gen-Z did each predict intentions to follow youth climate groups on social media and intentions to engage in future collective action, including their interaction did not improve model fit or account for additional variance on either intentions outcome. Furthermore, neither Gen-Z identification nor perceived collective efficacy predicted participation in advocacy message writing. Altogether, stronger ingroup identification with Gen-Z and greater perceived collective efficacy were associated with stronger intentions to mobilize and engage in collective climate action, even after controlling for the effect of other social identities (namely, gender).

Ingroup Identification with Gen-Z Predicts Multiple Collective Action Intentions

The results of the current study support the notion put forward by Fritsche and colleagues (2018, p. 249) that broader social identities like generations, and not only environmentalist identities, are important contributors to pro-environmental action. This is the first study to assess ingroup identification with Gen-Z specifically and show that it is associated with multiple stages of mobilization for collective action. Notably, whereas past research on social identities and pro-environmental action has relied on measures comprised of only one to three items, in this study I used a comprehensive, well-validated measure that captures both self-definition and self-investment with Gen-Z (Leach et al., 2008). Thus, the results of the current study are theoretically useful, reliably suggesting that Gen-Z is a relevant social identity for today's emerging adults.

Furthermore, the results of my study show that those who more strongly identified with Gen-Z as an ingroup also reported greater willingness to engage with youth climate groups on social media. Research has shown that young climate activists use their social media platforms to curate and promote a common identity with other young people that transcends traditional geographical borders and boundaries (Wielk & Standlee, 2021). Thus, it is perhaps unsurprising that Gen-Zs who identified strongly to others of their generation were seemingly more drawn to such appeals and showed more interest in following the activities of these youth climate groups. This suggests that Gen-Z ingroup identification might play a role in young people's exposure to recruitment networks and mobilization attempts (by other Gen-Zs) – the second stage in Klandermans and Oegema's theory on mobilization for collective action (1987, p. 520).

Furthermore, the results of the present study showed that identifying with Gen-Z was positively associated with intentions to engage in future collective climate actions such as signing a petition, volunteering, donating to environmental causes, and contacting elected

officials. This finding is consistent with previous literature on the importance of ingroup identification to collective action. For example, Brügger and colleagues (2020) showed adolescents' and emerging adults' (aged 14-25) social identification with "young people who take part in climate strikes" was the strongest predictor of their intentions to participate in future youth climate strikes. Thus, Gen-Z identification may be one contributor to young people's motivation to participate in collective action, at the third stage of mobilization (Klandermans & Oegema, 1987).

Following the social identity model of pro-environmental action, a key explanation for the positive association between Gen-Z identification and collective action intentions is that Gen-Z has shared pro-environmental norms (Fritsche et al., 2018). Shared norms may be one reason that ingroup identification with Gen-Z significantly predicted intentions related to collective climate action. Those who identify highly with an ingroup are more likely to conform with ingroup norms (for recent review, see Spears, 2021) . Thus intention to participate in collective climate action may be more strongly associated with ingroup identification when the collective action is seen as normative within the particular ingroup. Furthermore, it could also be that those who identify strongly with Gen-Z experience collective emotions such as distrust, injustice, or anxiety in the face of the climate crisis, and that these emotions in turn relate to collective action intentions through ingroup identification (Fritsche et al., 2018; van Zomeren et al., 2008). Although neither collective emotions nor ingroup norms were explicitly assessed in the current study, studies of adolescents' and emerging adults' collective climate anxiety (Hickman et al., 2021; Majeed & Lee, 2017) and norms of participation in climate strikes (Fridays for Future, 2021; Wallis & Loy, 2021) support these ideas. A complementary explanation may be that Gen-Z shares some of the features of a *politicized identity* (Schmitt et al., 2019). A politicized identity

refers to one form of shared identity when a group is defined by affiliation with a social movement or by activism of some form (Schmitt et al., 2019). Thus, previous Gen-Z activism such as the school strikes for climate may have supported not only shared norms for collective action among young people, but also supported the potential politicization of the young person's social identity more broadly.

Perceived Collective Efficacy of Gen-Z Predicts Multiple Collective Action Intentions

Many psychological theories have posited the importance of collective efficacy beliefs for promoting collective action outcomes (e.g., van Zomeren et al., 2008 [SIMCA]; Thomas et al., 2012 [EMSICA], Fritsche et al., 2018 [SIMPEA]). Consistent with these theories, results of the current study showed that greater collective efficacy beliefs were associated with greater intentions to both follow youth climate groups on social media and to engage in future collective action. These findings suggest that perceived collective efficacy is associated with collective action at multiple stages of mobilization. Not only might collective efficacy beliefs relate to an individual's motivation to participate in collective action, but these beliefs may also relate to the individual's propensity to engage with recruitment networks and mobilization attempts (Klandermans & Oegema, 1987).

Young people's beliefs about the capacity of Gen-Z to effectively organize and promote social change was positively associated with their openness to future mobilization and recruitment networks via their intentions to follow youth climate groups on social media. Some past research has shown that a heightened sense of collective efficacy relates to the sharing of content on social media (Halpern et al., 2017; Velasquez & LaRose, 2015). However, there have been no previous studies showing that collective efficacy is associated with participants' propensity to expand their social networks by following new accounts pertaining to a social

movement. Given the extensive use of social media to organize collective climate action among today's youth, this represents an area of opportunity for future research.

How collective efficacy is associated with one's intentions to participate in collective action has been studied more extensively. While collective efficacy beliefs associated with Generation Z specifically have not been investigated until now, past research has shown that the perceived capacity of youth climate strikers to effect change was positively associated with intentions to engage in future youth strikes (Brügger et al., 2020). Furthermore, Sabherwal and colleagues (2021) showed that collective efficacy beliefs explained the positive association between familiarity with Greta Thunberg (the youth activist credited for spearheading the Fridays for Future school climate strikes) and intentions to engage in collective climate actions more broadly.

There are several ideas as to why stronger collective efficacy beliefs are associated with collective action outcomes. For one, higher collective efficacy is associated with greater motivation to engage in the group's activities, and greater perseverance when the group faces adversity (Bandura, 2000). Some have suggested that heightened collective efficacy is positively associated with individual self-efficacy; thus, it may be a related increase in self-efficacy beliefs that support subsequent behavioural outcomes (Barth et al., 2016; Fernandez-Ballesteros et al., 2002). However, others have shown that on outcomes of collective action in particular, collective efficacy beliefs were consistent predictors while self-efficacy beliefs were not (Wallis & Loy, 2021). Recent work has also demonstrated that the association between collective efficacy beliefs and collective action intentions is mediated by the emotional experience of being moved (Landmann & Rohmann, 2020). As Landmann and Rohmann (2020) highlight, being moved incorporates feelings of meaning, hope, and empowerment. Therefore, believing that one's

ingroup can effectively organize and achieve its goals may then be closely associated to being emotionally moved by experiences of collective action. Further evidence supports this notion: Swim and colleagues (2019) found in one study that witnessing largescale climate marches was associated with greater collective efficacy perceptions among bystanders. These findings suggest that events like the school strikes for climate may have contributed to lasting perceptions of Gen-Z collective efficacy. In sum, the current study adds to existing literature by demonstrating that the perceived collective efficacy of Gen-Z as a whole is significantly associated with multiple collective action intentions.

No Interaction Effect for Ingroup Identification and Collective Efficacy

The social identity model of pro-environmental action suggests that ingroup identification and collective efficacy interact to promote collective action (Fritsche et al., 2018). Indeed, I hypothesized that the interaction of ingroup identification with Gen-Z and the perceived collective efficacy of Gen-Z would predict collective climate action outcomes above and beyond each predictor individually. This hypothesis was not supported. While ingroup identification with Gen-Z and perceived collective efficacy each predicted intentions to follow youth climate groups on social media and intentions to engage in future climate action, their interaction did not. No significant interaction effect was detected, and the addition of the interaction term did not improve model fit nor explain any additional variance above and beyond the two predictors individually.

While this finding is counter to the prediction of the social identity model of pro-environmental action, it is consistent with the conceptualizations of other prominent psychological theories. The social identity model of collective action (SIMCA) maintains that ingroup-based constructs and the construct of collective efficacy as separate, independent

pathways (van Zomeren et al., 2008). Indeed, the distinct mechanisms of these two pathways to collective action in SIMCA have been compared to the treatment of emotion-focused and problem-focused coping as separate mechanisms for emotional regulation (Tausch et al., 2011; van Zomeren et al., 2004). To date, there have been very few studies that test whether ingroup identification and collective efficacy interact to predict collective action. However, some research has suggested that the distinction between identity and efficacy may be due to separate emotional pathways: ingroup identity may be associated with feelings of injustice, whereas collective efficacy may be associated with a sense of hope or feeling moved (Landmann & Rohmann, 2020). Other research has suggested that the ingroup identification and collective efficacy are experienced differently among seasoned activists compared to new ones (Hornsey et al., 2006; van Veelen et al., 2016). For example, interpersonal affiliation within an ingroup may be more important for new group members, while the group's position in comparison to others within a social context becomes more important over time (van Veelen et al., 2016). Furthermore, some research has suggested that collective efficacy beliefs decrease the longer one has been involved in collective action, especially among advantaged groups, perhaps as a result of more experience with setbacks or with achieving little meaningful social change (Thomas et al., 2020). Altogether, these research findings suggest that ingroup identification and collective efficacy may not interact, either due to separate emotional mechanisms, or due to their distinct influences for experienced and non-experienced group members.

Finally, there may be statistical explanations for why I did not detect an interaction effect in the current study. First, participants' reported collective efficacy beliefs had a somewhat restricted range in comparison to the range of the full scale. Very few participants rated Gen-Z's capacity to organize and effect change as very or extremely low. Thus, if an interaction effect

was driven by the association of Gen-Z ingroup identification with low levels of collective efficacy beliefs, I may not have been able to detect it. However, this theoretical possibility is unlikely to have substantially influenced my results, as the responses to my collective efficacy measure were satisfactorily varied with an adequate range. Furthermore, it may simply be the case that few emerging adults ascribe very low collective efficacy to Generation Z. Another statistical explanation may be that the sample size of the current study may not have afforded adequate power to detect a small interaction effect. It could also be that the theorized interaction may be more dependent on a third variable than on the bivariate association of ingroup identification and collective efficacy. For example, it may be that the environmental norms associated with Gen-Z moderates the association between Gen-Z ingroup identification and Gen-Z collective action. This may be an explanation for the observed violation of the statistical assumption that the association between collective efficacy and collective action is linear at each level of ingroup identification. However, it is equally possible that the violated assumption resulted from the reduced range of collective efficacy responses, or in other words, from an incomplete predictor. Each of these limitations should be explored in follow-up research.

No Effects Observed on Advocacy Message Behavioural Outcome

Neither Gen-Z identification nor perceived collective efficacy predicted participation in advocacy message writing. This did not align with the prediction of the social identity model of pro-environmental action (Fritsche et al., 2018) nor the hypothesis of the current study. It is unlikely that the lack of observed effects was due to methodological issues with the outcome measure. For one, past studies have used similar letter-writing tasks as a collective action outcome and demonstrated reasonable uptake and significant effects (e.g., Wright et al., 2020). The fact that 86 participants wrote a message to the Minister of Environment and Climate

Change Strategy (roughly one third of the sample) rules out statistical concerns of underdispersion. Furthermore, analyses I conducted in the current study to assess the validity of this measure revealed that intentions to follow youth climate groups on social media and intentions to engage in future climate action were positively associated with advocacy message writing. Thus, there is evidence that including the advocacy message task was a valid assessment of collective action, and meaningfully associated with other previously-validated measures of collective action intentions.

Past research has shown that behavioural outcomes of collective action have smaller effect sizes than intentional measures (van Zomeren et al., 2008). Thus, it may be that the current study did not sample enough participants to detect a small effect of ingroup identification or collective efficacy on the behavioural outcome. Smaller observed effects on behavioural outcomes are common given that behaviour is subject to greater external pressures than behavioural intentions. For example, while someone may intend to write a letter to their elected official, whether they have the time and resources to do so, or know how to contact the official's office, may be just as important in determining their behaviour. However, it may also be the case that ingroup identification and collective efficacy are simply better predictors of intentions to participate in collective action than they are predictors of real behaviour. One recent study supports this notion, showing that collective efficacy predicted intentions to engage in civil disobedience as a part of the Extinction Rebellion movement, but did not predict self-reported past behaviour (Furlong & Vignoles, 2021). Furthermore, it could be that ingroup identification and collective efficacy are more predictive of social collective actions (i.e., actions performed together with others, like protesting) than those performed independently (such as letter writing; see for example McDougle et al., 2011).

It is worth highlighting that although participants were young adults situated across Canada, the advocacy message writing task was specific to the province of British Columbia. This may have influenced the way in which participants related to the task; for example, participants living in British Columbia could reasonably have been more likely to engage in the writing task than those from other provinces. Furthermore, when examining the letters written to the Minister in the current study, a preliminary pattern in message content was apparent. One major theme of messages centred on the inclusion of young people in political decision making about climate change policies. The other major theme centred on more broad environmental policies (e.g., deforestation, fossil fuel dependencies, regulation of high-emission industries). The extent to which participants' previous knowledge and engagement on environmental issues influenced whether they wrote a message a not and the content of their message was not assessed in the current study. However, varying levels of specificity, length, and detail were observed in the messages. These trends suggest that future work may benefit from investigating whether ingroup identification and collective efficacy are associated with the content of young people's advocacy messages.

Other Social Identities Predict Gen-Z Identification and Collective Action Intentions

Results of the current study showed that gender consistently predicted intentions to follow youth climate groups on social media, and intentions to engage in future climate actions. Women were, on average, more likely than men to demonstrate collective action intentions on both of these measures. This is highly consistent with past research showing that young women tend to be more engaged than young men on both environmental issues broadly and collective action in particular (e.g., Arbuckle & Mercer, 2020; Wodika & Middleton, 2020). Furthermore, exploratory analyses showed that gender also predicted identification with Gen-Z. Again, young

women were more likely to identify with Gen-Z than were young men. One reason for this may be due to the heightened socialization pressures for young women, as well as the greater visibility of women Gen-Z role models (like Greta Thunberg). However, subsequent analyses showed that gender and Gen-Z identification did not interact to predict collective action outcomes.

Limitations and Constraints on Generality[2]

The population of interest in the current study are young people living in Canada, specifically those aged 24 and younger (members of Gen-Z). The results and findings of this study may be generalizable to other young people in the Global North, although caution is warranted. Generational cohort terms, including Gen-Z, are predominantly based on U.S. events and social trends, and thus findings should not be assumed to replicate among samples outside of North America without further study and empirical evidence. Specifically, Gen-Z as a term is prominent on social media platforms including TikTok, Instagram, and Youtube, to which access may be restricted in many parts of the world, and on which Gen-Z themed content may be more prominent for certain topics or geographic areas.

A further limitation to the generalizability of these findings is that the surveys were administered in the summer of 2021, in the midst of the COVID-19 pandemic. While pandemic restrictions and impacts are unlikely to have directly affected the results of this study, the pandemic has significantly disrupted the social organizing of the youth climate movement. Furthermore, decreased social connection with peers due to pandemic restrictions may have reduced the sense of identification and solidarity participants felt towards others of their

[2] See Simons and colleagues (2017).

generation. On the other hand, increased age-based reporting of COVID-19 case and vaccination statistics may have bolstered a sense of identification with other emerging adults by emphasizing differences with other cohorts.

Implications and Future Directions

The current study contributes to the emerging literature on the social identity model of pro-environmental action (Fritsche et al., 2018). As a relatively new theoretical model in the collective action literature, very few studies to date have explicitly adopted its framework (e.g., Sabherwal et al., 2021). These findings are of theoretical significance because they directly test the interaction of ingroup identification and collective efficacy. Future research on this model may consider further examining these constructs in experienced versus non-experienced activists. In addition, this research has provided psychological evidence for social identity mechanisms across multiple stages of collective action mobilization (Klandermans & Oegema, 1987).

Furthermore, this is the first study to date that has comprehensively examined Generation Z as an ingroup identity of interest, and the implications of this identity for climate action outcomes. More generally, research on young people's social identities is underrepresented in the field of collective climate action. Future research in this population should attend to particular norms of environmental behaviours and types of collective action to better understand how Gen-Z ingroup identification and collective efficacy promote collective action. Additionally, it may be of interest to track this population over time to delineate developmental as compared to cohort-specific effects. For example, will ingroup identification with Generation Z change over time, and will this in turn influence the association of Gen-Z identity with collective climate action? This might highlight the importance of identity formation and socialization as a

developmental process integral to emerging adulthood, and suggest that these findings may translate to younger generational cohorts as well.

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Appendix A: Measures

Ingroup Identification

Scale developed by Leach et al., (2008)[3].

"Please indicate your agreement with the following statements." (1 = *strongly disagree*; 7 = *strongly agree*)

Group-Level Self-Investment

1. I feel a bond with Gen-Z
2. I feel solidarity with Gen-Z
3. I feel committed to Gen-Z
4. I am glad to be a Gen-Z
5. I think that Gen-Zs have a lot to be proud of
6. It is pleasant to be a Gen-Z
7. Being a Gen-Z gives me a good feeling
8. I often think about the fact that I am a Gen-Z
9. The fact that I am a Gen-Z is an important part of my identity
10. Being a Gen-Z is an important part of how I see myself

Group-Level Self-Definition

11. I have a lot in common with the average Gen-Z person
12. I am similar to the average Gen-Z person
13. Gen-Z people have a lot in common with each other
14. Gen-Z people are very similar to each other

Collective Efficacy Beliefs

Question stem phrasing adapted from Bandura (2006).

"Please indicate **how confident you are about the capacity of Gen-Z** on each of the statements below." (1 = *cannot do at all*; 7 = *certainly can do*).

1. Working together, Gen-Zs can make an effective contribution to climate action[4]
2. Gen-Zs can influence other Gen-Zs to care about climate action
3. Gen-Zs can have a say in what the government does about climate change[5]
4. Gen-Zs can make public officials care about the needs of Gen-Z when it comes to climate action[5]
5. Gen-Zs can get the government to pay attention to what they think about the government's climate policies[5]
6. Together, Gen-Zs can convince elected officials to enact strong climate policies

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[3] Items 1-3 capture solidarity, items 4-7 capture satisfaction, items 8-10 capture centrality; items 11-12 capture self-stereotyping, items 13-14 capture ingroup homogeneity (Leach et al., 2008).

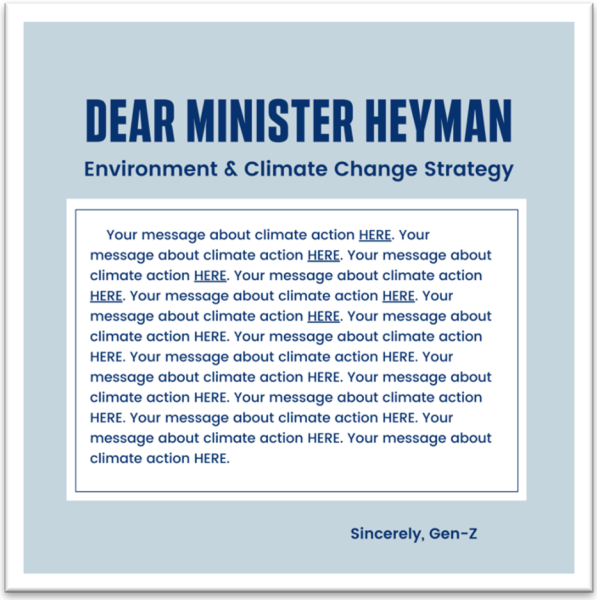
[4] Adapted from Bamberg et al., (2015).

[5] Adapted from Hart & Feldman, (2016).

Advocacy Message Writing Task
Task adapted from letter-writing outcome measure used by J.D. Wright et al., (2020).

Now that you have finished the survey**, we would like to give YOU an opportunity to write a short, anonymous, message and express your views on climate action to the B.C. Government.** These messages are anonymous, and will be compiled at the end of the study and emailed to the B.C. Minister of Environment and Climate Change Strategy (Hon. George Heyman) on your behalf.

If more than half of the participants in this study write a message to the B.C. Minister of Environment and Climate Change Strategy **our research team will create a social media account to share these messages online**, tagging Minister Heyman. This will have the potential to generate an even greater social impact of the messages. We will graphically format the messages (see examples below) and share the posts from our account. Again, all messages are anonymous.



Regardless of whether you choose to write a message or not, this will not impact your compensation for participating in this study. This is completely voluntary. If you choose to write a message, and at the end of the study less than half of all other participants write a message, your anonymous response will be included in a summary of all received messages and emailed to the Minister, but we will not create a social media account and your message will not be shared in any other way.

Would you like to write an anonymous message on climate action to Minister George Heyman (Environment and Climate Change Strategy)? (yes/no) *if yes, text box*

Collective Action Intentions
Scale developed by Sabherwal and colleagues (2021).
"How likely would you be to do each of the following things if a person you like and respect asked you to?" (1 = *definitely would not do*; 5 = *definitely would do*)

1. Vote for a candidate for public office because of their position on climate action
2. Write letters, email, or phone government officials about climate action
3. Sign a petition about climate action, either online or in person
4. Share information about climate action on social media (e.g., Facebook, Twitter, Instagram, TikTok, YouTube)
5. Volunteer your time to an organization working on climate action
6. Donate money to an organization working on climate action
7. Attend a public meeting or presentation about climate action
8. Meet with an elected official or their staff about climate action
9. Attend a neighborhood meeting to discuss climate change and actions people can take
10. Attend a political rally, speech, or organized protest about climate action
11. Publicly display a t-shirt, laptop sticker, button, wrist band, or sign about climate action

Intention to Follow Canadian Youth Climate Action Groups on Social Media
"As of right now, how likely are you to follow [group] on social media?" (1 = *definitely will not*, 2 = *probably will not*, 3 = *don't know, need more information*, 4 = *probably will*, 5 = *definitely will*, 66 = *I already follow [group] on social media*, 77 = *I'm not on any of the social media platforms listed (Instagram, Facebook, Twitter)*.)

Our Earth Our Future is youth climate organization in Victoria, B.C. Our Earth Our Future is involved in climate strikes, letter writing, phone banking and other forms of collective action, all by and for young people. You can follow @ourearthourfuturevic on Instagram, Facebook, and Twitter, and find more information here: https://linktr.ee/ourearthourfuturevic

The **Fraser Basin Youth Council Program** engages young people (age 16-30) across British Columbia in sustainability initiatives, policy, and decision-making. They also provide training and opportunities in leadership and skill-building related to climate action. You can follow @fbcyouthprogram on Instagram and Twitter, and @FraserBasinCouncilYouth on Facebook, and find more information here: https://linktr.ee/fbcyouthprogram/

The **Youth Climate Lab** is a Canadian organization that provides training, resources, and access to a wide social network to support young people as they become lifelong climate leaders. They work with a variety of community partners to develop and scale-up youth-led climate action. You can follow @youthclimatelab on Instagram, Facebook, and Twitter, and find more information here: https://linktr.ee/youthclimatelab/

Climate Strike Canada is a Canadian network of students and young people. Climate Strike Canada aims to connect and promote youth climate activism, including school strikes, across the country. You can follow @climatestrikecanada on Instagram and Facebook, and @CAclimatestrike on Twitter, and find more information here: https://linktr.ee/climatestrikecanada/

Measures Not Analyzed in the Current Study

Ingroup Injunctive Norms

"To what extent do most members of Gen-Z disapprove or approve of their peers doing the following to take action on climate change?" (1 = *strongly disapprove*; 7 = *strongly approve*)

1. Researching and learning more about climate action
2. Volunteering for a non-profit group that does work on climate action
3. Serving on a youth council that informs government agencies working on climate action
4. Speaking to news media about the implications of climate action for Gen-Z
5. Voting for politicians that commit to robust climate action measures
6. Prioritizing concerns for the environment when making choices in their day-to-day lives

Appendix B: Supplementary Measure Validation Analyses

Social Media Follow Intentions and Advocacy Message-Writing

I conducted a binomial logistic regression to assess the association between social media follow intentions and participation in advocacy message writing (Table 9). Social media follow intentions was entered as a predictor and message writing as the dummy-coded outcome variable (1 = message, 0 = no message). Model fit was statistically significant, $\chi^2(1) = 19.23$, $p < .001$, Nagelkerke's $R^2 = .10$. Stronger intentions to follow a youth climate group on social media were associated with greater likelihood of writing an advocacy message to the Minister.

Table 9

Logistic Regression Results for Advocacy Message Writing Predicted by Social Media Follow Intentions

Variable	*b*	*p*	*SE*	OR	95% CI for OR	R^2_N
Intercept	-2.73	**<.001**	0.49			
Social Media Follow Intentions	0.60	**<.001**	0.15	1.83	[1.38, 2.46]	
						$.10^{***}$

Note. SE = standard error. OR = odds ratio. CI = confidence interval. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

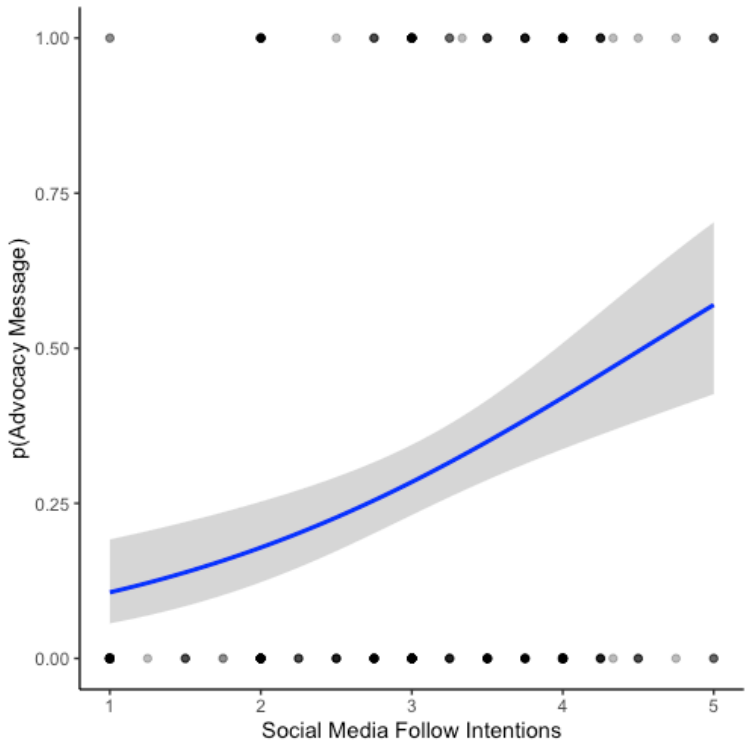


Figure 5. Predicted probability of writing an advocacy message based on mean intentions to follow youth climate action groups on social media. Plot points represent frequencies of observed mean social media intentions for those who did write a message to the B.C. Minister of Environment and Climate Change Strategy (y = 1) and those who did not (y = 0). The blue curve represents the predicted probability of message writing, and the confidence band corresponds to the 95% confidence interval.

Collective Action Intentions and Advocacy Message-Writing

I conducted a binomial logistic regression to assess the association between social media follow intentions and participation in advocacy message writing (Table 10). Social media follow intentions was entered as a predictor and message writing as the dummy-coded outcome variable (1 = message, 0 = no message). Model fit was statistically significant, $\chi^2(1) = 28.81$, $p < .001$, Nagelkerke's $R^2 = .14$. Stronger collective action intentions were associated with greater likelihood of writing an advocacy message to the Minister.

Table 10

Logistic Regression Results for Advocacy Message Writing Predicted by Collective Action Intentions

Variable	*b*	*p*	*SE*	OR	95% CI for OR	R^2_N
Intercept	-4.55	**<.001**	0.78			
Collective Action Intentions	1.02	**<.001**	0.21	2.77	[1.87, 4.23]	
						.14***

Note. SE = standard error. OR = odds ratio. CI = confidence interval. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

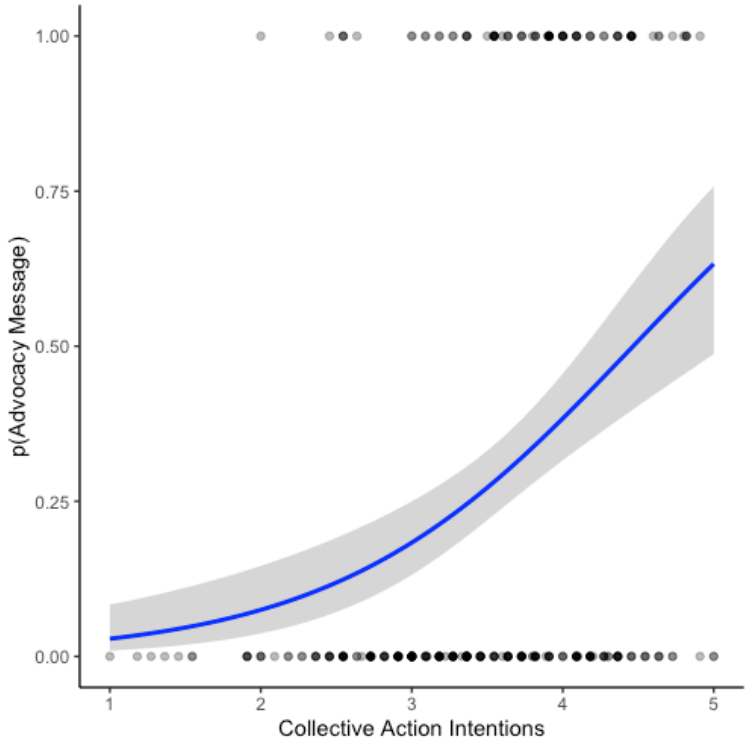


Figure 6. Predicted probability of writing an advocacy message based on mean collective action intentions. Plot points represent frequencies of observed mean collective action intentions for those who did write a message to the B.C. Minister of Environment and Climate Change Strategy (y = 1) and those who did not (y = 0). The blue curve represents the predicted probability of message writing, and the confidence band corresponds to the 95% confidence interval.

Appendix C: Supplementary Results of Exploratory Analyses

Birth Year as a Moderator of Gen-Z Identification on Social Media Follow Intentions

Table 11

Multiple Regression Results for Social Media Follow Intentions with Birth Year as a Moderator

Variable	*b*	*SE*	95% CI for *b*
(Intercept)	175.84	286.00	[-387.26, 738.93]
Birth Year	-0.09	0.14	[-0.37, 0.19]
Gen-Z Ingroup Identification	-39.52	67.17	[-171.77, 92.73]
Collective Efficacy	0.15*	0.06	[0.03, 0.27]
Birth Year X Gen-Z ID	0.02	0.03	[-0.05, 0.09]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^2 = .104^{***}$, 95%CI [.04, .17]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Birth Year as a Moderator of Gen-Z Identification on Collective Action Intentions

Table 12

Multiple Regression Results for Collective Action Intentions with Birth Year as a Moderator

Variable	*b*	*SE*	95% CI for *b*
(Intercept)	133.43	199.42	[-259.12, 525.99]
Birth Year	-0.07	0.10	[-0.26, 0.13]
Gen-Z Ingroup Identification	-34.35	46.76	[-126.39, 57.68]
Collective Efficacy	0.18**	0.04	[0.10, 0.27]
Birth Year X Gen-Z Ingroup Identification	0.02	0.02	[-0.03, 0.06]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^2 = .174^{***}$, 95%CI [.09, .24]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Gender as a Moderator of Gen-Z Identification on Social Media Follow Intentions

Table 13

Multiple Regression Results for Social Media Follow Intentions with Gender as a Moderator

Variable	*b*	*SE*	95% CI for *b*
(Intercept)	1.47**	0.42	[0.65, 2.29]
Gender – Man vs. Woman	-0.46	0.48	[-1.39, 0.48]
Gender – Non-binary vs. Woman	1.75	2.67	[-3.51, 7.01]
Gen-Z Ingroup Identification	0.19*	0.08	[0.03, 0.36]
Collective Efficacy	0.16*	0.06	[0.04, 0.28]
Man vs Woman X Gen-Z Ingroup Identification	0.06	0.11	[-0.17, 0.28]
NB vs Woman X Gen-Z Ingroup Identification	-0.27	0.67	[-1.60, 1.06]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^2 = .132^{***}$, 95%CI [.05, .19]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Gender as a Moderator of Gen-Z Identification on Collective Action Intentions

Table 14

Multiple Regression Results for Collective Action Intentions with Gender as a Moderator

Variable	*b*	*SE*	95% CI for *b*
(Intercept)	2.05***	0.28	[1.50, 2.60]
Gender – Man vs. Woman	-0.48	0.32	[-1.12, 0.16]
Gender – Non-binary vs. Woman	0.21	1.88	[-3.50, 3.91]
Gen-Z Ingroup Identification	0.15**	0.06	[0.04, 0.26]
Collective Efficacy	0.19***	0.04	[0.11, 0.28]
Man vs Woman X Gen-Z Ingroup Identification	0.04	0.08	[-0.11, 0.20]
NB vs Woman X Gen-Z Ingroup Identification	-0.05	0.47	[-0.98, 0.88]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^2 = .210^{***}$, 95%CI [.12, .28]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Racial Identity as a Moderator of Gen-Z Identification on Social Media Follow Intentions

Table 15

Multiple Regression Results for Social Media Follow Intentions with Racial Identity as a Moderator

Variable	*b*	*SE*	95% CI for *b*
(Intercept)	1.44**	0.41	[0.63, 2.26]
Racial Identity – Non-White vs. White	-0.37	0.48	[-1.31, 0.57]
Gen-Z Ingroup Identification	0.17	0.09	[-0.01, 0.35]
Collective Efficacy	0.15*	0.06	[0.03, 0.27]
Racial Identity X Gen-Z Ingroup Identification	0.11	0.12	[-0.12, 0.34]

Note. SE = standard error. CI = confidence interval. Model fit is significant, $R^2 = .106^{***}$, 95%CI [.04, .17]. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Violated Assumption of Linearity for Interaction Effects

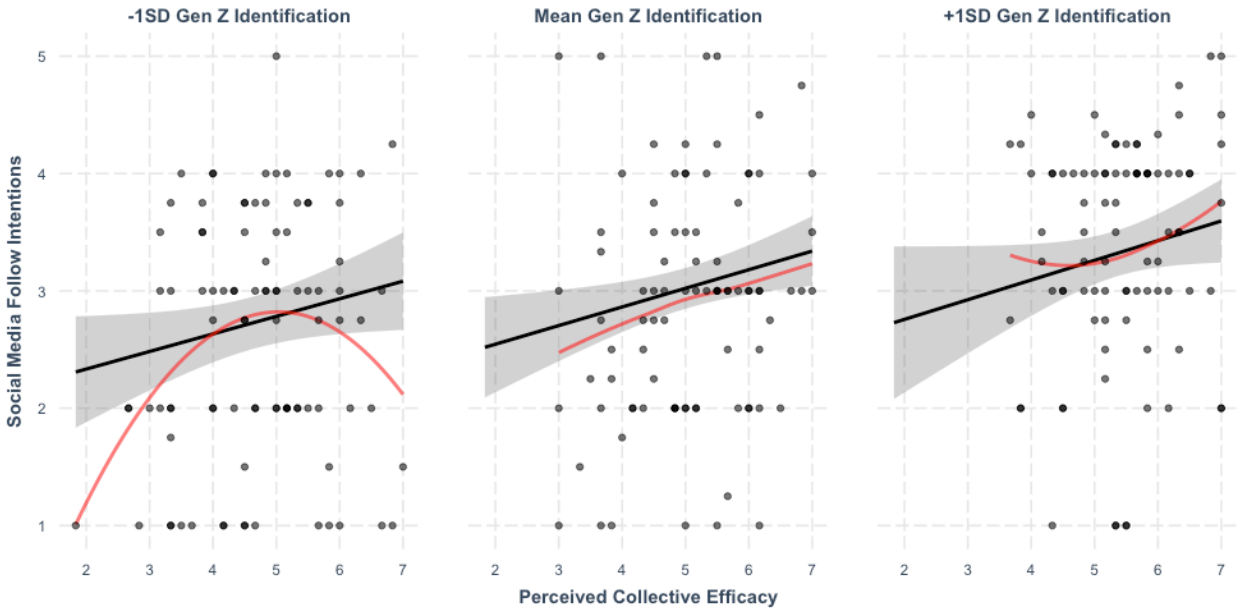


Figure 7. Linearity assumption check on interaction of Gen-Z ingroup identification and collective efficacy for social media follow intentions. The association between collective efficacy and social media follow intentions does not appear to be linear at each level of Gen-Z ingroup identification.

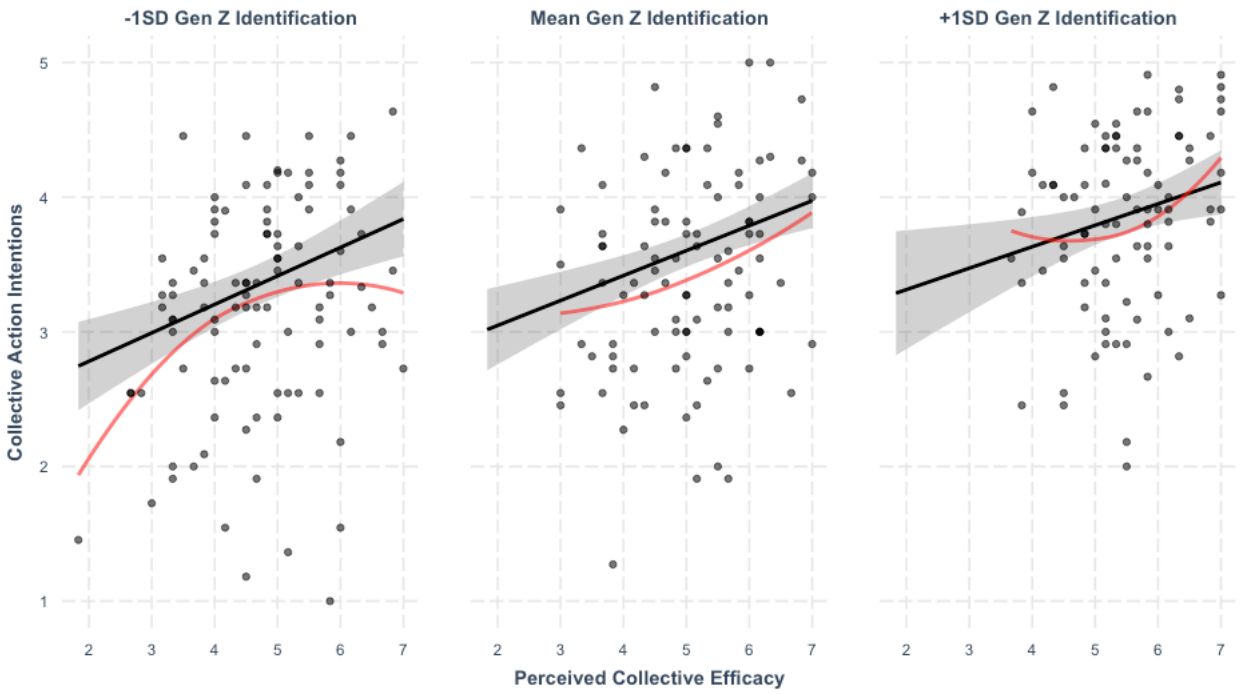


Figure 8. Linearity assumption check on interaction of Gen-Z ingroup identification and collective efficacy for collective action intentions. The association between collective efficacy and collective action intentions does not appear to be linear at each level of Gen-Z ingroup identification.