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Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests.

Christian A.P. Haugestad, Anja Duun Skauge, Jonas R. Kunst, Séamus A. Power



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MIXED-METHODS INVESTIGATION OF #FRIDAYSFORFUTURE

Title:

Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests.

Authors:

Christian A. P. Haugestad^{1*}, Anja Duun Skauge^{1*}, Jonas R. Kunst¹⁺, & Séamus A. Power²

*indicates joint first author

+indicates joint second author

Affiliations:

1. University of Oslo
Forskingsveien 3A
Harald Schjelderups hus
0373 Oslo, Norway

2. University of Copenhagen
Øster Farimagsgade 2A,
1353 København K, Denmark.

Corresponding author contact:

seamus.power@psy.ku.dk

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Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests.

Abstract:

The #FridaysForFuture movement has attracted young activists around the world. In the present mixed-method, socio-cultural psychological research, we investigate people's motivations for joining the movement in the privileged yet paradoxical context of Norway – a country that has gathered most of its wealth through oil production (i.e., the Norwegian Paradox). In Study 1, from a thematic analysis of in-depth ethnographic fieldwork from a series of major strikes and interviews with protestors ($N = 93$) it emerged that attributing responsibility for climate change, a necessity for shared action to mitigate the effects of climate change, and a shared sense of collective identity, helped to galvanize the prolonged social movement. These inductive and ecologically valid findings, combined with existing theory, in Study 2, partially confirmed and extended the Social Identity Model of Collective Action (SIMCA; van Zomeren et al., 2008) with survey data from high school students ($N = 362$). Collective guilt, environmental threat, past protest participation, organized environmentalism, political orientation, and social capital predicted future protest intentions, whereas activist identification and group efficacy mediated these effects. We discuss how the understanding of global environmental movements from the perspective of participants, who are both structurally responsible for the crisis and will experience most of its consequences themselves, can contribute to the broader discussion on facilitating climate action within privileged contexts.

Keywords: #FridaysForFuture, Climate Change, Collective Action, Youth Activism, Mixed-methods, Norway.

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1. Introduction

The rise of the environmental youth movement #FridaysForFuture started by Greta Thunberg has inspired millions of people around the world to protest for political action towards the challenges posed by global climate change (De Moor et al., 2020; Sabherwal et al., 2021; Wahlström et al., 2019). In Norway the strikes pose a particularly interesting paradox, where strong pro-environmental ambitions to meet the goals of the Paris Agreement (IPCC, 2018; United Nations, 2016) are contested by the privileged position the oil-economy has granted the young generation. Managing policymaking to sustain a robust fossil fuel industry, while portraying ambitious climate leadership, has been described as The Norwegian Paradox (Boasson & Lahn, 2017; Eckersley, 2016; Lahn, 2019). Some argue that turning a blind eye to climate change can be seen as a strategic way to help sustain Norway's economic interests (Norgaard, 2006; 2011; Skarstein, 2020). In the context of engagement of thousands of Norwegians in the #FFF global strikes (Svenberg et al., 2020), this begs the question of what motivates young strikers to engage in environmental activism in a country where the oil-industry is both a threat to the environment and the most reliable source of economic stability. Answers to this question may transcend its specific national context, involving other privileged countries in the Global-North, balancing economic and conservational interests for their future development (Lahn, 2019).

The present mixed-methods research - innovatively combining qualitative and quantitative procedures - examines youths' motivations to participate in the #FridaysForFuture (henceforth #FFF) movement in Norway. Given the sometimes conflicting and paradoxical effects of climate pollution (i.e., the Norwegian Paradox), we investigate how participants' motivation to protest interacts with their specific cultural and socio-political contexts, an aspect often neglected in psychology (Curtin & McGarty, 2016; Jasper, 2017; Power & Velez, 2020; Saavedra & Drury, 2019; van Zomeren, 2019). For that purpose, we

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draw on integrative social identity models of collective action (Rees & Bamberg, 2014, van Zomeren et al., 2008), from a socio-cultural psychological perspective, to investigate the #FFF movement in Norway.

1.1. The Psychology of Collective Climate Action

Psychology has made significant contributions to our understanding of the motivational, cognitive, and micro-environmental processes that facilitate pro-environmental behavior (Abrahamse et al., 2005; Clayton et al., 2016; Doherty & Clayton, 2011; Klöckner, 2013; Steg & Vlek, 2009; Stern, 2000). However, an overemphasis on individual action runs the risk of downplaying the importance of the complex structural and interpersonal power dynamics that sustain climate change (Adams, 2021; Fernandez-Jesus et al., 2020; Schmitt et al., 2020). Therefore, context sensitive research on high-impact behaviors such as collective action can aid theory development (Lange et al., 2021; Nielsen et al., 2021; van Valkengoed et al., 2021), that has the potential for more wide-ranging impact (Bamberg et al., 2018; Becker & Tausch, 2015; Dalton, 2015; Stern & Wolske, 2017).

Recently, there has been a turn towards more research on the collective level of climate action, both in terms of theoretical understanding and practical implications (e.g., in the recent special issue of this journal; Barth et al., 2021). Many have focused on social identity theory (SIT; Tajfel & Turner, 1979) as an explanatory framework of collective action. SIT proposes that people strive for, and benefit from, positive self-evaluations attainable through identification with esteemed social groups. Collective action is one way to contest the group's position, particularly if one's group status is (subjectively) seen as impermeable, unstable, and illegitimate (Tajfel & Turner, 1979; Thomas et al., 2020). In the following, we will review some attempts to integrate various predictors of collective action into broad social identity models of collective action in general and collective *climate* action in particular (for

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comprehensive reviews on collective climate action, see Fielding & Hornsey, 2016; Fritsche et al., 2018).

The Social Identity Model of Collective Action (SIMCA; van Zomeren et al., 2008) proposes that identification with a disadvantaged group (group identity), perceiving or feeling that their situation is unfair (injustice; Smith & Ortiz, 2002; Postmes et al., 1999), and beliefs in the group's ability to change the situation (group efficacy; Bandura, 1995), can predict collective action. A *politicized social identity* (Simon & Klandermans, 2001), whereby individuals integrate their group identity with the group's political and structural position in society, is predicted to have a stronger effect on collective action than a more general social identity (Drury & Reicher, 1999; Klein et al., 2007; Reicher, 1996; Simon et al., 1998; Stürmer & Simon, 2004). Additionally, proponents of the theory argue that identification could increase perceptions of injustice and beliefs in possible change, thus making injustice and efficacy mediators of the relationship between social identity and collective action. A meta-analysis of the available research supported these links (van Zomeren et al., 2008).

However, arguments can be made for both reverse and bidirectional causation, whereby increased injustice and group efficacy increases group identification (for example, the EMSICA; Thomas et al., 2009; 2009a; 2012). One longitudinal study found that group identity likely increases protest participation by increasing action preparedness, whereas protest participation, in turn, increases group identity (Klanderman et al., 2002). However, in a national longitudinal study in New Zealand ($N = 19,619$), Thomas and colleagues (2020) found causal evidence for the relationships proposed by SIMCA, except efficacy's mediating and direct effect on collective action, but not for the reverse (i.e., group identity as a mediator of injustice and efficacy).

Much research has supported the relationships between group identification, group efficacy, injustice and collective action, as proposed by SIMCA (e.g., Tabri & Conway, 2011;

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Thomas et al., 2020; van Zomeren et al., 2008; van Zomeren et al., 2012b). Recently, the model has been successfully applied to protest participation among environmentalist groups (Furlong & Vignoles, 2021; Keshavarzi et al., 2021). However, research on climate activism still uses a considerable variety of variables in social identity models based on different theoretical arguments. Some have argued that participative efficacy (Bamberg et al., 2015; Furlong & Vignoles, 2021), social participation norms (Bamberg et al., 2015), perceived behavioral control (Bamberg et al., 2015), moral convictions (Furlong & Vignoles, 2021), and collective emotions such as fear or guilt (Furlong & Vignoles, 2021; Smith et al., 2019) also should be included in SIMCA as predictors of collective action.

The injustice perspective in SIMCA originates from relative deprivation theory (RDT), which proposes feelings of anger and frustration arise when individuals or groups feel unjustly disadvantaged compared to relevant others (Klandermans, 1997; Power et al., 2020; Smith & Ortiz, 2002; Smith & Pettigrew, 2015). However, in line with the Norwegian Paradox, climate pollution can create both benefits and costs to the same group of people, thereby making it harder to blame one group's suffering on the actions of another. Rees and Bamberg (2014) suggested that injustice in SIMCA should be replaced by collective emotions to better explain environmental protests. This argument fits with data that shows that emotional injustice (anger) is a stronger predictor of collective action than perceived and cognitive injustice (van Zomeren et al., 2008), and that guilt can be a stronger predictor of collective climate action than anger (Rees & Bamberg, 2014; Rees, Klug & Bamberg, 2015). To emphasize the social embeddedness of collective climate action, in line with our arguments below on the importance of context, they also included a sense of community (Sarason, 1974) and perceived social participation norms (Ajzen, 1991).

SIMCA has also been extended to a more general social identity model of pro-environmental behavior and pro-environmental collective action; The Social Identity Model

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of Pro-Environmental Action (SIMPEA; Fritsche et al., 2018). The model proposes that an interplay of group-based and individual emotions, social norms, collective efficacy beliefs and ingroup identification can predict collective action. The authors explain group identification, social norms, and group efficacy to be interdependent. One variable is more likely to influence actual behavior when all are moderate or high as opposed to a situation where just one is high. These relationships have received little research beyond those already identified in SIMCA, and the causal paths of the theorized interplay remains unclear (see, however, a recent special issue aimed to address this; Barth et al., 2021).

Moreover, all mentioned variables that have been included in social identity models of collective action have been included on theoretical grounds. As such, little is known about whether important concepts might be neglected with this deductive approach, or how the concepts might vary across social, political, and cultural context (Curtin & McGarty, 2016; Jasper, 2017; Power & Velez, 2020; Saavedra & Drury, 2019; Tam, 2019; van Zomeren, 2019). Additionally, protesters are often researched *after* participation, which might conceal factors and motivations present before or during the strikes (Livingstone, 2014; Power, 2018). As such, we investigate the motivations of youth environmental protesters in Norway as part of a larger social system as well as a part of a broader global social movement (Cassaniti & Menon, 2017; Power, 2020; Shweder, 1991).

1.2. The Current Research

The aims of the current research are to investigate psychological processes that motivate youth to participate in the #FFF movement in the privileged context of Norway. By first investigating a youth climate movement with qualitative inductive methods as it is unfolding, followed by a quantitative examination of the qualitative findings, the present study aims to generate a more ecologically valid model of collective climate action (Power et al., 2018; 2020; Power & Velez, 2020). The study also aims to investigate if other concepts

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can advance our understanding of social movements by applying an inductive ethnographic approach. Our mixed-methods design consisted of two studies conducted in sequence. First, in Study 1, ethnographic fieldwork was conducted at demonstrations using an exploratory approach. Semi-structured interviews were conducted both with participants over time at a series of protests and with activists involved in organizing the protests. In Study 2, the findings from Study 1 were used to test and extend past psychological research on collective action by administering a survey to a larger sample of Norwegian high school students. Specifically, we extended the SIMCA (Rees & Bamberg, 2014; van Zomeren et al., 2008) through twelve novel paths derived from Study 1 and previous research.

2. Study 1

For the first study, the two first authors participated in several strikes and larger demonstrations from the very beginning of the protests in the period between March and November 2019 in Oslo. Ethnographic data consisted of interviews, extensive field-notes of protest dynamics, and systematic recordings of speeches, chants, and protest signs, allowing for triangulation of the analysis (Carter, 2018; Denzin, 2012). Semi-structured interviews were conducted because they are well-suited for an exploratory bottom-up approach to a cultural phenomenon (Kvale & Brinkmann, 2009) providing rich data and “thick descriptions” of the unfolding phenomenon (Geertz, 1973, p. 6). Following the inductive approach of the study, the interview guide probed for insights concerning reasons for participation; desirable outcomes of protest; perceptions of climate change; responsibility and consequences of inaction; and thoughts on different actors’ orientations to the environment and the ongoing protests (see SOM). The analysis focused on two samples of semi-structured interviews, informed by the ethnographic fieldwork, to answer our overarching research question: *What motivates Norwegian youth to protest against political inaction to combat climate change?*

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2.1. Methods**2.1.1. First Sample: In-depth Interviews**

The first sample consisted of 6 men and 13 women, aged 13-29 ($M = 20.95$, $SD = 4.93$). Having participated in at least one strike was set as a recruitment criterion, yet almost all were involved regularly with environmental activism, many of them in leading positions. Participants were recruited through direct contact at demonstrations and snowball sampling via environmentalist organizations. Participation was not remunerated. The length of the interviews ranged from 56 to 125 minutes ($M = 70.72$, $SD = 23.62$).

2.1.2. Second Sample: On-site Interviews at Major Strikes in Front of the Parliament

Data material consisted of 31 interviews with 24 men, and 50 women (age = 16-30, $M = 18.72$, $SD = 2.31$). Most of the participants were high-school or higher education students. The two first authors, and four research assistants, conducted most of the interviews on August 31, 2019, although some others were conducted at a later strike. One in every ten clusters of people (both groups and individuals) were randomly approached for consent for an interview. Recruitment sometimes depended on the physical feasibility of holding the interview (e.g., avoiding stage speakers), thus eluding strict random sampling. Interview lengths ranged from 5 to 30 minutes ($M = 16.71$, $SD = 6.24$).

2.1.3. Procedure

The present project was developed following the guidelines of The Norwegian National Research Ethics Committee (NESH, 2006). All direct quotes, names, and identifying features of participants of the study were carefully anonymized. The 48 interviews of the 93 participants totaled roughly 25 hours of audio material, which was transcribed verbatim. All transcribed material was read, re-read, coded inductively line-by-line, and analyzed using inductive thematic analysis (Braun & Clarke, 2006, 2013). Then, the two first authors

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collaboratively categorized the material and reworked these broader categories into initial - and later finalized - themes. The authors strived to find a balance between reflexivity and methodological systematicity by reflecting on how our own and the participants' perspectives influenced the study (Braun & Clarke, 2019; Power & Velez, 2020; Watts, 2014). The position of the joint first two authors as young Norwegian researchers supportive of the cause can be seen as a source of bias (Yardley, 2015), but also as a strength, as it allowed for a broader interpretation of the material, enhancing our capability to see and incorporate variability in the description of the participants' experiences (Braun & Clarke, 2013; Vestergren & Drury, 2020; Shaw, 2010). The presentation and discussion of the themes were integrated to create a congruent interpretative narrative, a common technique in qualitative research (Braun & Clarke, 2013; Levitt et al., 2018).

2.2. Analysis: Three Overarching Themes

The thematic analysis resulted in three overarching themes: “*negotiating responsibility for climate change*,” “*timely action is needed to save our future*,” and “*shared identity motivates protest*,” with two sub-themes within each theme. The participants understood the climate crisis as a complex process where everyone is responsible and consequently everyone is to blame. Negotiating the responsibility for addressing climate change, the youth stressed the importance of political action instead of blaming individuals. The protesters perception of climate change as an imminent threat with global, already visible consequences, fostered a feeling of relative deprivation and urgency when they imagined their future. This contributed to collective engagement. When gathered at the school strikes, the participants pointed to a sense of community and shared identity that facilitated their understanding of protesting as their only effective tool for change.

2.2.1. Theme 1: Negotiating Responsibility for Climate Change

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Participants described climate change as a complex process originally caused by technological and economic development. Although most participants stated everyone is to blame for causing climate change, they stressed the focus should be on how to mitigate it. Acknowledging the Norwegian Paradox, the participants constructed a sense of collective responsibility, calling for measures at the system-level given the government's greater power to conduct high-impact structural changes.

2.2.1.1. Shared Responsibility for Climate Change. Climate change was represented as an unintended consequence of economic and technological advances that initially were socially and materialistically beneficial. Participants felt responsible for climate change as they reaped the benefits of living in a society that took part in causing the crisis (see Power et al, 2021). Climate change was seen as a structural problem in which everyone is embedded.

Solborg: I mean everyone is responsible. And climate change has happened because of ignorance. I don't think there is anything we could have predicted in that way, we didn't know... But I think we're getting the idea we have to turn in the right direction now, we have gone wrong for a long time now, we have to improve it now, I think everyone is a part of it.

Climate change was understood as something shared, and not easily distributed to specific actors. As such, respondents made a distinction between the responsibility for having caused, and responsibility for addressing, climate change (here referred to as *causal* versus *remedial* responsibility; Caney, 2015; Jagers & Duus-Otterström, 2008). Feeling causal responsibility for the problem was both an obstacle and a necessary step in order to engage in action to address the issue, an insight which is congruent with earlier research (Gifford, 2011; Fritsche et al., 2018). The participants' collective position made room for self-blame, although as collective, rather than as individual, actors. In this sense, the strikers acknowledged the Norwegian Paradox by stressing the collective responsibility for addressing the issue (Olausson, 2011; Tvinnereim, et al., 2017), in line with research on collective guilt

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and pro-environmental behavior (Ferguson & Branscombe, 2010; 2014). In order to justify their protests, the youth portrayed responsibility as something shared, not solely at the individual level.

2.2.1.2. The Ineffectiveness of Individual Blame. Although the participants showed a nuanced understanding of blame and responsibility, they stressed that the focus should be on finding effective ways to deal with the issue.

Trine: There are so many people to blame... But also, it is difficult to just blame the older generation as well, because young people live to a large extent in the same way. It's difficult to find who is to blame, I feel it is more important to point out the problems and what we can do with them than just to blame people ...

The participants blamed the generations before them, the politicians, the government, and the capitalistic system. However, they argued the focus should be on taking action, not on finding someone to blame. This was clear in the strikers' disapproval for the public critique of the striker's own responsibility for climate change (Halvorsen, 2019; Fjeld, 2019). In this sense, the strikers seemed to challenge their critics' strategy of blaming others, or "scapegoating," which has been identified as a predictor of inaction (Rothschild et al., 2012). Respondents stressed that broad-scale system-level policies and legislation can have a greater effect on mitigating environmental degradation than the efforts of individuals alone (Ockwell et al., 2009; Wynes & Nicholas, 2017).

In sum, participants had an awareness of a shared responsibility for climate change, while also being focused on finding solutions rather than attributing blame. Understanding climate change as a structural problem that requires government intervention above individual measures motivates collective action and can perhaps be one of the pathways to overcome the Norwegian Paradox. In the next theme, the participants showed a sense of urgency which

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motivated protest when they imagined a future where they are unjustly deprived of their anticipated lives.

2.2.2. Theme 2: Timely Action is Needed to Save Our Future

Respondents expressed a feeling of being cheated of the possibility of having lifestyles they were brought up to believe they would have. Feeling deprived of their promised future, they saw climate change as an imminent threat that is showing its consequences already, both locally and globally. This awareness fostered a sense of urgency, echoing the IPCC reports (2018), constructing a deadline narrative that motivated protests.

2.2.2.1. Deprived of Our Promised Future. A common sentiment expressed by participants was the feeling of being cheated of the way of life they were brought up to expect for their future:

Elin: We are here because our whole generation is in danger of not being able to live the way we want and the way we have been raised to believe that we should live, and it is because of our older generations that have taught us how we are going to live life, by destroying the planet ... When I grow up, I really want to have the life that everyone dreams of, with children and a real family, but like, I start to think that maybe it won't happen because I don't want to have kids who grow up in a world that has such extreme consequences because of what we have done now to the weather and the environment.

Perceptions of injustice, such as those Elin described above, are a well-known predictor of collective action, although perceptions of injustice are traditionally conceptualized as *social* comparisons (Pettigrew, 2016; van Zomeren et al., 2008). For the participants, engaging with the #FFF movement made sense when the foreseeable future was perceived as unfair, which is a *temporal* comparison. Imagining the future acted as a process informing feelings of relative deprivation and frustration with underlying perceptions of unfairness (Pettigrew, 2016; Power, 2020; Zittoun & Gillespie, 2016). Broken expectations of

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what life should be like when imagining the future lacking a livable planet can be seen as the tipping point initiating social movements (Power, 2018a, 2020). In this sense, when the young generation compared their imagined futures with the current generation's lifestyles, they felt relatively deprived, which in the present galvanized demonstrations.

2.2.2.2. The Already Visible Consequences Will Affect Us All. Most participants indirectly brought up the United Nations' IPCC reports, which show that the world has limited time to prevent temperature from rising above 1.5 °C (IPCC, 2018). Respondents showed an understanding of climate change as a complex system with a wide range of concrete consequences that interact and form a threat at both the global and local levels.

Selma: Yeah, I think it affects many areas ... we already see that. It will create higher temperatures, which in turn will create poverty and even greater income gap between poor and rich. We see that there will be less water, and that will create more probability of war and conflict. Not only that, I think it will create a very big wave of refugees ... the crops fail, but the weather is also unstable, and we are unable to grow food ... species dying out ... We already see that.

Recognizing their privileged position residing in Norway did not prevent them from worrying as they saw the interconnectedness of climate change. Awareness of the consequences of climate change is seen as an important prerequisite in order to collectively engage with pro-environmental action (Fritsche et al., 2018). Furthermore, feeling this environmental, and existential threat, and realizing the consequences will be greater for their own generation, seems to be a motivation for collective action, as others have previously suggested (Fritsche & Häfner, 2012; Fritsche et al., 2018; Hornsey, et al., 2015; Ojala, 2013; Schmitt et al., 2019). Perceiving time as pressing has been pointed out to explain the rise of social movements (Basta, 2020; Power, 2020), which was present in the interviews and frequently portrayed in posters at the demonstrations (e.g., "Time is running out," "12 years to save our future"). In this sense, perceiving climate change as an imminent threat combined

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with the realization that current efforts to address it seem insufficient, seemed to motivate collective action with a great sense of urgency.

In their understanding of climate change having personal and global consequences, participants showed their frustration about the broken promise of their imagined future. They saw climate change as already happening, therefore they protested with a sense of urgency, asking for political action.

2.2.3. Theme 3: Shared Identity Motivates Protest

A recurring topic in the interviews was participants' descriptions of themselves not as separate individuals but as a shared collective, working for change. The youth portrayed their collective identity as being "the future" that has been neglected over time. The participants legitimized their protests by understanding it as their "only tool" to engage with climate change.

2.2.3.1. We, The Youth, are The Neglected Future. The participants actively used their identity as "the youth" to legitimize their concerns and demands by stressing that the consequences of climate change would have a greater impact on their lives than those of the older generations.

Emilie: Many of us can't vote, but we stand here trying to fight for climate without having any real power. Because even if they say that the youth is the future, they won't listen to us, that is a problem. As a youth, I feel almost a little trapped ...

Although the youth are often portrayed as "the future," they do not feel included in the political debate. The voting age limit of 18 years was recognized as a factor restricting their political participation. From this extract we see the burgeoning of a politicized collective identity (Simon & Klandermans, 2001); the youth felt aggrieved and expressed their relatively powerless position for influencing climate policy. Collectively identifying as the neglected

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future meant that they perceived their disadvantaged position as the youngest generation, justifying their call for action, a widely recognized predictor of collective action (Fritsche et al., 2018; Schmitt, et al., 2019; van Zomeren et al., 2008). Moreover, identifying as the future led them to the realization that they had one tool to use: their education. As such, the youth actively utilized their position in society as a political means, for example in posters at demonstrations (e.g., “Why study for a future we don’t have?”). Furthermore, their group identification was expansive, encompassing the young generation globally, expressing solidarity with other youth led social movements like #Youth4Climate. Based on their socio-political position, the youth saw their disadvantaged status as legitimizing anti-climate-change protests as this was their only effective option.

2.2.3.2. Strike as an Effective Way to Influence Politics. Respondents indicated the strikes were useful in influencing relatives and friends and to show politicians how much the youth care, starting discussions in the media, and influencing society at large. At the individual level, participating in the strikes was understood as a positive way to show engagement and feel they are “making a difference.”

Iris: But then you realize that it can lead to action. I think the demonstrations have had a very positive effect because by going to a demonstration, you have already done something. It is doing something after all. Then you have been an activist for the three hours you stand there. I think it gives hope to many... Contrary to just sitting alone, feeling that you are too small to do anything. You get the feeling that together we are strong.

Joining the movement seemed to spark positive emotions, a sense of being part of something bigger, and made participants feel that they could achieve change. The respondents constructed a new identity as activists, something that appeared to help sustain their participation in the movement (Curtin, et al., 2016; Vestergren et al., 2017; 2018; van Zomeren et al., 2013). Participants believed they can impact politics by increasing the issue’s

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visibility when they gather forces to display their concern. At the collective level, the strikers showed a sense of group efficacy; their strike was perceived as potentially leading to meaningful social change (Drury & Reicher, 2005; Rees & Bamberg, 2014; van Zomeren et al., 2010a). In sum, feeling cheated of their promised future, the youth understood striking as their only legitimate means to influence climate policy. Engaging in protest was perceived as a personal and collective effective way to influence the political system.

2.3. Preliminary Discussion

Participants of the #FFF movement in Norway understood climate change as a structural problem that requires measures at the political level. They deflected individual blame for themselves by suggesting everyone caused climate change and instead focused on finding solutions to mitigate its effects. They felt relatively deprived of their promised future when imagining the dire and unfair consequences for their future lives. The last theme highlights the role of group efficacy and social identity; predictive factors of the SIMCA model (van Zomeren et al., 2008) and the adjusted SIMCA model for collective climate action (Rees & Bamberg, 2014).

As opposed to past research on collective action (e.g., Power & Velez, 2020; van Zomeren, 2019), ethnographic observations allowed for contextualized, bottom-up data of the strikes within their socio-political context (i.e., within the Norwegian Paradox). As such, the results from Study 1 broadly illustrate, and provide ecologically valid, in-depth knowledge of, the processes and motivations that lie behind the Norwegian youth's engagement in the #FFF protests. Limitations of ethnographic and qualitative analyses lie in the subjective nature of the interpretation, lacking formal reliability tests (Carter, 2018; Schensul et al., 1999).

Although the broad sample of participants in Study 1 can be seen as a strength, we can only speak of generalizability in the analytical sense (see Cornish, 2020; Power et al., 2018), because we only interviewed participants in the #FFF movement. Therefore, in order to

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overcome these limitations, in Study 2, our aim was to explore if some of the participants' perceptions and feelings identified in Study 1 could statistically explain future protest behavior among a broader sample of Norwegian youth who may or may not have participated in #FFF. Additionally, statistical analysis in Study 2 can help us unpack the relationships identified in Study 1 seen in relation to past research on the SIMCA model, and beyond.

3. Study 2

The #FFF strikes, and the environmental youth movement continued to gain attention and mobilization into early 2020. To investigate whether some of the concepts identified in Study 1 could statistically explain protest participation, a survey was distributed at four Norwegian high schools and online to gather data related to future protest intentions (as a proxy for behavior; Ajzen, 1991; Bamberg & Möser, 2007).

In part, Study 1 confirmed past research's focus on group identity and group efficacy. Some studies have shown that participative efficacy, the belief in one's *personal* impact on achieving the group's goal, is a stronger predictor than group efficacy in general (Bamberg et al., 2015; van Zomeren et al., 2012a). Possibly, group efficacy could be more salient during the strikes, when the collective "we" is activated, than before the strikes. We also deemed participation as a social norm from SIMCA as relevant (Rees & Bamberg, 2014; van Zomeren et al., 2008; see also SIMPEA; Fritsche et al., 2018), as most youths participated in the strikes in groups (see also De Moor et al., 2020; Wahlström et al., 2019). From these observations, we hypothesized, in line with SIMCA, that group efficacy, participative efficacy, and social norms would mediate the relationship between group identification and protest intentions, as a politicized group identity might increase positive thoughts and feelings about the group as well as increase adherence to group norms (Masson & Fritsche, 2014).

Thus, we tested three hypotheses:

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***H*₁**: Group identification will be positively related to group efficacy, participative efficacy, and perceived social participation norm.

***H*₂**: Group efficacy, participative efficacy, perceived social participation norm, and group identification will be positively related to future protest intentions.

***H*₃**: As a result of *H*₁ and *H*₂, there will be three indirect effects, such that the relationship between group identification and future protest intentions will be mediated in three separate paths by group efficacy, participative efficacy, and perceived social participation norm.

Importantly, extending these frameworks and variables, we assessed additional constructs identified in Study 1. Causal (Jang, 2013) and remedial (Reese & Jacob, 2015) responsibility have been connected to pro-environmental behavior, but not been tested together. Therefore, from Theme 1, we assessed two measures of responsibility as possible predictors: one measure where participants rated different actors' responsibility for causing climate change (causal responsibility), and one where they rated different actors' responsibility for reducing climate change effects (remedial responsibility). In addition, from the same theme, we included collective guilt as a predictor. This variable was included instead of other emotions such as anger because previous research has shown it to be of primary importance in explaining collective climate action (Rees & Bamberg, 2014; Rees et al., 2015) and because it was deemed as particularly important for activists living in a country that contributes to global pollution (i.e., the Norwegian paradox).

From Theme 2, we included measures of perceived threat of environmental devastation by humans (environmental threat), and perceived threat of human extinction as a result of climate change (existential threat). Although the nature of the qualitative data made it difficult to definitely connect threat to social identity, it was a recurring topic among the climate activists.

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Provided this observation and that previous work has linked both variables to collective climate action and social identity (Fritsche et al., 2010; Fritsche & Häfner, 2012; Johnson & Frickel, 2011; Lubell et al., 2007; Schmitt et al., 2019; van Zomeren et al., 2010b), we chose to include them as predictors in our models. From Theme 2 we also identified participants' *temporal* relative deprivation. However, protesters' perception of temporality remains relatively unexplored in terms of defining the processes involved and reliable measurement instruments (Basta, 2020; Power, 2020; Power & Velez, 2020). Thus, we considered it premature to include temporal relative deprivation in the model at this point in time.

As stated in the introduction, the directional causation between group identity and protest participation is contested (e.g., Thomas et al., 2019), and might be a self-reinforcing cycle (Fritsche et al., 2018; Klandermans et al., 2002). Engaging in activism seems to have effects on identification with a movement (Klandermans et al., 2002; Vestergren et al., 2017). Hence, past protest participation was included as a predictor of group identity in the model. Belief in *anthropogenic* (i.e., human-made) climate change is a stronger predictor of collective environmental action than belief in climate change in general (Hornsey et al., 2016). This belief could be related to causal responsibility (Jang, 2013), but is conceptually different (i.e., acknowledgement of the problem versus attribution of blame). Also, we believed the importance of such beliefs might be less discernible in engaged protesters (from Study 1), hence, it was included as a predictor.

Similar to reports across Western nations (De Moor et al., 2020; Wahlström et al., 2019), our ethnographic observations indicated that a majority of the protesters were female, politically liberal, and had a high socio-economic background. These demographic factors have all been linked to pro-environmental beliefs, attitudes and behaviors (for meta-analyses, see Hornsey et al., 2016; McCright et al., 2016), although the cross-cultural variation is considerable (e.g., Lewis et al., 2019). As such, they seemed like factors wherein people

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would be more likely to sympathize with the #FFF movement and its message, and, thus, be more likely to create a politicized identity motivated for collective action. Moreover, including these variables in a social identity model of collective action might help explain why their effects on pro-environmental action are so varied (Hornsey et al., 2016; Lewis et al., 2019).

Hence, in line with past research, we predicted that being female (Hornsey et al., 2016; Macias & Williams, 2016; McCright et al., 2016, Lewis et al., 2019, Zelezny et al., 2000), being liberal (Hornsey et al., 2016; McCright et al., 2016; Lewis et al., 2019), and having higher social capital (Macias & Williams, 2016; Moon et al., 2020), higher family income (Hornsey et al., 2016) and more educated parents (Hornsey et al., 2016; Meyer, McCright et al., 2016; Lewis et al., 2019) would be connected to stronger politicized identity and, thus, in turn, stronger climate protest intentions. We did not measure political party affiliation (Hornsey, et al., 2016) due to the protesters' relative political inexperience, but instead affiliation to an environmental party or organization. In addition, we found it curious that White people seemed to be over-represented at strikes, contrasting past findings (e.g., Hornsey et al., 2016), and, hence, included ethnicity as a predictor as well.

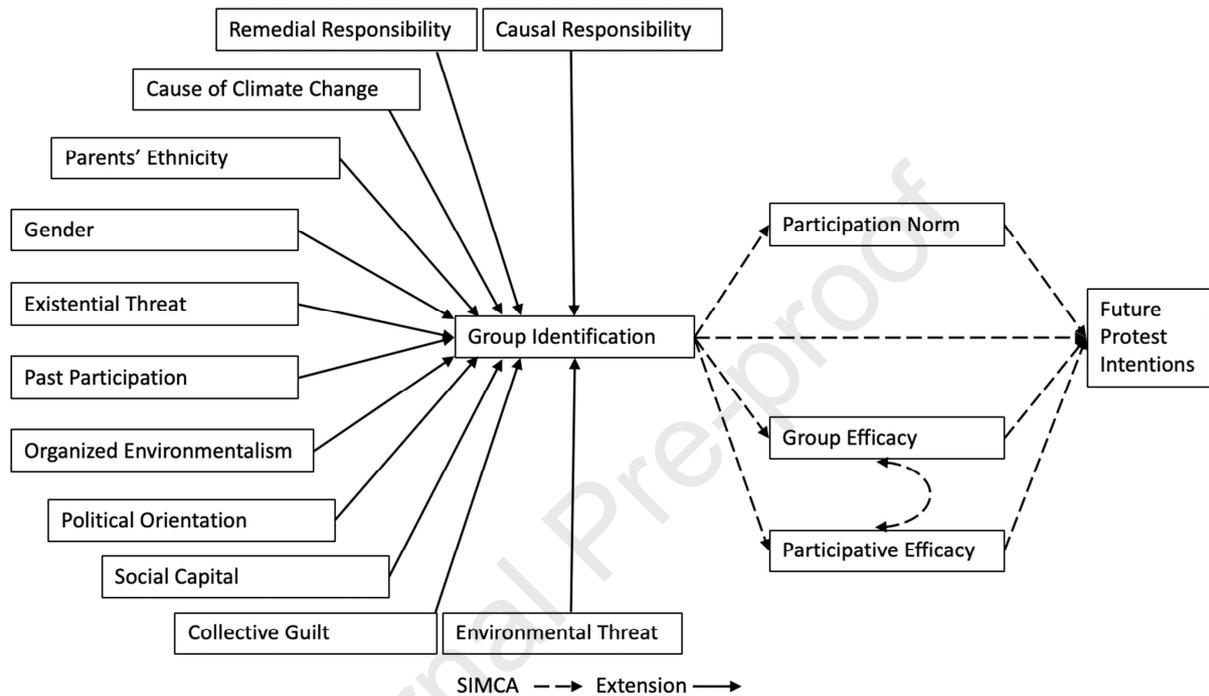
It is important to note that some previous research predicts reversed causal directions between the variables in this proposed mediation (e.g., Fritsche et al., 2018; Schmitt et al., 2019; Thomas et al., 2009; 2012). However, the politicized identity of "school strikers" is relatively new, whereas messages of climate change (e.g., threats, blame, responsibility) are not. As such, we found it likely that our predictors would, at least partially, precede the process of politicizing youths' identities. As our correlational data cannot conclusively answer this issue, we compared our predicted model to versions where the relationship between the mediator and independent variables was reversed (e.g., activist identity having an effect on

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collective guilt), which showed that reversing any of the paths in the model deteriorated fit (see SOM).

Figure 1

Hypothesized path model for future protest intentions.



3.1. Methods

3.1.1. Participants and Procedure

A total of 362 participants (54.7% women, 43.1% men, 8 other/non-response) between the ages of 16 and 22 ($M = 17.3$, $SD = 1.07$) were recruited. We sought to recruit a minimum of 200 participants, which would fit the conventional 10:1 criteria of number of participants to every free parameter for path modeling (Kline, 2016). Data was collected at four public high schools in Oslo during lectures or at lunch breaks. The questionnaire was additionally distributed online through convenience snowball sampling on social media pages of a diversity of political youth parties, and environmental youth organizations. Data collection occurred between the 3rd and 28th of February 2020. Only participants who completed all variables of interest were included in the analysis. One case was excluded from the analysis

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due to a combination of mostly extreme responses, omissions, and a short response time (4.80 minutes compared to the mean of 13.92).

3.1.2. Measures

All measures used a response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), unless noted otherwise. Please note that additional variables were assessed (e.g., non-normative protest intentions) but were not reported as they fall beyond the scope of this project. Computation of mean scores were supported by unifactorial factor solutions (see SOM).

3.1.2.1. Demographics. Participants were asked to indicate their age, gender, ethnicity (western vs. non-western: “does/do one or both of your parents have a non-western background?” as in SSB, 2014), past or current membership in an environmental organization or environmentally focused political party (i.e., organized environmentalism), and political orientation (*very liberal* to *very conservative* on a 5-point scale, reversed in the analysis). We did not ask for continent/country of origin, as this could have jeopardized respondents’ anonymity when sampling was at school level. Social capital was measured by asking for the number of books in the household (Sieben & Lechner, 2019). Three items were excluded from analysis due to the percentage of missing responses, namely; education of father (10.4%), education of mother (9.2%), and household income (19%).

3.1.2.2. Past Participation in Protest was measured by asking participants how many school strikes they had attended in the past 12 months and how many other demonstrations for the climate and/or the environment they had attended in the past 12 months, using a numeric open-response format. Both items were strongly correlated ($r = .64, p < .001$). Therefore, a sum score was computed across the items.

3.1.2.3. Belief in Anthropogenic Climate Change was measured with one question from the European Social Survey (2016): “Do you think climate change is caused by natural

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processes, human activity, or both?” Responses were measured on a 5-point scale from 1 (*entirely by natural processes*) to 5 (*entirely by human activity*).

3.1.2.4. Causal Responsibility was measured using a slider scale question (0 to 100) from the YouGov (2019) survey: “When thinking about the causes of climate change, to what extent do you consider the following to be responsible for causing climate change?” Six items were adapted: “International organizations (UN, EU, etc.),” “The Norwegian state and government”, “Private companies and businesses”, “Individuals”, “Wealthy countries”, and “Developing countries”. Two items were added based on the findings in the qualitative interviews: “The Norwegian oil industry” and “The economic system”. Factor analyses favored a unifactorial solution. Thus, one mean score was computed ($\alpha = .77$).

3.1.2.5. Remedial Responsibility was measured analogous to causal responsibility: “When thinking about reducing the effect of climate change today, to what extent do you consider the following to be responsible for reducing the effect of climate change?” The same items were used for remedial responsibility as for causal responsibility, excluding “The economic system” which was judged as a bad fit for the question. The reliability was satisfactory ($\alpha = .87$).

3.1.2.6. Perceived Environmental Threat was measured using four items (e.g., “If humans don't dramatically change their relationship to the earth, the damage done will be beyond repair”) from The New Environmental Paradigm Scale (Schmitt et al., 2019; $\alpha = .82$).

3.1.2.7. Collective Guilt was measured using three questions from Rees and Bamberg (2014) concerning feelings of guilt and shame for how “we humans” are treating the planet (e.g., “I feel ashamed when I realize what we leave behind for future generations.”; $\alpha = .89$).

3.1.2.8. Existential Threat was measured using six items concerning the physical annihilation of a group (e.g., “The physical existence of humankind is in danger”; $\alpha = .88$).

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adopted from Hirschberger and colleagues (2016). A seventh item of the original scale was removed because the Norwegian translation resulted in two linguistically identical items.

3.1.2.9. Activist Identification was measured by adapting four items from van Zomeren, and colleagues (2010a) about the participants' perceptions and feelings of being a school striker (e.g., "I see myself as a school striker"; $\alpha = .94$).

3.1.2.10. Social Participation Norm was measured by adapting two items from Rees and Bamberg (2014), one measuring descriptive social norms ("People who are personally important to me would participate themselves in a school strike") and one measuring injunctive social norms ("People who are personally important to me expect me to participate in a school strike"). The items were strongly correlated ($r = .72, p < .001$), hence, one mean score was calculated for the two items.

3.1.2.11. Group Efficacy and Participative Efficacy. Group efficacy (e.g., "I believe that school strikers, together, can influence the politicians to improve the current climate change policies") and participative efficacy (e.g., "I believe that I, as an individual, can provide an important contribution so that school strikers, together, can influence the politicians to improve the current climate change policies") were measured by adapting each of two items from van Zomeren and collaborators (2013, Study 2; also see Rees & Bamberg, 2015). The two group efficacy items were very strongly correlated ($r = .91, p < .001$) as were the two participative efficacy items ($r = .93, p < .001$), hence mean scores were calculated for each scale.

3.1.2.12. Future Protest Intentions. Future protest intentions were measured by adapting the format of previous research (Hornsey et al., 2006). Three items asked about intentions to participate in a school strike (a) next Friday, (b) within the next 6 months, or (c) to participate in other protests for the climate within the next 6 months (7-points Likert scale from *very unlikely* to *very likely*; $\alpha = .91$).

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3.1.3. Analytic Strategy

After providing some descriptive analyses of the demographic distributions of past strikers and non-strikers, the model was developed in two steps. First, to identify predictors to be included in the model, a linear regression was conducted to test the effect of the twelve exogenous variables on the mediator group identification. Independent variables that had a significant relationship with group identification were then added to a path model as conceptualized in Figure 1. The full model was tested in R version 3.6.2 (R Core Team, 2019) using *lavaan* (Rosseel, 2012). Robust maximum likelihood parameter estimates (MLR; Yuan & Bentler, 2000) were calculated to correct for the influence of non-normality on the chi-square test and the standard errors. Indirect effects were estimated using maximum likelihood bootstrapping with 5,000 random resamples. Due to the χ^2 -test sensitivity to sample size (Barrett, 2007), model fit was assessed using the Root Mean Square of Approximation (RMSEA), Comparative Fit Index (CFI), and the Standardized Root Mean Square Residual (sRMR).

3.2. Results**3.2.1. Descriptive Analyses**

For the chi-square analyses, the past school strike participation item was dichotomized into “have attended” versus “have not attended” because of extreme non-normality ($M = 1.71$, $SD = 3.35$; skew = 4.99, kurtosis = 47.70), resulting in a distribution of 52.5% having attended and 47.5% not having attended previous protests.

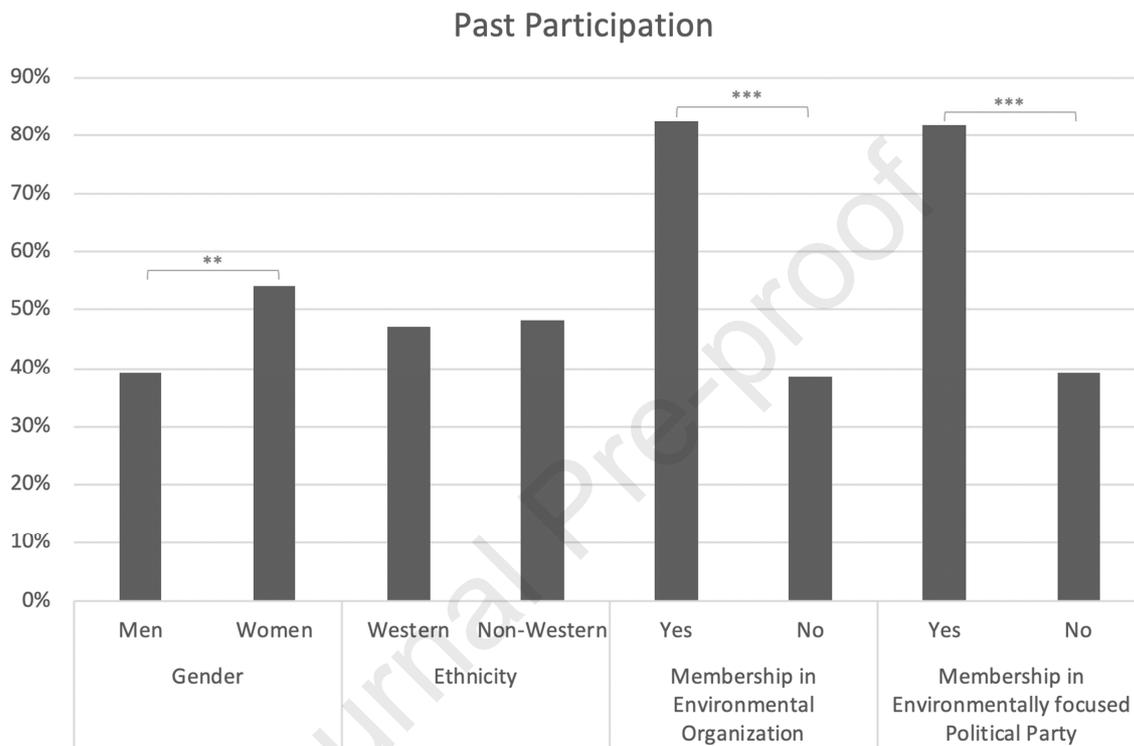
A chi-square test of independence was performed to examine the relation between past participation in school strikes and gender, organized environmentalism and ethnicity (see Figure 2). Women (as compared to men), $\chi^2(1, N = 354) = 7.80, p = .005, \phi = 0.14$, members of environmental organizations, $\chi^2(1, N = 360) = 45.58, p < .001, \phi = 0.35$, and members of environmentally focused political parties were significantly more likely to have participated

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in a strike, $\chi^2(1, N = 360) = 41.45, p < .001, \phi = 0.33$. By contrast, past participation did not differ by ethnicity, $\chi^2(1, N = 359) = .02, p = .879, \phi = 0.02$.

Figure 2

Percentages of Past Participation by Demographic Variables



Note. ** $p < .01$, *** $p < .001$

3.2.2. Regression

The correlations, means, and standard deviations of the variables in the analysis are shown in Table 1. The hypothesized relationships between the independent variables and group identification were first tested using linear regression. The results of the linear regression can be seen in Table 2. Six variables had a significant relationship with group identification at the .05 significance threshold: collective guilt, environmental threat, past protest participation, political orientation, organized environmentalism, and social capital, and were included in further analysis.

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Table 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
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Correlations, Means, and Standard Deviations of Model Variables.

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1. Future protest intentions	.77	.51	.56	.59	.51	.44	.39	.36	.32	.21	-.43	.52	-.52	.18	.23	-.03	
2. Group identification		.49	.60	.68	.54	.50	.35	.35	.32	.26	-.42	.47	-.48	.24	.26	.06	
3. Group efficacy			.67	.35	.46	.38	.29	.28	.25	.16	-.23	.21	-.23	.10	.26	-.05	
4. Participative efficacy				.49	.55	.33	.29	.25	.23	.11	-.23	.30	-.28	.08	.24	-.10	
5. Participation norms					.40	.37	.27	.25	.24	.11	-.28	-.32	-.39	.26	.17	-.01	
6. Collective guilt						.50	.49	.34	.26	.26	-.27	.26	-.27	.03	.38	-.15	
7. Environmental threat							.53	.39	.38	.41	-.34	.27	-.31	.24	.28	.02	
8. Existential threat								.29	.23	.24	-.21	.22	-.14	-.08	.32	-.18	
9. Causal responsibility									.57	.15	-.22	.25	-.23	.02	.10	-.09	
10. Remedial responsibility										.17	-.27	.24	-.22	.13	.09	.02	
11. Belief in anthropogenic CC											-.27	.19	-.21	.20	.14	.10	
12. Political affiliation												-.36	.34	-.09	-.20	.05	
13. Past protest participation													-.55	.12	.09	.06	
14. Organized environmentalism														-.25	-.17	-.12	
15. Social capital															.07	.34	
16. Gender																	-.08
17. Ethnicity																	
Mean	3.58	3.73	4.96	4.04	3.27	5.18	5.61	4.32	50.79	55.69	4.04	2.55	1.71	0.80	4.18	0.58	0.72
SD	1.79	1.84	1.51	1.69	1.67	1.47	1.11	1.28	17.42	23.19	0.61	1.00	3.35	0.35	1.41	0.52	0.45

Note. Estimates over .10 were significant at $p < .05$, those over .14 were significant at $p < .01$, and estimates over .20 were significant at $p < .001$

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Table 2*Regression Analysis Summary for Group Identification*

Variable	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>
Collective guilt	0.38	[0.26, 0.51]	.31	6.12	< .001
Environmental threat	0.26	[0.08, 0.43]	.16	2.80	.005
Causal responsibility	0.00	[-0.01, 0.01]	.04	0.72	.474
Remedial responsibility	0.00	[-0.01, 0.01]	.03	0.64	.525
Existential threat	0.03	[-0.11, 0.17]	.02	0.38	.701
Past protest participation	0.10	[0.05, 0.16]	.19	4.02	< .001
Political orientation	0.27	[0.11, 0.43]	.15	3.33	.001
Organized environmentalism	0.76	[0.26, 1.26]	.15	3.01	.003
Social capital	0.16	[0.04, 0.27]	.12	2.71	.007
Belief in anthropogenic climate change	-0.14	[-0.40, 0.12]	-.05	-1.05	.292
Ethnicity	0.03	[-0.31, 0.37]	.01	0.16	.870
Gender	0.02	[-0.28, 0.32]	.01	0.11	.909

Note. R^2 adjusted = .49. R^2 change = .51. CI = confidence interval for *B*. Estimates with $p < .05$ in bold.

3.2.3. Path Model

Path analysis with serial mediation was conducted. First, it tested the adjusted SIMCA model for climate change action (Rees & Bamberg, 2014); specifically, whether group efficacy, participative efficacy and participation norms would mediate the relationship between group identification and future protest intentions. Second, it tested whether group identification mediated the relationships between constructs identified in Study 1 and protest intentions. Covariances were added between the exogenous variables, and additionally between group efficacy and participative efficacy because of the strong correlation between them ($r = .67, p < .001$). However, to keep presentation as parsimonious as possible, these covariates are not presented in the figure (see SOM for estimates).

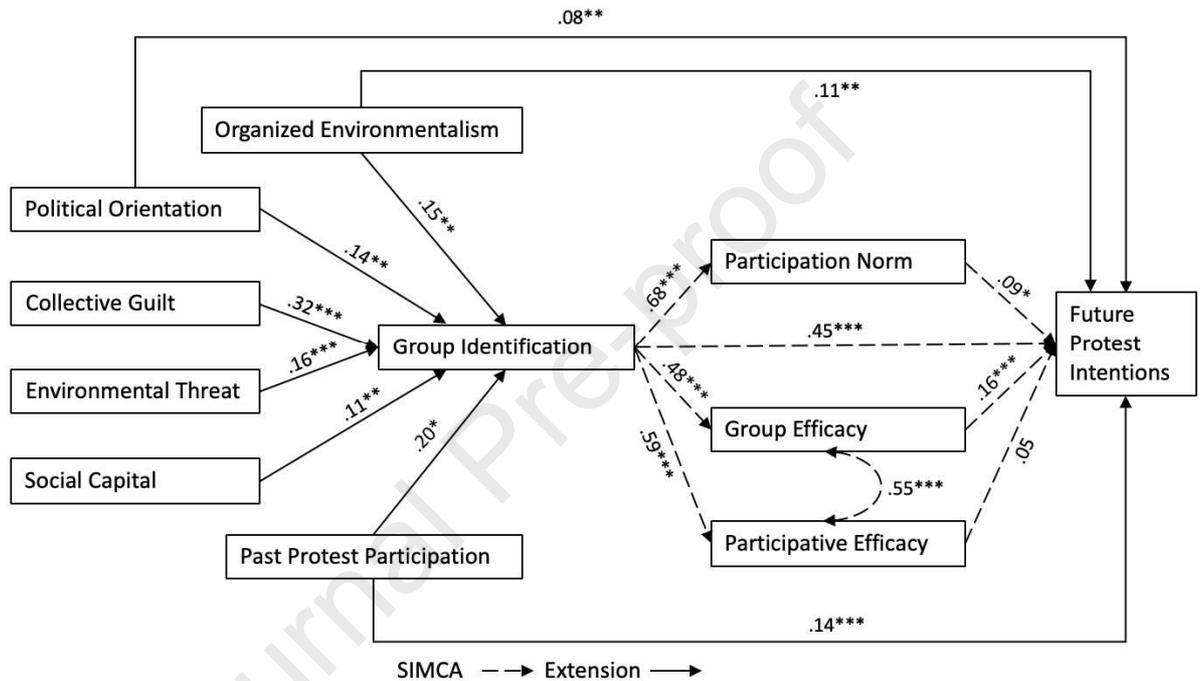
The initial estimation of the model indicated a partially acceptable fit to the data, $\chi^2(26, N = 347) = 139.17, p < .001, CFI = 0.91, RMSEA = 0.111, 90\% CI [0.093, 0.130], sRMR = 0.059$. Modification indices were calculated to see whether additional paths could improve this fit. Three of the exogenous variables were suggested to have a direct, unmediated effect on future protest intentions: past protest participation, organized environmentalism, and

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political orientation. When adding these variables, model fit was satisfactory, χ^2 (23, $N = 347$) = 91.02, $p < .001$, RMSEA = 0.092, 90% CI [0.073, 0.113], CFI = 0.95, sRMR = 0.050. The final model is displayed in Figure 3.

Figure 3

Standardized Estimates of Direct Effects



Note. $*p < .05$, $**p < .01$, $***p < .001$

As hypothesized by SIMCA, group identification was positively related to group efficacy ($\beta = .48$, 95% CI [.40, .56], $p < .001$), participative efficacy ($\beta = .59$, 95% CI [.52, .67], $p < .001$), and perceived social participation norm ($\beta = .68$, 95% CI [.61, .74], $p < .001$), as well as to future protest intentions ($\beta = .45$, 95% CI [.34, .55], $p < .001$). Of the SIMCA mediators, group efficacy ($\beta = .16$, 95% CI [.07, .24], $p < .001$) and social participation norm ($\beta = .09$, 95% CI [.00, .17], $p = .049$) were in turn positively related to future protest intentions. However, there was an unexpected, non-significant relationship between participative efficacy and future protest intentions ($\beta = .05$, 95% CI [-.05, .15], $p = .318$).

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Given these results, we next tested for indirect effects. Standardized estimates of indirect effects are shown in Table 3. Group identification was indirectly related to higher future protest intentions as it was related to higher group efficacy. Participative efficacy and perceived social participation norm did not emerge as significant mediators.

All the six exogenous variables that were added based on Study 1 were significantly related to group identification. That is, collective guilt ($\beta = .32$, 95% CI [.21, .42], $p < .001$), perceived threat of humans to the environment ($\beta = .16$, 95% CI [.07, .25], $p < .001$), number of attended climate demonstrations in the past ($\beta = .20$, 95% CI [.10, .43], $p = .010$), being more liberal than conservative ($\beta = .14$, 95% CI [.06, .22], $p = .001$), social capital ($\beta = .11$, 95% CI [.03, .19], $p = .008$), and being/having been a member of an environmental organization or party ($\beta = .15$, 95% CI [.03, .25], $p = .005$) were all positively related to identification as a school striker. Given these results, we explored whether any of the six exogenous variables were indirectly related to future protest intentions.

Three of the exogenous variables were also directly associated with protest intentions. That is, the number of attended climate demonstrations in the past ($\beta = .14$, 95% CI [.08, .26], $p < .001$), being more liberal than conservative ($\beta = .08$, 95% CI [.02, .14], $p = .009$), and being or having been a member of an environmental organization or political party ($\beta = .11$, 95% CI [.04, .18], $p = .001$) was positively related to future protest intentions.

Table 3*Table of Indirect Effects in the Path Analysis*

Indirect Effect	β	95% CI	p
Simple Mediations with Group Efficacy, Participative Efficacy, and Perceived Social Participation Norm as Mediators (SIMCA)			
GroupID \rightarrow GroupEff \rightarrow Protest	.08	 [.03, .12]	.001
GroupID \rightarrow ParEff \rightarrow Protest	.03	[-.03, .09]	.326
GroupID \rightarrow ParNorm \rightarrow Protest	.06	[.00, .12]	.055
Simple Mediations with Group Identification as Mediator			
Collective Guilt \rightarrow Group ID \rightarrow Protest	.14	 [.09, .20]	<.001
Environmental Threat \rightarrow Group ID \rightarrow Protest	.07	 [.03, .12]	.001

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Past Protest Participation → Group ID → Protest	.09	[.01, .17]	.026
Political Orientation → Group ID → Protest	.07	[.02, .11]	.002
Organized environmentalism → Group ID → Protest	.07	[.01, .12]	.018
Social capital → Group ID → Protest	.05	[.01, .09]	.013
Serial Mediations with Group Identification and Group Efficacy as Mediators			
Collective Guilt → Group ID → GroupEff → Protest	.03	[.01, .04]	.004
Environmental Threat → Group ID → GroupEff → Protest	.01	[.00, .02]	.012
Past Participation → Group ID → GroupEff → Protest	.02	[.00, .03]	.073
Political Orientation → Group ID → GroupEff → Protest	.01	[.00, .02]	.015
Organized environmentalism → Group ID → GroupEff → Protest	.01	[.00, .02]	.033
Social capital → Group ID → GroupEff → Protest	.01	[.00, .02]	.045
Serial Mediations with Group Identification and Participation Norm as Mediators			
Collective Guilt → Group ID → ParNorm → Protest	.02	[.00, .04]	.071
Environmental Threat → Group ID → ParNorm → Protest	.01	[.00, .02]	.086
Past Participation → Group ID → ParNorm → Protest	.01	[.00, .03]	.136
Political Orientation → Group ID → ParNorm → Protest	.01	[.00, .02]	.102
Organized environmentalism → Group ID → ParNorm → Protest	.01	[.00, .02]	.121
Social capital → Group ID → ParNorm → Protest	.01	[.00, .02]	.140
Serial Mediations with Group Identification and Participative Efficacy as Mediators			
Collective Guilt → Group ID → ParEff → Protest	.01	[-.01, .03]	.332
Environmental Threat → Group ID → ParEff → Protest	.01	[-.01, .02]	.343
Past Participation → Group ID → ParEff → Protest	.01	[-.01, .02]	.363
Political Orientation → Group ID → ParEff → Protest	.00	[-.01, .01]	.343
Organized environmentalism → Group ID → ParEff → Protest	.00	[-.01, .01]	.363
Social capital → Group ID → GroupEff → Protest	.00	[.00, .01]	.356

Note. Estimates bootstrapped with 5,000 resamples. CI = Confidence Intervals.

Abbreviations: Group ID = Group Identification, GroupEff = Group Efficacy, ParNorm = Participation Norm, ParEff = Participative Efficacy.

Estimates with $p < .05$ are presented in bold.

The results indicated that all of the six exogenous variables were indirectly related to future protest intentions through group identification. Higher experiences of collective guilt, higher perceptions of environmental threat, having been to protests in the past, being more liberal than conservative, higher social capital, and being/having been in an environmental organization or political party were indirectly related to higher intentions to participate in

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protests because of their positive relationship with identification with the strike movement. We also explored whether the six exogenous variables would be indirectly related to future protest intentions by two stages of mediation. Four indirect paths were significant, specifically; collective guilt, environmental threat, political liberalism, and organized environmentalism were indirectly related to future protest intentions because of their positive relationship with in-group identification, and, in turn, group efficacy. No paths including participative efficacy or perceived social participation norm as second-stage mediators were significant at the .05 threshold.

3.3. Preliminary Discussion

The results to a large degree supported the application of SIMCA to environmental protests among Norwegian youth. In line with *Hypothesis 1*, identification as a school striker was positively related to collective efficacy, participative efficacy, and participation norms. In turn, partially confirming *Hypothesis 2*, identification as a school striker, group efficacy, and participation norms were positively related to future protest intentions, whereas participative efficacy was not. Possibly, self-efficacy needs to be learned through successful achievement (Bandura, 1995). Young people might not have acquired experiences as impactful political agents yet, thus making participation less dependent on participative efficacy in youths than in adults.

Identification was indirectly related to protest intentions as it was positively related to group efficacy, indicating that identifying with other school strikers is a process of recognizing the in-group's disadvantaged position (Simon & Klandermans, 2001; Tajfel & Turner, 1979), which enables a sense of empowerment beyond the personal self (Drury & Reicher, 1999; Reicher, 1996; Simon et al., 1998; Stürmer & Simon, 2004), which motivates action (Drury & Reicher, 2005; Rees & Bamberg, 2014; van Zomeren Leach, & Spears, 2010a).

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However, contrary to previous research (Bamberg et al., 2015; Rees & Bamberg, 2014; van Zomeren et al., 2013), participative efficacy and participation norms could not explain the relationship between group identification and protest intentions. Possibly, high identifiers' are more influenced by group norms than low identifiers (Bamberg et al., 2015; Stürmer and Simon, 2004; van Zomeren et al., 2013). Our sample had a heavier tail for low scores on identification (kurtosis = -1.04), thus potentially concealing a relationship for high identifiers. Also, norms may be more important for collective action in small communities (Bamberg et al., 2015 see also van Zomeren et al., 2013), whereas we tested it within a global social movement.

Our second exploratory goal was to extend the SIMCA model by connecting twelve novel paths to identification with the school striker movement. Collective guilt, environmental threat, organized environmentalism, liberal political orientation, number of attended climate protests, and social capital was indirectly related to protest intentions by being positively related to group identification. Moreover, modification indices suggested that organized environmentalism, liberal political orientation, and past participation were positively related to protest intentions – even when accounting for mediations. This suggests that participants might have connected with the movement by other means than the school striker identity, for example through personal values or other social identities.

However, existential threat, causal responsibility remedial responsibility, belief in anthropogenic climate change, ethnicity and gender were not related to group identification, and thus not tested in the path model. It is possible that blaming different actors for climate change activates “scapegoating” instead, whereby people feel less personally involved in the issue (Rothschild et al., 2012). Also, The emotional component of responsibility (guilt) might be more important than the cognitive component (as seems to be the case for perceptions of injustice; van Zomeren et al., 2008). Existential threat itself might be a source of apathy

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because people are faced with the severe consequences of climate change (Rothschild et al., 2012). Environmental threat, on the other hand, emphasizes the actions of humans which stresses the need for (collective) action. Additionally, both environmental threat and collective guilt explicitly distribute blame to all humans. This could act as a buffer for apathy over personal wrong-doings (and thus denial and inaction) and instead inspire ingroup identification and collective action tendencies.

Belief in anthropogenic climate change might have become non-significant because environmental threat is a more nuanced measure of a similar belief. Ethnicity shows varying importance world-wide for climate change issues (e.g., Lewis et al., 2019), but should here be interpreted with caution, as recruiting in pre-established groups like in our sample (i.e., school classes, political groups) might access people that are more similar to each other than in the general population. Gender and past protest had a significant relationship in the chi-square test, but gender was not related to identification in the regression. This suggests that more women than men have participated in school strikes, but that other variables controlled for in the model may explain this variation (e.g., gender and collective guilt were moderately correlated; see Table 1).

In summary, our path model was successful in extending the SIMCA model. Collective guilt, environmental threat, being liberal and involved in organized environmentalism, social capital and having attended protests in the past were positively related to protest intentions as they were all related to identification as a school striker, which in turn was related to group efficacy beliefs and, consequently, future protest intentions.

4. General Discussion

The main goal of our investigation was to provide insights into the processes that motivate youth to participate in environmental protest in a privileged context. From a socio-cultural psychological perspective, we found that politicized social identity, perceptions of

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environmental threat, and shared responsibility (expressed as collective guilt) are important aspects of youths' decision to participate in environmental protest.

First, in Study 1, we used an inductive ethnographic and qualitative approach to understand youths' motivations for climate strike participation. The analysis suggested that social identity permeates all three identified themes. Using their age and position, the youth constructed a politicized identity (Simon & Klandermans, 2001) justifying their non-compliance towards the government. Due to their young age, some being below voting age, striking was seen as the only effective means to achieve political change. These findings are consistent with a vast body of theoretical and empirical work on the connection between politicized social identity, group efficacy, and collective action (see van Stekelenburg & Klandermans, 2017; van Zomeren et al., 2008) and environmental activism (Bamberg et al., 2018; Fritsche et al., 2018; Rees & Bamberg, 2014). The survey results from Study 2 were able to validate the findings, thus supporting the validity of social identity models to explain environmental collective action among youth.

The mixed-methods design of the study enabled us to make additional contributions to the research on social identity models in social movements. Specifically, by nuancing the complex negotiations of self-blame and collective guilt regarding environmental degradation in the context of the Norwegian Paradox. Past research suggests that self-blame can lead to apathy and denial (Gifford, 2011), perhaps particularly so when given the opportunity to blame others (Rothschild et al., 2012). Study 1 revealed that strike participants recognized that the responsibility for causing and addressing climate change lies on the shoulders of everyone, at individual and structural levels. This understanding of shared responsibility was related to a sense of self-blame, and is congruent with the literature on collective guilt, pro-environmental behavior, and collective action (Ferguson & Branscombe, 2010; Harth et al., 2013; Mallett, 2012; Mallett et al., 2013; Rees & Bamberg, 2014; Schmitt

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et al., 2019). Study 2 confirmed that collective guilt was related to identification with school strikers, and thus, future protest intentions, whereas causal and remedial responsibility were not. This points to the importance of collective emotions, and perhaps particularly collective guilt, in the study of collective action (Ferguson & Branscombe, 2010; Fritsche et al., 2018; Rees & Bamberg, 2014; van Zomeren et al., 2008). As such, rather than interpreting the non-significance of responsibility in Study 2 as disconfirming its importance, we suggest the concept and measurement needs more refinement.

Denial has also been suggested as a strategy Norwegians use to maintain an environmentally friendly self-image in an oil-dependent economy (Aasen et al., 2019; Norgaard, 2006, 2011; Skarstein, 2020). We propose that Norwegian youth might overcome this hindrance to collective climate action in at least two ways. First, the protesters were mostly concerned with structural policy change over individual measures, arguably because they saw this as a more effective solution. Second, the participants were more focused on trying to motivate political action rather than assigning blame to specific actors. Thus, they seem to be overcoming personal discouragement by seeing the responsibility for addressing climate change as shared and contingent on policy change. In this sense, avoiding assignment of blame could be a way to circumvent individual feelings of guilt and apathy. In a broader perspective, these strategies could explain youth climate engagement in other privileged contexts although these youth are embedded and co-responsible for the issue.

Another explanation for the youth's engagement lies in how they experienced the environment and their way of life as threatened. Respondents discussed issues brought up by the IPCC report, which has been shown experimentally to increase worry and perceived threat (Ogunbode et al., 2020). These findings suggest that environmental and existential threat increases willingness to participate in collective action (Fritsche et al., 2010; Johnson & Frickel, 2011; Lubell et al., 2007; Schmitt et al., 2019; van Zomeren et al., 2010b). Study 2

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enabled us to compare these two concepts and showed that threat of human behavior towards the environment (i.e., environmental threat), and not the threat of climate change to humanity's existence (i.e., existential threat), was related to identification with the school striker movement, and thus, to future protest intentions. Our interpretation of these results is that identifying the environmental threat that human behavior is, could motivate for collective action to change it. Existential threat, on the other hand, seems to lead to apathy and a sense of hopelessness, which could lead to inaction.

Acknowledging the environmental threat when imagining the future informs feelings of relative deprivation. In this sense, imagining future consequences of climate change creates a sense of unfairness and frustration (Pettigrew, 2016; Power, 2020; Zittoun & Gillespie, 2016) that legitimizes youth's protests and their call for political change. This was evident in theme 2 of Study 1. We propose that participants' temporal comparisons of themselves in the present and in the future lead to a sense of *temporal* relative deprivation. Collective temporal relative deprivation, that is, comparing one's group status in the present with an imagined group status in the past or future, has received some attention in psychological research on collective action (Hawlina et al., 2020), but its relation to collective environmental action has drawn limited research. This implies that, to understand the participants' engagement in #FFF, there is a necessity of incorporating their contextually embedded perception of urgency (Basta, 2020; Power, 2020). Imagining the future as catastrophic and unfair (Power, 2020), as well as temporally proximate (de Guttery et al., 2019; Singh et al., 2017), seems to motivate the #FFF movement to protest in the present. Reconsidering the role of perceptions of injustice and relative deprivation by integrating temporal narratives might give important insights in future research on environmental collective action.

4.1. Limitations and Future Research

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The present research confirms the connection between politicized group identification and collective action by finding supporting evidence using an inductive mixed-methods approach. Additionally, following the development of a new social movement from its beginning, and by investigating youth collective action specifically, the results extend past research by nuancing questions of individual blame and paving new avenues to explore regarding negotiations of responsibility and perceptions of future threats.

Yet, some limitations should be noted. First, the correlational design of Study 2 implicates relationships between findings from Study 1 and protest intentions, but causation cannot be confirmed using this design. Experimental or longitudinal studies derived from the present results could address this shortcoming, identifying causal associations between the observed factors. Additionally, although Study 1 implicated that rather than excluding the injustice perspective from social identity models of collective environmental action (Fritsche, 2018; Rees & Bamberg, 2014), it should be reframed as *temporal* relative deprivation, actually investigating this potentially complex process remains for future research. A second potential limitation is the generalizability of the results derived from the specific socio-political context of Norway. However, the fact that we triangulated our data aided the contextualization of our findings (Carter, 2018; Denzin, 2012; Fisher et al., 2019; Power et al., 2018) in relation to existing theory and empirical research and the broader society. The findings represent local manifestations of a global movement that has many commonalities internationally; for example, coordinated international protests, the framing of youth as the future, demonstrating their school attendance as a sacrifice they are willing to take, young leader figures, and viral hashtags (de Moor et al., 2020; Wahlström et al., 2019). Thus, one could argue that our findings apply to other contexts than Norway (see Cornish, 2020). The complex negotiations of guilt and responsibility may be translatable to other privileged countries that have benefited from polluting industries (e.g. Saudi Arabia) or from oil-

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producing countries in the global south (e.g. Venezuela). Beyond researching in different regional, economic, and cultural contexts, temporal dimensions (i.e. imagining possible futures) also offer generative avenues for comprehending the motivations behind social movements.

Supplementary online materials (SOM):

https://osf.io/yymv75/?view_only=1fa540d0c94d40d9b56f8a27f92dbd1a

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Highlights

- Exploring motives behind the youths' environmental strikes in Norway.
- Perceptions of climate change seemed pressing when youths' imagined – and identified as – the future.
- Politicized social identity and group efficacy were positively related to protest intentions.
- Collective guilt and environmental threat were indirectly related to protest intentions.
- Results illuminate psychological processes behind the paradox of climate friendly oil-nations and the importance of temporality in protest research.