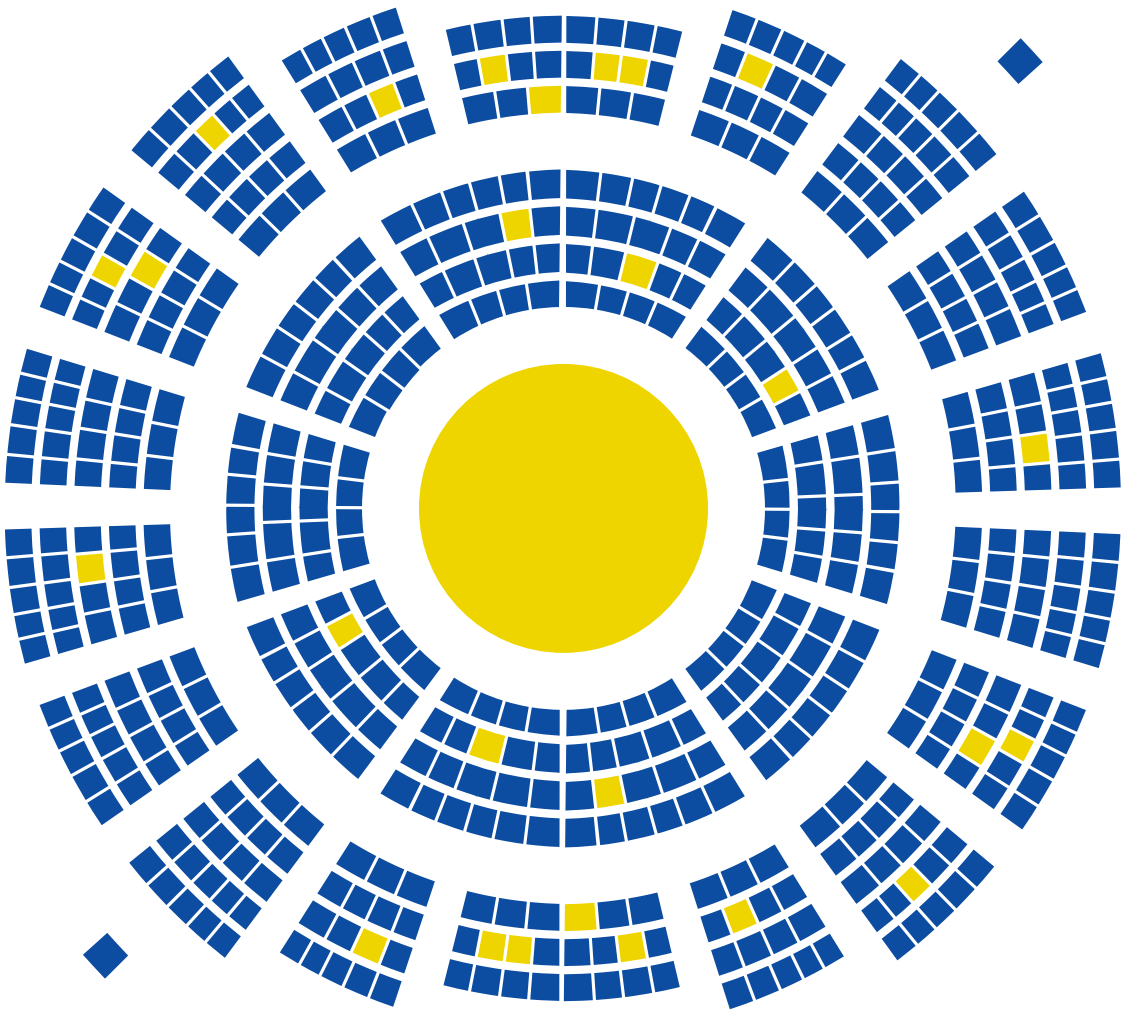
YOUTH ACTIVISM IN ENVIRONMENTAL POLITICS, 2nd Edition

EDITED BY: Matt Henn and Sarah E. Pickard
PUBLISHED IN: Frontiers in Political Science



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ISSN 1664-8714
ISBN 978-2-83251-556-3
DOI 10.3389/978-2-83251-556-3

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YOUTH ACTIVISM IN ENVIRONMENTAL POLITICS, 2nd Edition

Topic Editors:
Matt Henn, Nottingham Trent University, United Kingdom
Sarah E. Pickard, Université de la Sorbonne Nouvelle Paris III, France

Publisher's note: In this 2nd edition, the following articles have been added: Neas S, Ward A and Bowman B (2022) Young people's climate activism: A review of the literature. Front. Polit. Sci. 4:940876. doi: 10.3389/fpos.2022.940876, and Coppola I and Pihkala P (2023) Complex dynamics of climate emotions among environmentally active Finnish and American young people. Front. Polit. Sci. 4:1063741. doi: 10.3389/fpos.2022.1063741.

Citation: Henn, M., Pickard, S. E., eds. (2023). Youth Activism in Environmental Politics, 2nd Edition. Lausanne: Frontiers Media SA.
doi: 10.3389/978-2-83251-556-3

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frontiers in Political Science

ORIGINAL RESEARCH
published: 15 April 2021
doi: 10.3389/fpos.2021.662886

Youth Can Promote Marine Debris Concern and Policy Support Among Local Voters and Political Officials

Jenna M. Hartley[1], Kathryn T. Stevenson[1], M. Nils Peterson[2], Elizabeth A. DeMattia[3], Savannah Paliotti[4] and Thomas J. Fairbairn[4]*

[1] Parks, Recreation, and Tourism Management Department, North Carolina State University, Raleigh, NC, United States, [2] Fisheries, Wildlife, and Conservation Biology Program, Department of Forestry & Environmental Resources, North Carolina State University, Raleigh, NC, United States, [3] Duke University Marine Lab, Nicholas School for the Environment, Duke University, Beaufort, NC, United States, [4] Environmental Sciences Undergraduate Program, Department of Forestry & Environmental Resources, North Carolina State University, Raleigh, NC, United States

Many of the most sweeping social movements throughout history have been youth-led, including those related to environmental challenges. Emerging research suggests youth can build environmental concern among parents via intergenerational learning, in some cases overcoming socio-ideological differences that normally stymie attempts at collective action. What has not been studied is the potential for youth to also influence adults outside their immediate families. This study based in North Carolina, USA, explores the potential of today's young people as environmental change-agents in their communities on the topic of marine debris. Specifically, this evaluation examines responses from voters and local officials after participating in youth-led civic engagement events. After engaging with a youth-led civic engagement event, voters, and local officials completed a retrospective pretest survey that asked questions about levels of marine debris concern and their likelihood of supporting a local marine debris ordinance. Young people encouraged both concern and policy support among both voters and officials, and that concern and policy support increased independently of whether adults were voters or officials, liberals or conservatives, or knew the students personally. Further, participation in the youth-led engagement event reduced political differences in marine debris concern. This study suggests youth can play a critical role addressing marine debris challenges by promoting support for marine debris management policy, and doing so across political barriers.

Keywords: intergenerational learning, youth, civic engagement, youth activism, environmental policy, marine debris, environmental education, plastic pollution

OPEN ACCESS

Edited by:
Matt Henn,
Nottingham Trent University,
United Kingdom

Reviewed by:
Constance A. Flanagan,
University of Wisconsin System,
United States
Jasmine Lorenzini,
Université de Genève, Switzerland

****Correspondence:***
Jenna M. Hartley
jenna_hartley@ncsu.edu

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *01 February 2021*
Accepted: *15 March 2021*
Published: *15 April 2021*

Citation:
Hartley JM, Stevenson KT, Peterson MN, DeMattia EA, Paliotti S and Fairbairn TJ (2021) Youth Can Promote Marine Debris Concern and Policy Support Among Local Voters and Political Officials. Front. Polit. Sci. 3:662886. doi: 10.3389/fpos.2021.662886

INTRODUCTION

Political solutions to environmental problems have long proven elusive. Although overall adult concern for and prioritization of environmental issues have increased in the United States over the last decade, environmental progress is often stymied by wide partisan gaps (Pew Research Center, 2020). In fact, political ideology has been shown to be a more prominent factor in predicting one's environmental attitudes than the weight of scientific evidence on environmental issues (Dunlap and McCright, 2008). This may be because political

affiliation is a key aspect of many people's personal and social identity (Iyengar and Westwood, 2015)—as the politicization of environmental protection has been woven into political ideologies, and therefore, in many cases, individuals' personal identities. For instance, a small but significant number of US citizens have switched their self-labeled ethnicity, religion, sexual orientation, or class to better align with their political affiliations (Egan, 2020), and polls suggest the same could be true with the environment. In the United States, support for environmental issues has become partisan, with 85% of surveyed Democrats prioritizing the protection the environment, while only 39% of surveyed Republicans shared the sentiment (Pew Research Center, 2020). These challenges associated with identity politics are compounded by adults and older Americans simply caring less about the environment than youth (Ballew et al., 2019). Taken together, identity politics and age can make political action to protect the environment challenging, or in some cases impossible (Egan, 2020).

Though this polarized context paints a bleak picture for generating solutions for environmental challenges, the perspectives and activism of youth may offer hope. While adults are polarized in their views on environmental issues, young people are less so. Several recent polls highlight how Millennials and GenX-ers are polarized on a host of issues, but less so when it comes to climate change and renewable energy (Pew Research Center, 2020). Youth may hold more united views on environmental topics than adults because their worldviews and political ideologies are developing alongside their knowledge of environmental science, making it less likely that younger audiences will reject scientific facts because of already cemented political ideologies (Stevenson et al., 2014). Further, youth have the most to gain by investing in a sustainable future (Ballew et al., 2019). Indeed, future consequences of inaction, such as climbing global temperatures and associated impacts, will be most felt when the youth of today reach adulthood, and older generations will no longer be alive (Hansen et al., 2013). Perhaps for these reasons, we see evidence of high levels of engagement on environmental topics among younger generations. Youth prioritize and care deeply about environmental topics (Pew Research Center, 2020), as demonstrated by the commitment displayed by "Little Miss Flint," Amariyanna Copeny, representing her Michigan, USA, community in its water crisis at age 8 and Greta Thunberg leading the globe toward climate solutions at age 15 (Marris, 2019), among others. Youth can and are politically active in responses to environmental change, and as historian Hogan (2019) notes, the future of democracy is in the hands of today's young people, who do not have to wait until they are of voting age to be politically impactful.

Environmental youth activism may be uniquely situated to transcend ideological barriers to adult commitment on environmental solutions, as youth may inspire adults to join them. The phenomenon of adults learning from children is described as intergenerational learning (IGL), or the bi-directional transfer of knowledge, attitudes, or behaviors from children to their parents and vice versa (Duvall and Zint, 2007; Bottery, 2016). Several studies have documented how this process can work particularly well for environmental issues (Duvall and Zint, 2007). Youth may serve as embodied reminders of future impacts of today's policies, thereby making the future impacts of environmental problems more tangible for adults (Bulc et al., 2019). Further, wanting what is best for future generations may offer the common ground needed to overcome political polarization (Lawson et al., 2019). For instance, when children discussed their climate change education programming with their parents, parents were found to have gains in climate change concern—and this effect was largest among politically conservative parents who initially had the lowest levels of climate change concern (Lawson et al., 2019). It is well-established that young learners benefit from engaging in the political process through increased agency, competence (Mitra, 2004; Zeldin, 2004), and self-confidence (Jensen and Schnack, 1997; Dworkin et al., 2003). It is quite possible that youth political participation not only benefits the youth themselves, but the entire political process, by inspiring action among older generations (Williams et al., 2017) and providing a pathway to overcoming barriers to political progress related to partisan polarization (Lawson et al., 2019).

BACKGROUND

Existing IGL research suggests youth can influence adult environmental perceptions and behaviors within their families. Evidence includes several quasi-observational studies in which youth-targeted environmental education programs have been associated with parental knowledge, attitudes and/or behaviors in the contexts of water pollution (Uzzell, 1994), air pollution and litter (Ballantyne et al., 2001), watersheds (Sutherland and Ham, 1992), and flood resilience (Williams et al., 2017). Notably, at least two experimental studies have found causal evidence that youth-led conversations at home have inspired both energy saving behaviors (Boudet et al., 2016) and climate change concern (Lawson et al., 2019) among parents. Further, as noted above, the influence that youth have over parents' climate change concern overcame political polarization, offering an uncommonly found pathway to political progress on environmental challenges (Lawson et al., 2019).

More research is needed to understand if and how young people influence adults outside of their family units. Behavior changes typically spread through personal relationships (Centola, 2021), and as youth bridge generational gaps and develop personal relationships both within and beyond their family units (e.g., with teachers, coaches), they may be well-positioned to drive broad acceptance of new ideas within communities. Attributes of personal relationships that can help drive the spread of behaviors and ideas, such as trust and communication frequency, are typical of family relationships (Centola, 2021), and may help explain the increasingly strong evidence in support of youth's influence over parents. Indeed, several studies have found that frequency of discussion between youth and parents has been shown to be a predictor in increasing environmentally friendly behaviors (Ojala, 2015; Valdez et al., 2018; Stevenson et al., 2019). Specifically, studies have shown that students discussing climate

change with family and friends was one of the biggest indicators of their climate change behavior (Valdez et al., 2018), and that frequency of discussion with friends and family was the second strongest predictor of climate change concern among students, with family having more influence than friends (Stevenson et al., 2019). Accordingly, youth may have a larger influence over adults with whom they have closer personal relationships. Several qualitative studies have found support for youth influence outside the family context, such as in Australia, where children led their communities to act more sustainably (Stuhmcke, 2012); in 11 communities in Thailand, where students researched deforestation and forest degradation and then brought the results of their investigations to local community members (Gallagher et al., 2000); and in Mexico, where local community leaders responded positively after students publicly participated in beach clean-up and natural area rehabilitation efforts (Schneller, 2008). Furthermore, Thew (2018) found that when youth have high levels of agency, their policy suggestions are generally well-received by adults in political spheres. Although these findings for levels of youth influence outside of the family context are promising, little quantitative research has examined how youth may influence adults in their communities beyond their parents (e.g., neighbor, soccer coach, Twitter follower, etc.).

Other critical questions include the degree to which youth can influence a specific group of unaffiliated adults: local officials. While local officials may have more immediate influence on policy than other community members, they have been found to be less likely to work across partisan divides for fear of appearing weaker to voters (Iyengar and Westwood, 2015). This may be especially true in the United States, where environmental issues have become partisan issues (Pew Research Center), and the politicization of environmental protection makes the compromises required for political action challenging (Egan, 2020). While the gap between environmental protection and political action may be large, youth-led environmental IGL may help bridge the way for local officials. Qualitative instances of youth influencing their local officials have been found, such as youth-made climate change video screenings contributing to officials taking next steps toward climate solutions in the Philippines (Haynes and Tanner, 2015) and youth environmental activism contributing to community solutions toward environmental challenges in Hawai'i (Volk and Cheak, 2003); however, no studies have been conducted quantitatively or explored how youth may influence perspectives on environmental issues and policy among local officials. Finally, as highlighted by the rise of virtual engagement with the onset of COVID-19, research on the mode of student engagement (e.g., in-person vs. virtual) may be beneficial. Virtual learning poses multiple problems including adding unnecessary complexity to the learning process (Pan, 2010), negative effects on students' motivation, and a lack of peer interaction (Aliane et al., 2010), but given the increasing norm of both educational and civic processes occurring virtually, understanding the degree to which youth can influence adults even when in-person interactions are not possible would be valuable.

We began addressing these research gaps with a particular focus on whether young children (aged 8–10), with no formal political power, might motivate adults. Specifically, we examined how community events led by young children around marine debris may inspire marine debris concern and support for policies to address marine debris among both voters and local officials. We chose the issue of marine debris for several reasons. First, marine debris is an emerging environmental challenge and poses significant threats to coastal ecosystems (Riggs et al., 2011). Second, it is a compelling environmental cause for young people to champion (Hartley et al., 2015) because the problem is highly visible, persistent, and concrete solutions like trash reduction are readily apparent (Torres et al., 2019). Further, a recent study found that environmental advocacy videos on the topic of marine debris were able to reduce attitude and behavioral gaps between partisan groups (Jennings et al., 2020). Engaging with younger audiences on marine debris therefore provides a promising approach to address a pressing environmental issue and to empirically evaluate the community impacts of political activism led by young children (Ballantyne et al., 1998; Duvall and Zint, 2007; Lawson et al., 2019). In this context, we tested 5 hypotheses:

(1) all adults would report increased concern for marine debris and support for policies to address marine debris after participating in a youth-led event,
(2) changes would not be as strong for local officials as for voters,
(3) pre-existing personal relationships with youth presenters would predict larger gains in marine debris concern and support for policies to address marine debris,
(4) adults who attended in-person youth-led civic engagement events would show greater gains than those who watched online public service announcement (PSA) videos made by youth, and
(5) political polarization around marine debris concern and support for policies to address marine debris would lessen among all adults after engaging with the youth-led event.

METHODS AND APPROACH

Study Context

This study was based throughout coastal, piedmont, mountain, urban, and rural counties across North Carolina, USA and examined changes in marine debris concern and support for policies to address marine debris among voters and local officials after participating in youth-led civic engagement events focused on marine debris. These youth-led engagement events were designed by 8 to 10-year-olds as part of a year-long marine debris curriculum over the 2018–2019 and 2019–2020 school years. As part of the marine debris curriculum, students developed civic engagement events for their local officials and community adults that were either in-person (e.g., formal presentations at their local town hall meetings) or virtual (e.g., public service announcement videos). In-person events included talent shows, poetry nights, student art exhibits, and formal in-person presentations to local Town Halls and School Boards. Virtual events included production and dissemination of virtual public service announcement videos (PSAs). In each case, teachers supported their students in preparing the events, but the events

themselves were student-designed and delivered. For instance, in the case of the video PSAs, students first watched examples of other video PSAs and then designed their own. The curriculum included activities to help students research relevant facts about marine debris, develop talking points to communicate the issues of marine debris to others, create a script and storyboard for the PSAs, and film the PSAs (DeMattia et al., 2020). The freely-available marine debris curriculum and complete descriptions of the activities can be found on the Duke University Marine Lab Community Science website (DeMattia et al., 2020). Specific examples of youth-made marine debris PSA videos are available on YouTube (Hartley, 2020).

Instrument Development

We measured levels of marine debris concern (hereafter as "MD concern") and support for marine debris-related ordinances (heretofore "MD policy support") with a retrospective pre/post-survey (Moore and Tananis, 2009). After development of an initial survey, we asked 11 Town Managers, City Planners, and Local Officials to pilot the survey and provide feedback to strengthen its relevance, applicability, and usefulness for communities. Based on feedback from these pilot sessions, we made adaptations to the language and overall structure of the surveys. In the final version of the survey, we asked respondents to consider their level of MD concern, both before and after the student presentations with a five-point Likert style scale. We asked: "*Consider your level of concern about marine debris. What was your level of concern BEFORE the student presentation*?" and "*What is your level of concern NOW, after the student presentation?*" Response options ranged from not at all concerned to extremely concerned. Similarly, we asked: "*Consider the likelihood of your supporting an ordinance in your county to address marine debris. How likely were you to support such an ordinance BEFORE the student presentation?* and "*How likely are you to support such an ordinance NOW, after the student presentation?*" Response options ranged from extremely unlikely to extremely likely. We also asked respondents to self-report race, gender, political affiliation, and whether or not they knew the students previously.

Data Collection

In order to recruit local officials and local voters we paired intercept surveys at in-person engagement events with an active recruiting strategy for local officials via email. At the events, we conducted intercept surveys of attendees (voters and officials) by handing out a small post-card with a link to an online survey. There were eight youth-led, in-person events in the 2018–2019 school year, including a beach clean-up, talent show, art show, fashion show, local School Board meeting, a presentation at a brewery, and two school plays written and directed by the students on the topic of marine debris. We supported teachers and students in advertising the youth-led civic engagement events via flyers posted in the community, social media posts, emails sent to school families from the teachers and principals, emails sent to local officials from the county where the event was taking place, and press releases run by local news outlets.

Though more events were planned in the 2019–2020 school year, all but one (a town hall meeting) were canceled in response to the COVID-19 pandemic. As a result, students refocused their efforts on PSAs which could be delivered online. For the student-generated video PSA events, we focused our efforts on recruiting local officials. This online recruitment represents a different pathway than the intercept method, but was necessary because online PSAs did not have an in-person mechanism to engage local officials during COVID-19. To supplement recruitment of local officials, we developed a list of mayors, school board officials, town hall members, local soil, water, & conservation officials, county commissioners, city council members, school Superintendents, and members of Environmental Affairs Boards (where applicable) from all 100 counties in North Carolina. We searched county and municipal websites for email addresses, and where there were no email addresses provided, we followed up by phone to gather contact information. We drew from this list to directly invite local officials to all in-person events. When possible, we emailed officials a link to the student-developed PSA video(s) from their own county and a link to the survey. In counties where there were no participating students, we sent local officials a link to a YouTube channel with a sampling of PSA videos from students across the state, as well as a link to the survey.

In total, we contacted 1,984 local officials via email for online PSA "events." For the in-person events, we handed out ∼300 survey cards to in-person attendees. For both in-person and online events, 172 adults (65 voters and 107 local officials) completed a retrospective-pretest survey that asked questions about levels of their MD concern and the likelihood of their MD policy support (generating a response rate of ∼22% for voters and <1% for local officials). Of these, 37 voters attended an in-person event, 22 interacted with the video PSAs, and 6 did both. In terms of local officials, most (89) interacted virtually only, with 7 attending in-person events, and 11 doing both. Community voters and local officials received the same survey, but were asked if they were a local official or not in the survey.

Retrospective pretest methods are commonly used because they allow research addressing temporal changes to occur with only one data collection event (Allen and Nimon, 2007; Gouldthorpe and Israel, 2013), making them a "simple, convenient, and expeditious method" for assessing programmatic effects of an intervention (Pratt et al., 2000, p. 347). This approach, however, has well-known limitations centered on recall bias and social desirability bias (Gouldthorpe and Israel, 2013). We believe the former is relatively small given respondents were asked to recall their views over a relatively short time period of <1 h (Gouldthorpe and Israel, 2013). To the degree social desirability bias existed, it would require interpreting overall program impacts with caution (hypothesis 1), but would not affect hypotheses 2–5 which dealt with relative change in MD concern and MD policy support.

Data Analysis

To test hypothesis 1, we used paired *t*-tests that compared means of pre- and post-engagement event levels of MD concern and MD policy support for the whole sample. To test hypotheses

2–4, we used a multiple linear regression to model change in levels of MD concern and MD policy support as a function of whether the adult was a local official or not (hypothesis 2), if adults knew the students previously (hypothesis 3), and type of engagement event attended (in-person, PSA video, or both; hypothesis 4). We also controlled for pre-test MD concern or MD policy support in the associated models with respect to ceiling effect (Allison, 1990; Dalecki and Willits, 1991), self-reported sex (male vs. female), race (White vs. Non-White), and political orientation (liberal, conservative, or independent/other). Because we included respondents from various parts of the state, we also included distance from the coast as a co-variate in the models, but as it was not significant in either model nor was it central to our hypotheses, we excluded it. Similarly, as most local officials attended virtual events, we examined the variance inflation factor (VIF) as a measure of co-linearity between voters vs. officials and event type, and found VIF levels were well below the acceptable levels of 4 (MD concern: mean VIF = 1.28; MD policy support: mean VIF = 1.28; O'Brien, 2007). Finally, we tested hypothesis 5 using a *t*-test to compare mean polarization in MD debris concerns (i.e., mean MD concern among liberals minus mean MD concern among conservatives) before and after engagement with the youth-led events. We compared pre- and post-engagement polarization on MD policy support using the same approach. To test variation of levels of political polarization in hypothesis 5, we removed responses from participants who selected "independent/other" from analysis and only considered liberals and conservatives as binary politics variables on opposite ends of the political spectrum. All analyses were conducted using STATA 14.2. Relatively small sample size ($n = 161$) in this study dictates caution when interpreting non-findings. Specifically, with limited statistical power some relationships not detected in this study may be both statistically and socially significant in a study based on a larger sample. This, however, means that relationships that were detected would likely be found in subsequent studies, potentially with large effect sizes.

RESULTS

Respondents were relatively evenly distributed in terms of political identification (liberal = 35%, conservative = 37%, independent/other = 28%), being a voter or local official (62% local officials), and gender (55% female). The average age of respondents was 57 years ($SD = 13.1$, ranging from age 23–89), most identified as White (87%), and most did not previously know the students participating in the engagement events (91%). Demographically, our sample was fairly representative in terms of gender, as 51.4% of residents are female (US Census Bureau, 2019), but over-represented White, older adults in North Carolina, as only 70.6% of North Carolinians identify as White, and the average age is 38.7 (US Census Bureau, 2019). However, these measures more closely align with the demographic make-up of elected officials in North Carolina, as elected officials generally are older and more White than the general population, including in North Carolina, where 99% of state legislators were White in 2015, and the average age was 59 (NCSL, 2015). In terms of political affiliation, it is possible that our sample over represents independents, as only 17% reported not being affiliated with Republicans (41%) or Democrats (43%) (Pew Research Center, 2015). However, it should be noted that the proportion of unaffiliated voters in North Carolina, and nationwide, is increasing (Tippett, 2020), so our sample may not deviate from the population as much as available population data would suggest.

We found support for hypotheses (1) that all adults would report increased concern for marine debris and support for policies; (2) that changes would not be as strong for local officials as for community adults; and partial support for (5), that political polarization would lessen among all adults. Specifically, polarization decreased around marine debris concern, but differences were not detected for polarization in support of policies to address marine debris. We did not find support for hypotheses (3) that pre-existing personal relationships with youth presenters would predict larger gains in MD concern; nor MD policy support (4) that adults who attended in-person youth-led civic engagement events would show greater gains than those who watched online public service announcement (PSA) videos made by youth.

We found support for hypothesis 1, as adults exhibited 12.5% more MD concern and 12.2% more MD policy support after engaging with the youth-led civic engagement events. Marine debris concern increased from 3.93 ($sd = 0.77$) to 4.42 ($sd = 0.66$; $t = -9.63$, $p < 0.001$) after community members participated in the events. Similarly, MD policy support increased from 3.92 ($sd = 1.022$) to 4.40 ($sd = 0.85$, $t = -8.56$, $p < 0.001$) after community members participated in the events.

We also found partial support for hypothesis 2, as both voters and officials had similar gains in MD concern, but voters had bigger gains than officials in terms of MD policy support. Marine debris concern for local officials increased by almost 9 percentage points (mean change = 0.44/5, $sd = -0.62$) whereas MD concern among voters increased by ∼13 percentage points (mean change – 0.65/5, $sd = 0.60$; **Figure 1**). Though different in magnitude, the regression model suggests only a weak statistical difference between these gains in MD concern between voters and officials (beta = 0.148, $p = 0.097$; **Table 1A**). We found stronger differences among voters and local officials for MD policy support, with nearly 8 percentage points gained among officials (mean change = 0.39/5, $sd = 0.60$) and an increase of nearly 13 percentage points among voters (mean change = 0.64/5, $sd = 0.95$; **Figure 1**). The regression model also supported that officials had smaller increase in MD policy support than voters (beta = −0.263, $p = 0.020$; **Table 1B**).

Results did not support hypothesis 3 because we did not detect relationships between MD concern and pre-existing personal relationships with youth presenters (**Table 1A**) or MD policy support (**Table 1B**). Similarly, we did not find support for hypothesis 4 because type of event (i.e., in-person vs. virtual) was not related to changes in MD concern or MD policy support (**Tables 1A,B**). Women expressed higher levels of MD concern than men (beta = 0.248, $p = 0.001$; **Table 1A**), and we found a similar, but weak, difference associated with MD

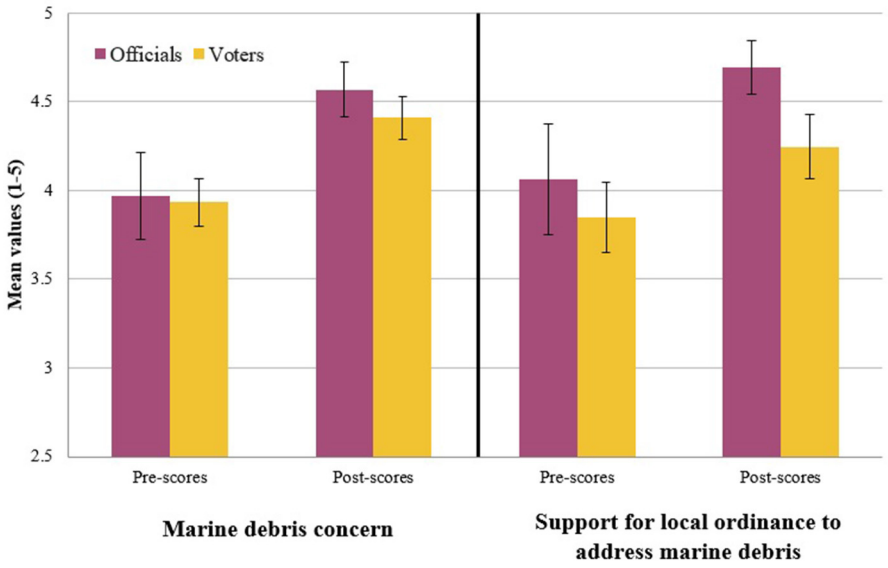

FIGURE 1 | Levels of marine debris concern or support for local ordinance (respectively), shown for local officials vs. regular voters. Retrospective-post-questions posed on a 5-point Likert scale were "Consider your level of concern about marine debris. What was/is your level of concern BEFORE/AFTER the student presentation?" with a scale of 1–5 (1, extremely unconcerned; 5, extremely concerned) and "How likely were/are you to support such an ordinance BEFORE the/NOW, after the student presentation?" with a scale of 1–5 (1, extremely unlikely; 5, extremely likely). Error bars represent 95% confidence intervals.

policy support (beta = 0.194, p =0.052; **Table 1B**). The MD concern model explained more variance in data [$R^{2adjusted}$ = 0.480, $F_{(8, 151)} = 19.40$, $p < 0.001$; **Table 1A**] than the MD policy support model [$R^{2adjusted} = 0.384$, $F_{(8, 151)} = 13.50$, $p < 0.001$; **Table 1B**]. Although not a part of our hypotheses, we also note from the regression that women were more likely than men to increase MD concern (beta = 0.248, $p < 0.001$), and there was a similar, but weaker relationship between gender and changes in MD policy support, with women increasing more than men [beta = 0.191, $p = 0.06$].

Finally, we found partial support for Hypothesis 5, as polarization between liberals and conservatives decreased around MD concern but not for MD policy support. That is, liberals' and conservatives' MD concern levels came closer together after the intervention, but liberals and conservatives remained relatively polarized over MD policy support. With MD concern, liberals and conservatives were polarized on their pre-test responses, with conservatives less concerned (mean = 3.69, sd = 0.518) than liberals (mean = 4.36, sd = 0.518). Both groups increased MD concern levels after participating in youth-led events, with MD concern levels of conservatives (post-test mean = 4.33, sd = 0.36) approaching those of liberals (mean = 4.64, sd = 0.37). Differences between liberal and conservative MD concern levels were significantly smaller in the post-test (mean difference = 0.30; sd = 0.33) than the pre-test (mean difference = 0.67; sd = 0.35; t = 5.808, $p < 0.001$). A similar, though not statically significant, pattern occurred for MD policy support as differences in support levels were smaller in the post-test (mean difference = 0.39; sd = 0.39) than the pre-test (mean difference = 0.49; sd = 0.43; t = 1.21; $p = 0.226$; **Figure 2**).

DISCUSSION

Previous research has found experimental evidence for how youth can shift familial adult's environmental concern and behavior, such as in the context of climate change (Lawson et al., 2019) and energy saving behaviors (Boudet et al., 2016). Similarly, mixed methods and qualitative research suggest youth shape conversation and perceptions around environmental topics among adults outside their immediate families (Vaughan et al., 2003; Volk and Cheak, 2003; Haynes and Tanner, 2015). However, to our knowledge, this is the first quantitative evidence of youth influence outside their families, and the first to specifically examine how youth can impact local officials' approaches to marine debris. We found increases among all groups of adults for both MD concern and MD policy support, and despite the nuances we discuss below, our results point to a clear and powerful role for youth in shaping adult perceptions of marine debris and participation in political processes to address marine debris.

Though we found that the influence of youth-led engagement seems to extend well-beyond the family unit, different responses across adult groups highlights a need for future research to understand the mechanisms of youth influence. Social change most profoundly occurs through strong social ties among friends, family, and neighbors (Centola, 2021), which helps explain results from previous studies demonstrating the influence of youth within their families (Williams et al., 2017; Lawson et al., 2019). However, we found that adult marine debris concern and policy support increased regardless of whether the adults knew students or not, and even whether the events were in-person or virtual. That youth seemed to have this impact may

TABLE 1 | Regression results of models predicting difference in marine debris concern **(A)** and support for marine debris policy **(B)** after engagement with the youth-led civic engagement events.

(A) Regression results of model displaying factors predicting differences in marine debris concern after engagement with the youth-led civic engagement events.				**(B) Regression results of model displaying factors predicting differences in levels of marine debris policy support after engagement with the youth-led civic engagement events.**		
	Marine debris concern			**Support for marine debris policy**		
Variable	***B***	**SE**	***β***	***B***	**SE**	***β***
Pre-event levels	−0.599***	0.055	−0.685	−0.452***	0.048	−0.613
Event attendance: PSA video (virtual)		*(Reference variable)*			*(Reference variable)*	
Event attendance: In-person	0.090	0.120	0.050	0.189	0.151	0.090
Event attendance: Both	0.070	0.133	0.031	0.004	0.169	0.001
Gender	0.248***	0.079	0.189	0.191	0.099	0.125
Race	−0.113	0.120	−0.056	−0.117	0.150	−0.050
Politics: Liberal		*(Reference variable)*			*(Reference variable)*	
Politics: Conservative	−0.046	0.097	−0.034	−0.089	0.115	−0.057
Politics: Independent/Other	−0.013	0.100	−0.009	−0.203	0.125	−0.118
Previous relationship with students	0.007	0.170	0.003	−0.068	0.216	−0.023
Local official or voter	−0.148	0.089	−0.109	−0.263*	0.112	−0.166
Constant	2.701***	0.292		2.293***	0.313	
N		160			160	
R^2		0.510			0.419	
R^2 adjusted		0.480			0.384	

Data were collected between March 2019 and October 2020 survey results from 4th and 5th grade public school civic engagement events and youth-developed PSA videos across the state of North Carolina.
Coding for all variables was as follows: Event attendance: 1, Video; 2, Community Event; 3, Both; Sex/Gender: 0, Male; 1, Female; 2, Other; Race: collapsed to 0, Non-White; 1, White; Politics: collapsed to 1, Liberal; 2, Conservative; 3, Independent/Other.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.*

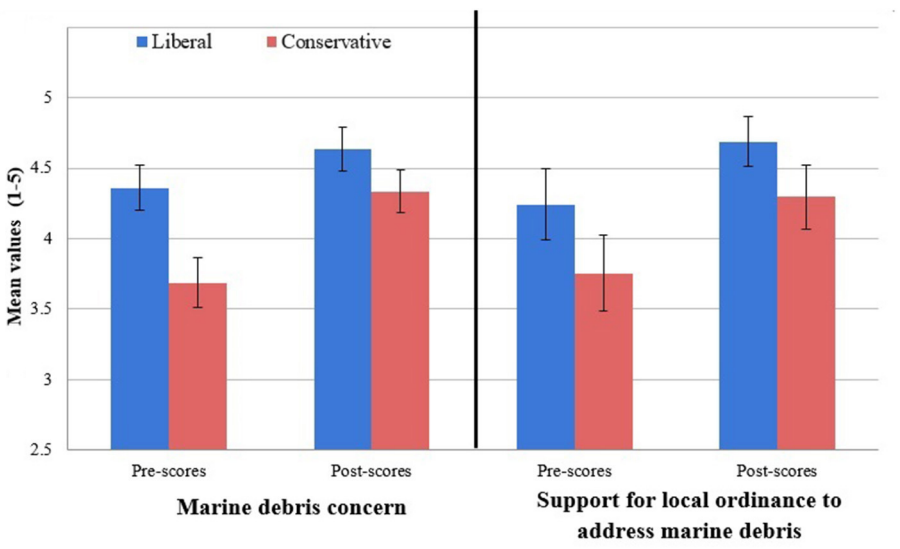

FIGURE 2 | Levels of marine debris concern or support for local ordinance (respectively), shown for groups of political affiliation. Retrospective-post-questions posed on a 5-point Likert scale were "Consider your level of concern about marine debris. What was/is your level of concern BEFORE/AFTER the student presentation?" with a scale of 1–5 (1, extremely unconcerned; 5, extremely concerned) and "How likely were/are you to support such an ordinance BEFORE the/NOW, after the student presentation?" with a scale of 1–5 (1, extremely unlikely; 5, extremely likely). The error bars represent 95% confidence intervals.

reflect that youth have greater accessibility and approachability than adults, which combined with their genuine empathy and concern for the environment and the issues impacting it (Young et al., 2018), may make them trusted messengers to adults (Peterson et al., 2019). Our research design pointed local officials to videos made by youth in their own jurisdictions, and these local connections may also help explain the youth's influence, as locally framed messaging seems to be effective in engaging adults on even controversial issues such as climate change (Evans et al., 2014). Furthermore, considering that approximately half of the videos were viewed after local lockdowns occurred due to COVID-19, the connections created by virtual videos may have been amplified by the scarce nature of community connections at the time (Antonello et al., 2020). Our finding that officials were less changed by youth presentations than their community adult counterparts is perhaps not surprising—given officials must operate within the structural systems of government and represent the will of their constituents (Staerklé, 2015).

This study builds on previous research within households (Lawson et al., 2019), to suggest that youth can reduce polarization over environmental issues in communities. Community members from both political parties increased in their overall levels of marine debris concern after the youth presentations, but conservatives shifted most, shrinking partisan gaps in marine debris concern. This finding is particularly promising since political partisanship has historically been a major factor in attitudes about the environment and, as a national priority among the public, holds one of the largest partisanship gaps (Pew Research Center, 2020). Future research is needed to unravel the mechanisms allowing youth voices to build consensus in politically divided adult spaces. As highlighted above, youth may be a more trusted information source than adults (Peterson et al., 2019), and bring a level of enthusiasm that adults find compelling (Young et al., 2018). These characteristics may help explain why youth presenters were compelling enough to impact the levels of MD concern among their local community adults, reducing political polarization seen in the pretests. Weaker impacts from youth on policy support than concern seem reasonable, given policy support emerges from a complex political milieu including funding and pressure from lobbyists (Vesa et al., 2020). Building a shared concern about marine debris represents a baseline need for productive policy negotiation (Vince and Stoett, 2018) from which bipartisan support for marine debris policy can be developed. Given the small sample size and short timeframe of our study, we encourage future researchers to continue to explore how youth may impact environmental policy support, particularly where longitudinal efforts can address policy development and implementation that often takes several years.

Our results also suggest that youth may effectively impact community members regardless of gender or race. Dozens of studies have found that women care about the environment more than men (McCright, 2010; Xiao and McCright, 2012), and our results were consistent with these findings, as women were more likely to increase MD concern and support for MD policies. Race was not a significant predictor in any models, a finding that reflects research demonstrating that people of color are equally as supportive (Mohai, 2003) if not more supportive than White Americans on environmental, climate, and energy policies (Leiserowitz and Akerlof, 2010; Ballew et al., 2020). However, these results should be interpreted with caution, as our sample sizes among people of color were low and led to groups that were too small to examine without collapsing racial categories. We acknowledge that people of color are not a monolithic group, and therefore future research with larger sample sizes is needed to facilitate stronger inference about specific racial groups. Accordingly, future research could also investigate interactions between race of the youth presenter and race of the participating adults. Other studies have demonstrated that having adult role models is highly impactful for young learners in increasing motivation and achievement (Connell and Wellborn, 1991; Skinner and Belmont, 1993; Midgley et al., 1995; Ryan and Deci, 2000; Martin and Dowson, 2009), and that youth of color particularly benefit from role models of the same race (Egalite et al., 2015). Future intergenerational learning research may investigate if similar relationships exist in the opposite direction from youth to adults, where adults are more likely to listen to young people that look like them.

CONCLUSION

In conclusion, our results suggest that youth participation in environmental politics may help galvanize immediate political action among current voters and decision makers. Youth voices may also be able to transcend adult partisan divides, given youth can decrease polarization around marine debris management. As research on both the dynamics of intergenerational learning and strategies to address marine debris continue to emerge rapidly, there are multiple avenues for future research. Youth are already taking the lead in many social and environmental movements and are enthusiastically seeking solutions to combat marine debris (Prisco, 2017). Accordingly, designing environmental education curricula that taps into this demonstrated appetite for civic engagement (on the topic of marine debris or otherwise) may help to harness the solution-seeking energy already present among young people and inspire adults to follow where the young people are leading. Innovative research designs drawing on psychology, sociology, and social contagion (de Lange et al., 2019; Centola, 2021), could help reveal the mechanisms through which information and motivation move from youth to their communities, and how kids may drive that information mobilization. As with most research conducted during the global pandemic, we acknowledge the need for research outside the context of COVID-19. Pressures on local officials' time and priorities related to serving their communities during the pandemic could have rendered youth impacts larger because they were a welcome respite, or dampened youth impacts by rendering their work on marine debris relatively less urgent in the context of a pandemic. Similarly, relatively low response rates among local officials may indicate our results are biased toward the perspectives of officials most concerned with opinions of their youth constituents or engaged with local schools or marine debris management issues. These officials are important because they are most likely to act on the marine debris issue, but future studies

could mitigate the potential bias using sampling methods linked to high response rates (e.g., in-person interviews; Manfreda et al., 2008). Nonetheless, this study suggests youth-led marine debris education programming can positively impact adults (including local policy-makers and decision-makers). Perhaps most importantly, youth influence seems poised to overcome long-standing divisions that continue to stymie political progress on environmental challenges.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by IRB#12847. Consent for minors to participate was granted by the participating students' parent/legal guardian, and consent for non-minors to participate was self-granted.

AUTHOR CONTRIBUTIONS

ED, MP, and KS contributed to study design. JH was responsible for data collection, data preparation, and preliminary analysis, with assistance from SP and TF on data collection. JH was responsible for the initial drafting of the manuscript, with assistance from SP and TF. KS and MP supported with the secondary analysis. ED, MP, and KS edited the manuscript. All authors approve of its final form.

FUNDING

This work was made possible by a North Carolina Sea Grant-funded project. Project # R/18-ELWD-1.

ACKNOWLEDGMENTS

The authors would like to thank North Carolina Sea Grant for funding the research project, and the NOAA Dr. Nancy Foster Scholarship for funding the PhD Student at the helm of the paper (JH). Special thanks to co-PI's Dr. K. C. Busch and Dr. Sarah Carrier for their help conceptualizing the project, as well as Dr. Danielle Lawson for her assistance in operationalizing the project. Thanks to the local official on our Advisory Board (Tim Holloman, Beech Mountain Town Manager) who helped us to pilot, refine, and develop the survey for the local officials, tapping into his network for additional feedback. Thank you to the following NC State University undergraduate researchers: Georgie Babechenko, Alex Darden, Jocelyn Fifer, Katelyn Higgins, Nicolas Vina Londono, Katelyn McDow, Nick Moore, Anna Poston, and Blake Wiegand for assisting with building the sample frame used to contact nearly 2,000 local officials across the state of North Carolina. The authors would like to express their gratitude for the community adults and local officials for donating their time to support local students and complete surveys for this project. Lastly, the authors would especially like to thank the participating teachers and students that made this project possible, all along believing and practicing one of the main tenets of the NC State University Environmental Education Lab: education is empowerment.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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ORIGINAL RESEARCH
published: 23 April 2021
doi: 10.3389/fpos.2021.641154

The Role of Adults in "Youth Led" Climate Groups: Enabling Empowerment

*Felix Elsen and Jon Ord**

Plymouth Marjon University, Plymouth, United Kingdom

This research explores young people's attitudes toward adult involvement within "youth led" youth climate groups. Young people were acutely aware of their marginalization and overall, there was a consensus that adults played a useful role as a resource, as experienced adult activists possessed knowledge that they lacked, or in offering practical support on legal issues or liaising with the police. The attitudes of young people to adult involvement is at times paradoxical in that whilst they were aware of its necessity, adults altered the dynamics of the groups, as there was a "power gap" and that adults' views could take precedence. As a result, on some occasions the young people parted ways from the adults. A continual theme from the research was that young people's involvement in "youth climate groups" gave them a sense of empowerment and they were much more aware of how to effect change, and to some extent they did need the support of adults in this process, often due to their structural disempowerment. The findings suggest that adult involvement was most successful when adults were committed to empowering young people and the researchers suggest that Kirshner's model of "cycles of fading" is a useful framework for adult involvement.

Keywords: activisim, youth, participation, empowerment, climate change, climate justice, youth work, climate activism

OPEN ACCESS

Edited by:
Matt Henn,
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Reviewed by:
Katia Pilati,
University of Trento, Italy
Ben Kisby,
University of Lincoln, United Kingdom

****Correspondence:***
Jon Ord
jord@marjon.ac.uk

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *13 December 2020*
Accepted: *24 March 2021*
Published: *23 April 2021*

Citation:
Elsen F and Ord J (2021) The Role of Adults in "Youth Led" Climate Groups: Enabling Empowerment. Front. Polit. Sci. 3:641154. doi: 10.3389/fpos.2021.641154

INTRODUCTION

This is a small-scale qualitative study of young people's activism within "youth led" youth climate groups. The purpose of the study was to discern the extent, and nature, of the support young people had from adults, in their youth activism; as well as to explore young people's attitudes toward, and experience of, such adult involvement. The study was conducted primarily, but not exclusively in the UK. It was undertaken by researchers who are committed to combatting climate change, one of whom is an active member of Extinction Rebellion. Neither of the researchers are directly involved in the support of youth activists, however. The scope of the research was limited by Covid 19 restrictions. As a result, the number of interviews was limited and participant observation and ethnographic study of youth climate activist meetings, protests and strikes was prevented, as such this represents a preliminary study. The findings however offer insights into an important dynamic within youth activism, of the need for adult involvement, as well as a number of problems that such involvement brings with it.

THE GLOBAL RISE OF YOUTH CLIMATE ACTIVISM

The context for this study is the recent wave of mass protests, which have united young people across the globe in taking collective action to combat climate change. Despite predictions of the

decline in environmental activism (Dalton, 2015) youth activism has led the way in recent years. At the heart of which is what is referred to as the youth climate movement, where young people articulate a radical critique of the prevailing political and social order. This is an exemplar of the political and revolutionary potential of youth. What Komun Academy for Democratic Modernity (2018) describes as a familiar manteau - the development of independent enquiry - which often leads to the questioning of the status quo.

This phenomenon of youth protest is not new, as Ginwright and Cammarota point out:

"youth activism has always played a central role in the democratic process and continues to forge new ground for social change" (Ginwright and Cammarota, 2006, a, p. xiii). Similarly, many: "of the notable U.S. social movements of the 1960's and 1970's - associated with anti-war, feminist, gay rights, and free speech - drew their leadership and base in part from politically committed youth activists" (Hosang, 2006, p. 6). There are also examples of youth environmental activism in the UK, for example where grassroots US protest movements such as *Greenpeace* and *Friends of the Earth* inspired the creation of affiliated groups in the UK, introduced direct action as a new protest strategy. Direct action is described as: "the beating heart of Greenpeace. [examples include] preventing damage to the environment and disrupting business-as-usual" (Greenpeace, 2021). Later groups such as Earth First! (Wall, 1999) used direct action, and particularly the tactic of non-violent civil disobedience, which created an important legacy for future movements such as the current climate movement.

The current youth climate movement was sparked by the Swedish youth activist Greta Thunberg. Greta's first school strike took place in August 2018, when the then 15-year old, alongside other youth activists, decided not to go to school but sit in front of the Swedish parliament to raise awareness of climate change instead. With the help of social media, their initial three-week strike picked up momentum and inspired a new youth movement, resulting in huge numbers of strikes and protests around the world. Just a month later, in September 2018, "over 7.5 million people worldwide refused to go to work and school" (Extinction Rebellion, 2020) to strike for the climate. Interestingly historically school strikes are part of a long tradition of protest, even predating Barbara John's school walkout in 1951, where a young black student Barbara John managed to: "convince the entire all-black student body to walk out of school and not return until the government gave them a bigger, better building—one like the white students had" (New York Times, 2021). There are also accounts of school strikes in the UK, dating back to the late nineteenth century, with students striking against violent punishments by cane in 1889 (Grayson, 2015). More recent examples include school strikers "in coalfield areas during the Miners" Strike of 1984–85 [and] walk-outs by thousands of school students [in response to] "Blair's invasion of Iraq in 2003" (Grayson, 2015, p. 28).

The youth climate movement is made up of a variety of different climate activist groups including *Fridays For Future* (*FFF*), the *UK Student Climate Network* (*UKSCN*) and *XR Youth* (*XRY*), which is part of the group *Extinction Rebellion* (*XR*). These groups are autonomous but act collaboratively and in solidarity with each other. Their demands share many similarities with each other, focussing primarily on pressurizing governments "to take forceful action to limit global warming" (Fridays For Future Exeter, 2020) by declaring "a climate emergency and implement a Green New Deal to achieve Climate Justice" (UK Student Climate Network, 2020b).

In order for their demands to be heard, climate activists use a wide variety of protest strategies. Their tactics range from petitioning and exposing governments and corporations' climate destroying activities, to organizing global protest rallies, as well as speaking in front of world leaders at high profile events such as the United Nations and the World Economic Forum. Most of the groups also encourage civil disobedience through mass school and work strikes, with some using non-violent direct-action approaches such as roadblocks and lock-ins to get their message across.

The climate movements' main demand: to tackle climate change, is based on scientific evidence by independent scientific bodies such as the *Intergovernmental Panel on Climate Change* (*IPCC*), which, in 2018, stated that "there is only a dozen years for global warming to be kept to a maximum of 1.5°C, beyond which even half a degree will significantly worsen the risks of drought, floods, extreme heat, and poverty for hundreds of millions of people" (The Guardian, 2018). Beyond their call for action on climate change, all of the grassroots youth climate groups are fighting for what is referred to as "climate justice," a term which acknowledges that: "key groups are differently affected by climate change" (Yale Climate Connections, 2020) and that climate change disproportionately affects those who have historically been marginalized. This means that their struggle is directly linked to the wider fight for social justice, which is evident in demands such as *Fridays For Future's* call for "Climate Justice and Equity for Everyone" (Fridays For Future, 2020a,b). Prominent Ugandan youth activist Vanessa Nakate underlined this point, stating that "for us in Africa, it is not Fridays For Future, it is Fridays for Now. The climate crisis is already here" (Fridays For Future, 2020c).

This important connection between climate justice and social justice is regarded as one of the key foundations of the global youth climate movement. The *UK Student Climate Network's* fourth demand to "Empower the Future," calls "for the government to incorporate youth views into policymaking and to lower the voting age to 16" (UK Student Climate Network, 2020c). The group is very critical of the state of Britain's representative democracy and considers the country's electoral system as deeply unjust due to the exclusion of people "on the basis of age, citizenship, permanent address [and] incarceration" (UK Student Climate Network, 2020c). In their view, the current climate crisis cannot be solved through amendments to environmental policies alone, instead they state that "systemic change is needed far beyond the electoral politics of any one country to achieve climate justice" (UK Student Climate Network, 2020c). This call for systemic change, and its inherent critique of the establishment, aligns climate activists with social movements such as *Black Lives Matter*.

This wider contextual view of a dysfunctional system means that groups like *FFF* make attempts to tackle these issues through anti-racism workshops, and by exploring how "colonialism impacts climate change" (Fridays For Future Exeter, 2019). Similarly, *Extinction Rebellion*, of which *XR Youth* represents the youth arm within the group, has recently started internal debates around how to incorporate the issue of decolonisation within its key demands and activist activities. One of the many autonomous *XR* groups has described this focus on decolonisation in terms of a "just transition that prioritizes social justice; establishes reparations and remediation led by and for Black people, people of color, minority, poor and vulnerable communities for decades of environmental injustice" (Extinction Rebellion Norwich, 2020). *Fridays For Future's* response to the global COVID-19 pandemic, labeled "support a Just Recovery" (Fridays For Future, 2020d) further underlines how closely social justice is aligned with the movement's aims. The group has called for support for "our workers and communities, not for corporate executives, [as well as encouraging] solidarity and community across borders [while demanding to] not empower authoritarians" (Fridays For Future, 2020c).

All of these ambitions highlight that the climate movement should not be regarded as a single-issue campaign, but that the demands of these groups display a wider understanding and appreciation of the intersectionality of social and climate injustices.

ADULT INVOLVEMENT IN YOUTH CLIMATE ACTIVISM

It is acknowledged that the nature and purpose of climate groups is not fixed, and they can take on a variety of forms and functions (Diani and Donati, 1999). The youth climate movement and their associated groups are rightly characterized as youth led. This does not mean however that adults are absent from those groups or that adults have no place within or around them. Even Greta Thunberg looks to adults for support. For example, she acknowledges that the original idea for a school strike was inspired by her involvement in a youth climate group run by the adult Bo Thoren, a Swedish activist. He introduced the group to the idea of a school strike based on a protest by US students from Marjory Douglas High School in Parkland, Florida, which was a response to a mass shooting that killed 17 people. She also acknowledges that at times she seeks adult guidance:

> *I write my own speeches. But since I know that what I say is going to reach many, many people, I often ask for input. I also have a few scientists that I frequently ask for help on how to express certain complicated matters.*
>
> (Thunberg, 2019, p. 30)

Whilst youth climate groups do largely act autonomously as reflected in the organizational structure of groups such as the *UK Student Climate Network*, which describes itself as "an organization led by and for students" (UK Student Climate Network, 2020a), they too are not entirely independent of adult support and guidance. For example, the *UKSCN* also published an online *Adult Allies Guide*, which provides advice for adults who want to support and get involved with the group. The document contains a section entitled "letting young people lead," which outlines that "it is important that the Youth Strike 4 Climate is led by young people and their voices are centered in their movement" (UK Student Climate Network, 2020d). Youth climate strikers do however reach out to adults, as there are regular calls for adults to show solidarity in tackling climate change and systemic injustices. One of *Fridays For Future's* 2019 open letters, a direct call to action for adults, stated,

> *We're asking you to step up alongside us. There are many different plans underway in different parts of the world for adults to join together and step up and out of your comfort zone for our climate. Let's all join together*
>
> (Fridays For Future, 2019)

The Role of Adults in Facilitating the Participation and Empowerment of Young Activists

In the 1980's, youth practitioners and adults working with young people in informal settings began to shift their focus to the participation of young people within decision-making processes (Podd, 2010). This right, for young people to participate in decision-making processes, was firmly rooted in Article 12 of the 1992 United Nations Convention on the Rights of the Child, which outlines that "parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child" (Unicef United Kingdom, 1989). In addition, the UK Children Act (1989) further stipulates the "recognition of the right of the children and young people to participate in decision making" (The National Archives, 2020). Later, in the 1990's, in policy terms the concept of youth participation and empowerment was viewed "as a means of addressing the democratic deficit," a term used to describe "young people's alienation from conventional politics" (Podd, 2010, p. 22–23).

Youth participation remains however a contested idea, due in part to what Podd (2010) describes as a lack of "*shared* understanding of what 'participation' and 'empowerment' mean across the various agencies and fields of practice." Broadly speaking, there are two contrasting perspectives of youth participation, which are articulated by the *Youth Directorate Council of Europe*:

> *One needs to be clear whether the ultimate aim of participation is enfranchisement i.e. helping young people make the most of opportunities available to them, under existing systems and structures? Or is it about 'empowerment' which recognizes that young people may demand to change the current systems and structures?*
>
> (1997, p. 30).

It is argued that the latter notion of participation is the only valid basis upon which involvement with young people can successfully facilitate their development, fulfill their aspirations and enable them to address their individual, social and political

concerns. "Participation is ultimately about power, if it is to be genuine participation" (Ord, 2016, p. 68). The concept of participation is therefore strongly linked with empowerment and adult involvement with young activists should be "supporting young people in taking collective action" (National Youth Agency, 2020, p. 24). As Larson et al. rightly argue "young people become active participants and learners when they hold the reigns" (2005, p. 59). The challenge for adults who are involved in youth led groups is to be led by young people, in the way characterized by writer and activist George Monbiot in his expression of support for climate strikers in 2019, youth climate activists "have issued a challenge to which we must rise, and we will stand in solidarity with you" [and] we will be led by you' (Monbiot, 2019). Or as one of *XRY's* female activists, Savannah Lovelock, proclaimed that:

> Adults need to be accountable to the young people, and if that means going on the streets and getting arrested in the thousands so we can have a chance of getting to the government and saying what we think should happen, then I think that should be the strategy.
>
> (The Guardian, 2019)

Complexities of Adult Involvement

Despite the saliency of a commitment to youth led empowerment principles when operationalising adult involvement in youth climate groups, they are often characterized as an oversimplified dichotomy between youth led and adult led approaches. Youth-led approaches are "often used in programs where the primary goal is not just youth development, but community change," with the aim of empowering "and promoting youth development of leadership" (Larson et al., 2005, p. 3). Adult-led approaches are by contrast, based on the idea that young people can draw "on the expertise and social capital of adult activists," who "facilitate meaningful and competent participation by young people" (Kirshner, 2006, p. 54). The resulting polarized debates about whether collaborative work between young people and adults should be youth led or adult led belies more complexity.

As Kirshner points out "although the 'youth-led' notion is politically appealing because it affirms the capacity of young people to be capable democratic actors, it leaves unexamined the critical role that adults can, and often do, play" (2006, p. 40). By polarizing the discussion and forcing practitioners to position themselves on either side, the overlap and the gray areas between the two approaches is ignored. Kirshner refers to this dilemma as the "youth-led vs. adult-led trap" (ibid). It is therefore important to recognize that these practices don't necessarily stand in opposition to each other, but that each has its own benefits and risks and is dependent on individual contexts and circumstances, and adults can play a variety of different roles within their relationship to young people. In recognizing that the relationships between young people and adults are in constant flux, it becomes obvious that it may be counterproductive to scrutinize them based on over-simplified categories such as youth- or adult-led.

This fluctuating quality of youth-adult relationships becomes particularly clear when looking at Kirshner's interpretation of Rogoff's concept of guided participation. Within this approach, the adults "view their role as temporary, 'fading' over time to enable youth to take progressively more responsibility for activities" (Kirshner, 2008, p. 62). From this perspective, youth practitioners may work with young people in a more adult-driven way to begin with, but gradually allow their involvement to "fade," in order to make space for young people to self-organize. Kirshner described this as "cycles of fading," a process which perfectly illustrates the transient nature of youth-adult partnerships.

METHODOLOGY

This was a small-scale qualitative study of the individual experiences of youth activists and is set within an interpretivist paradigm. As Hammersley (2013, p. 26) points out interpretivism is essential "to draw upon our human capacity to understand fellow human beings - from the inside - through empathy, shared experience and culture." The research was therefore designed to create a space for young people to express themselves in their own words and for their voices to be heard. Adopting an interpretivist approach the research is premised on the assumption that people understand the social world they live in through their own unique perspective on reality. This view stems from the recognition that people "make sense of their environment and of themselves [with reference to] the particular cultures in which they live; and that these distinctive cultural orientations will strongly influence not only what they believe but also what they do" (Hammersley, 2013, p 26). This research therefore attempts "to develop a greater understanding of the participants' lived experiences" (Holley and Harris, 2019, p. 5).

Seven one-to-one semi structured interviews were undertaken with young climate activists, utilizing open questions to enable "opportunities for young people to talk about their lives on their own terms" (Heath, 2009, p. 79). A snowballing approach was undertaken to recruitment through a variety of youth climate groups. The coronavirus (COVID-19) pandemic restricted the authors' ability to conduct face to face interviews due to UK Government imposed social distancing measures and a period of nationwide lockdown from April 2020. Initial plans to undertake ethnographic observations of youth climate activist meetings, protests and strikes were also curtailed. However, the interviews were conducted online *via* video link which enabled the author to communicate with a variety of participants from both the UK and abroad. The participants' authentic engagement with the study became clear from the start, as each participant showed a keen interest in having access to the findings, highlighting the activists' genuine desire to better understand the process of effective cooperation between youth activists and adults. A distinct spirit of mutual support and encouragement, and a great sense of solidarity emerged as a result of the collaborative effort and the genuine commitment from both the research participants and the researcher. This type of intergenerational partnership work underlines the potential for embracing new ways of cooperative work between youths and adults by exploring forms

of collaboration which go far beyond common paternalistic and hierarchical systems.

Following transcription, the data was coded in order to classify "ideas, themes, topics, activities, types of people, and other categories relevant to the study" (Lapan et al., 2012, p. 98). This method was aided by systematically discerning what Owen (1984) describes as repetitions, forcefulness and recurrence. This type of thematic analysis enabled the author to recognize whether participants referred to the same thing several times, how strongly they expressed particular views and whether there were overlaps between participants. A number of themes emerged through this process. Throughout the coding and thematic analysis, findings were interpreted based on *grounded theory*, meaning "that researchers begin by studying individual cases or instances from which they eventually develop abstract concepts" (Lapan et al., 2012, p. 41). *Grounded Theory* was considered particularly suitable to examine the data generated as it emphasizes the study "of individual and collective actions and of social and social psychological processes, such as experiencing identity transformations, changing organizational goals, and establishing public policies" (Lapan et al., 2012, p. 42).

The participants ranged between 15 to 21 years of age and belonged to a variety of climate groups; including *Extinction Rebellion* (*XR*), *Extinction Rebellion Youth* (*XRY*), the *UK Student Climate Network (UKSCN)* and *Youth Strike 4 Climate* (*YS4C*), all of which have varying degrees of affiliation with Greta Thunberg's *Fridays For Future* (*FFF)* movement. Interestingly this research identified that it is common for youth activists to be members of more than one group and for youth climate groups to collaborate with each other.

FINDINGS

Motivations of Youth Activists

Widespread concern among youth activists about the Government's political inaction in the UK in addressing the climate crisis was unsurprisingly named as the key reason for young people to join climate groups. One participant said that *"part of it is a lot of anger, part of it is just a lot of frustration about everything and this complete lack of action*." Another stated that:

> *Government sets targets all the time, they don't necessarily meet them…when we looked into the statistics…they weren't doing enough and that just really annoyed me, so I kind of decided to get involved*.

A number of participants said that their motivation to act emerged as a result of learning about the gravity of climate change. Sources of information ranged from Greta Thunberg, Extinction Rebellion, George Monbiot, the IPCC report, and a geography lesson at school: *"I first heard of it when I was in year 7, since then I kind of just grew more interested in it and the issues…[and] I started going along to the strikes*." The severity of the crisis was felt acutely by many of the participants. One talked of the "*necessity to act*" and that the decision was based on a "*survival instinct*." Another said as well as "*frustration [there] is a lot of anxiety as well."*

Impact of Youth Activism on Young People

This research highlights a range of impacts on young people who are involved in climate activism. Many participants had developed a greater awareness of political and social matters as a result of their activism. One saying that *"I have become so much more aware of lots of other political and humanitarian problems and* […] *being able to discover where I really sit on the political spectrum*." Other activists spoke of being "*more engaged with current affairs… and the Government and politics in general*." This growing awareness was also translated into gaining specific insight into how to drive political change through targeted campaigns such as preventing an airport expansion, as well as developing the ability to assess the immediate impact of the; *"activism and seeing if changes have happened*."

Young people's activism has also opened up new opportunities, as a result of having "*spoken in front of lots of large audiences…[going on to say] I've written speeches, I've written letters, I just had to get better at a lot of things*." Another identified getting "*much better at managing time because I've never had a better reason to manage time before*." Another expressed that *"all of a sudden you're open to a world of… possibilities and knowledge*." Other aspects include a newfound determination to combat social and political problems and a sense of empowerment. As one young person reflected "*campaigning is definitely empowering, it shows you that you can change stuff rather than just complaining about it*." This sense of empowerment arises from the autonomy and agency that young people have in youth led climate groups with "*young people being able to define their aims*."

Youth activism has allowed participants to extend their networks, meeting and connecting with other like-minded people. This is not just *"making new friends*," but as one young person notes the "*people I have met have changed my own… experience [and my] knowledge has completely shifted*." Another remarks *"I have met such incredible people*." It is evident that these new social networks are fundamental to many of these young people's well-being, as one participant identifies *"for my mental health this has been very uplifting and very inspiring*."

Collaborations Between Youth Activists and Adults

Importantly all the participants identified at least one "significant" adult activist who was instrumental in their own activism. Sometimes they were referred to as friends, other times as people they "*look up to*," or as people who "*have been really influential and helped me to continue*." Another participant spoke of the impact of an older activist couple who were affiliated with the original non-violent Gandhi protest movement, who they described as "*the biggest inspiration and just the biggest example of how non-violence is the only way that activism can work*." One of the young people referred to a couple of teachers, who were deemed to be "*eco-warriors*." The role played by adults was often *"about empowering people to go out and do things*." At other times, the adults provided advice or "*emotional support sometimes when people feel… drained*."

The significant adults also provided specific help within the youth led climate groups, often assisting young people by providing help with practical tasks. One participant described how adults know *"how to phrase things [and how to] 'formally write things"*. Sometimes adults "*managed all the finances and also helped with some of the outreach*." At other times adults provided transport, liaising with the police and acting as stewards at protest marches. Many of these tasks required the involvement of adults due to legal age restrictions and young people in the main accepted this. The role adults adopted was described by one participant as a willingness "*to be ready to take the role of being able to do work behind the scenes and organizing*." This enabled young people to focus on steering campaigns, planning actions and carrying out strikes and protests. For many this support was crucial as one young activist made clear *"I think support is really, really important, because I know I wouldn't be able to do what I do now without that support*." Adults' involvement clearly contributes to the efficiency and effectiveness of the groups, as one young activist makes clear:

> *It creates a different environment which is a lot more professional and it's quite interesting as well because then you start to learn more, you know, you start to actually learn how to utilize these spaces and it's a lot more efficient sometimes as well. It's amazing, amazing to have their support, because you know there is a lot of guidance there.*

Potential Problems in Youth-Adult Collaborations

Ultimately young activists judged the success of the collaborations between young people and adults by the extent to which the distinctive *youth led nature* of their youth climate groups was maintained. Commenting on one successful example of this intergenerational partnership, one young person insisted "*it's about ensuring that… we are the ones at the forefront, the ones speaking, the ones taking the action forward*." There was consensus among the young activists in this study that adults should be prepared to give advice and help with organizational tasks but should not interfere with young people's decision making. Youth - adult collaborations therefore required a delicate balance of power and needed clearly defined youth and adult spaces and roles. As expressed by one participant reflecting on one successful partnership:

> *I don't feel out of place, I don't feel as though this space is being taken up by adults, I feel as though we're in this great balance and that's what's really important without taking away that perspective and you know that idea that we should really be focused on the youth.*

Youth activists recalled specific times when adult involvement in youth activist groups had resulted in problems. One of the main issues revolved around what one participant called "*the age authority gap*," which, in another activist's words, created a "*weird hierarchy*." In addition to this, adults were described as "*a natural threat to that flat structure*" within youth climate groups. A couple of participants thought that it was counterproductive when adults assumed that young people inevitably lacked experience and had limited abilities. It was also found that when adults tried to become involved in a more permanent way, that this "*can be derailing*."

Collaborative work was unsuccessful when young people experienced the adults as trying to take charge. For example, one youth climate group decided to collaborate with an existing adult-led organization as part of a specific campaign. However, the youth activists experienced adults as trying to steer the partnership project without adequate participation or consultation with the young people. One participant recalled that "*what ended up happening is that they took over [without us] actually having any input*." The adults renamed the campaign and made key decisions without young people's input. The result was a *"tokenistic"* experience, where young people's experience of participation was empty and valueless, leaving them feeling used.

ENABLING EMPOWERMENT

As has been clearly demonstrated, the involvement of adults in youth led climate groups is not straightforward. Young people clearly recognize the value of adult involvement within their activism. Every youth participant within this study named at least one significant adult who they regarded as a crucial resource. The adults provided practical support such as liaising with the police, managing finances, providing transport and acting as stewards at protest marches. As experienced activists they also provide valuable social and emotional support inspiring and guiding young people. As Ginwright and Cammarota point out youth activists "do not work in isolation; rather, they work closely with experienced adult organizers who can serve as critical social capital for young community activists" (Ginwright and Cammarota, 2006, p. 1).

However, one of the problems is as one young person in the study suggested the young people's "aims are assumed to be the same as the adults." Indeed, few young people or their adult compatriots would disagree that they are all committed to collaborating "across communities and political interests to facilitate taking individual and collective action for social change" (Coburn and Gormally, 2010, p. 34). This does not however guarantee that the collaborations will be successful. Adult support and guidance may at times be necessary, but their presence alone is not sufficient for success. This study demonstrates that success hinges on adult's appreciation of the power they wield and the extent to which they consciously empower the young people in the groups they are supporting.

Youth empowerment is however not necessarily embedded within adult activist culture. For example, Extinction Rebellion (2019) acknowledge that they are: "failing to address adult privilege within our organizational and decision-making structures." In collaborations that were unsuccessful adults often assume control and as one youth activist described, they assume it is their responsibility: "to put youth activists to particular purposes and roles;" This, however, mirrors adult-led processes, based on the premise "that adult's greater knowledge and

experience position them to guide program activities" (Larson et al., 2005, p. 2).

The young people in the study were adamant that any involvement of adults in youth led activism can only succeed if the executive power remains in the hands of young people. Adult-led approaches within youth activism are therefore dismissed by youth activists as counterproductive and are seen as the manifestation of existing hierarchical structures which serve to re-establish widespread social injustices. In the eyes of youth activists, these commonly accepted hierarchal structures and their oppressive connotations need to be challenged.

Kirshner (2008, p. 94) offers a number of useful conceptualizations of the relationship between adults and young people, which avoids tokenism and encourages meaningful involvement of young people. These range from adults operating as "facilitators," creating an "apprenticeship model" and adults as partners in "joint-work." These approaches could be utilized by adults involved in assisting youth led groups to avoid the potential pitfalls. Within each of these models the adult is represented as a resource that young people are able to tap into when needed, while adult influence is deliberately restrained in order for youths to take as much ownership of the process as possible.

Successful adult-involvement is also promoted within the Youth-Adult Partnerships (Y-APs) model, which places an emphasis on "shared decision-making," "shared power," and "a collective spirit, which emphasizes group success" (Ginwright, 2005, p. 102). Within this type of partnership model, mutuality is seen as a cornerstone between adults and young people, with teaching and learning being regarded as a two-way intergenerational process (Camino, 2000). Noam Chomsky echoes this type of mutuality, stating that "you learn from participating…you learn from others, and you learn from the people you're trying to organize" (Chomsky, 2011).

Lessons From Intergenerational Activism

The activism that this paper is concerned with is youth led, as such it is implicitly organized by, with and for young people in isolation from adults. Our research demonstrates however that adults do perform roles within these groups, and it is therefore of merit to compare findings with research on intergenerational activism which is framed more explicitly as a partnership between young people and adults. Interestingly, as we shall see, many of the same issues arise.

Bent claims that intergenerational activism involves: "messiness and complexity" (Bent, 2016, p. 117) and that genuine partnerships between young people and adults are required which are committed to "mutual liberation" (Bent, 2016). However, Taft (2015) discovered that many adults within intergenerational activism find it difficult to avoid what she describes as "habituated and hegemonic adult/child relationships" (2015. p. 471) where adults invariably assume power and control. Adults, Taft found, also wrongly assume that the young people lack the necessary capabilities. As a result of this dynamic Taft observed that the children and young people in turn assume a passivity and wait for direction from adults. Given the structured inequalities in the context of age Taft argues there needs to be: "a set of structured methodologies and organizational practices" which ensure that young people are able to exercise agency. In many ways the development of youth led climate groups can be seen as a reaction to this structured inequality in its specific framing of adults as peripheral to the nexus of power within them. A point emphasized by Gordon (2007) who maintains that young people are aware of their structured inequality and can devise strategies for circumventing it.

In their research on intergenerational activism in the US, Liou and Literat (2020) found that the most important role for adults is: "listening to youth and being empathetic when listening" (2020, p. 4675). They also noted that adults can provide specific resources for young people, such as driving to rallies or help with fund raising, such specific tangible support echoes the finding of this research for the necessity of adult involvement in youth activism. Edell et al. (2016) highlight that intergenerational partnerships inevitably bring differences in experience and knowledge between the adults and the young people involved and this needs to be acknowledged and equally respected. Reflecting on feminist activism with girls they argue successful "partnerships with girls require that we trust them as experts in their own experience" (2016, p. 706).

Ramey et al. (2017) offer a variety of ways of conceptualizing youth- adult partnerships however it should be remembered that youth led climate activism is not ostensibly a youth- adult partnership but is one that places youth front and center in the process. In this respect it appears Liou and Literat are right when they suggest that: "the simplest way adult allies can demonstrate solidarity is by learning how to decenter themselves and stepping out of the way of youth organizers (2020, p. 4677)." The research from intergenerational activism supports the premise suggested earlier which drew on research by Kirshner (2006) that the best way to frame adult involvement in youth led climate activism is as: "cycles of fading" where adults see their involvement as initially necessary, for specific identifiable purposes but consider their role as necessarily receding and for them to work to ensure their influence is helpful but not a burden and always works for the empowerment of the youth activists.

CONCLUSION

Undoubtedly more research is needed to identify how adult involvement in youth activist spaces is navigated and negotiated. For example, ethnographic studies of activist meetings, protests and strikes may well provide richer insights into how young people's activism is best empowered and how adults can maximize their role as supporters and enablers of youth activism. A wider breadth of qualitative data including the perspectives of adults would also provide additional insights.

The findings of this preliminary study however do identify a paradox at the heart of adult involvement in youth led climate groups. As, although it is evident that the young people need adult assistance, the findings suggest that adult involvement often undermines the operation of the youth activist groups and at times this results in acrimony and a parting of the ways. The

conclusions of this research suggest that to resolve this problem collaborative work between adults and youth activists must be regarded as a partnership that pursues the young people's goals. It requires young people and adults to develop a clear sense about their expectations and the purpose of their roles within their alliance. Both young people and adults need to grasp the concept that their partnership-work is inevitably defined by contextually driven fluctuations, which may require different power dynamics at different times.

Young activists were, in the main, in agreement about the value of adult involvement within youth activism but were adamant that youth empowerment is fundamental to the successful collaborations. As a result, it appears that adults should respect young people's "*positions of leadership*." The youth activists in this study regarded adult involvement as important in relation to "*work behind the scenes*" and to support and facilitate youth led processes. But as one young activist pointed out *"as youth we have carved out these spaces, they haven't been given to us, and what happens often is that that's forgotten*." Adults must remember that these are youth led groups established and driven by motivated young people inspired to bring about change and they must be encouraged and supported in this process—and be in the driving seat wherever and however they choose. Or in Saul Alinsky's words, the adults must see their "goal in [the] creation of power for others to use" (Alinsky, 1989, p. 88). The most useful conceptual framework for adult involvement in youth led climate groups would appear to be Kirshner's "cycles of fading" (2006) where adults work to make themselves "redundant," and they are always mindful of the need to empower the young people.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of St Mark & St John ethical review process. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Political Science

ORIGINAL RESEARCH
published: 27 April 2021
doi: 10.3389/fpos.2021.634538

Youth Strike for Climate: Resistance of School Administrations, Conflicts Among Students, and Legitimacy of Autonomous Civil Disobedience—The Case of Québec

Francis Dupuis-Déri [1,2]*

[1] Department of political science, Université du Québec à Montréal, Montreal, QC, Canada, [2] Collectif de Recherche Action Politique et Démocratie (CAPED), Montreal, QC, Canada

This text presents the results of the first research conducted on "green" actions and strikes for climate in high schools across Québec, a Canadian province that witnessed in 2019 the larger street protests of the international youth movement. Based on 20 semistructured interviews with students from 12 high schools, letters from school principals addressed to parents, and research in the media, this text reaffirms that schools are a place of political conflicts and struggles not only between students and adults but also between students in opposite currents of the movement. It is also a reminder of the involvement of young people in autonomous direct action groups (Extinction Rebellion). The discussion then focuses on potential implications of the movement for future elections, the legitimacy of these collective actions in relation to the philosophical debate about civil disobedience (John Rawls, Ronald Dworkin, Manuel Cerveza-Marzal, and Alan Carter), and the hope for a renewal of the student movement in Québec in the face of a disaster of unprecedented scale.

Keywords: youth strike for climate, youth politics, climate change, school, ecologism, civil disobedience, Québec, social movements

OPEN ACCESS

Edited by:
Matt Henn,
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Reviewed by:
Helga Kristin Hallgrimsdottir,
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Cesar Guzman-Concha,
Université de Genève, Switzerland

***Correspondence:**
Francis Dupuis-Déri
dupuis-deri.francis@uqam.ca

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *28 November 2020*
Accepted: *29 March 2021*
Published: *27 April 2021*

Citation:
Dupuis-Déri F (2021) Youth Strike for Climate: Resistance of School Administrations, Conflicts Among Students, and Legitimacy of Autonomous Civil Disobedience—The Case of Québec. Front. Polit. Sci. 3:634538. doi: 10.3389/fpos.2021.634538

INTRODUCTION

In August 2018, Greta Thunberg—a "Swedish 15-year-old who's cutting class to fight the climate crisis" (*The Guardian*, September 1st, 2018)—started to stand every Friday afternoon in front of the Riksdad, the national parliament, and then launched a world movement known as *Skolstrejk för klimatet*, or "school strike for climate." In Montréal, a 17-year-old Secondary five student, Sara Montpetit, responded to the call from Sweden by launching *Pour un futur Montréal* (For a Future Montréal) with other students. Already in April 2012, an Earth Day march in Montréal was described by the media as the largest protest in Canadian history, with the police estimating its size at 150,000 people and the organizing committee at 300,000 (*La Presse*, April 22nd, 2012). On March 15, 2019, the first global day of action for climate, the organizing committee for the protest in Montréal estimated the crowd at 150,000 people (Radio Canada, March 15, 2019). In September 2019, approximately one and a half million people marched for climate in about 150 countries (*The Times*, May 24, 2019; *Washington Post*, September 20, 2019). According to the media, the protest in Montréal was not only the largest in the country but also worldwide, with 300,000 participants

based on police estimates and 500,000 according to the organizing committee, compared to 250,000 in New York and 100,000 in larger cities such as Berlin and London (*New York Times*, September 21, 2019; *Journal de Montréal*, September 27, 2019). Greta Thunberg herself marched on the streets of Montréal and spoke to the crowd, after addressing these words at the United Nations Climate Summit in New York:

> "This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. … How dare you? You have stolen my dreams and my childhood, with your empty words and yet I am one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction and all you can talk about is money and fairy tales of eternal economic growth. How dare you? For more than 30 years, the science has been crystal clear. How dare you continue to look away?"

This exceptionally large-scale movement arises as thousands of scientists and international organizations such as the Intergovernmental Panel on Climate Change (IPCC) confirm that human activities pose a threat to the planet. In the province of Québec, new ecologist groups have emerged over the last few years, such as *La Planète s'invite au parlement* (The planet goes to parliament), a grassroots coalition aimed at influencing the government, the *Coalition étudiante pour un virage environmental et social* (Student coalition for a social and environmental shift) (CEVES), and local branches of Extinction Rebellion (XR), a self-organized network founded in Great Britain, which uses civil disobedience (Axon, 2019).

Many conservative and reactionary columnists in Québec published derogatory critiques of Greta Thunberg and the youth who responded to her call (see also Bergmann and Ossewaarde, 2020). In a Montréal-based newspaper *Le Devoir*, for example, Rioux (2019a) made ironic remarks about "Saint Greta," deploring the "irrational nature of this quasi-religious craze," even talking about a "dictatorship of the emotions" (Rioux, 2019b)[1]. In the *Journal de Montréal*, several columnists ridiculed the movement, for example, Bock-Côté (2019a) in his missive, "*Greta Thunberg, la prophétesse*" (Greta Thunberg, Prophetess). He argued that, "the place for children and teenagers is not in the streets but at school. […] The fight for climate shouldn't be transformed into a children's crusade. The conscription of youth, by definition impressionable and spontaneously fanatic, should concern us." In another column, he deplored that, "the ideological recruitment of youth is the stuff of totalitarian regimes […] youth, easily impassioned, can easily be fanaticized" (Bock-Côté, 2019b).

Obviously, a more favorable posture toward this movement can be adopted. This article will resituate these Québec-based mobilizations within the little-known tradition of student strikes and the history of "green" actions in schools. This will allow institutional obstacles to be identified before examining divisions among strikers and then addressing the issue of legitimacy of radical civil disobedience. Our main argument is that political scientists and sociologists working on social movements should seriously consider political dynamics within schools to understand their influence on the choices of students to strike for climate. These choices may be analyzed through lenses of Do-it-Ourselves (DiO) politics and civil disobedience that is in relation to the issue of political autonomy and legitimacy.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

To my knowledge, this is the first comprehensive study aimed at developing an analysis of the Québec wing of the youth movement for climate (see also Dupuis-Déri, 2021a). Some preliminary findings can already be drawn about the relationship of students to the parliamentary electoral regime, political conflict, and activist experience. As Weiss (2020) summarizes, with regard to academic literature about youth political participation:

> "Representatives of the disengagement paradigm within the literature underpin their argument with empirical findings, such as young adults being the least likely to vote in national elections, the drop of youth membership in political parties, and generally low levels of political interest. On the other hand, the literature on an engagement paradigm of youth participation represents a more optimistic view as it is based on findings in the context of new forms of political participation, which are more appealing to and are used more frequently by young adults."

Yet, youth political participation may be simultaneously—even for one individual—(1) traditional, institutional, and collaborative (with the authority) and (2) innovative, extra-institutional (autonomous), and contentious. Indeed, students involved in the youth climate movement resort to integration through election (delegate on student councils) or not (member of the green committee), collaboration (clean-up days), negotiation (lobbying and petitions), and direct actions DiO politics: boycott and buycott (clothes and food), strike, picket, sit-in, street protest, banner drop, and sabotage.

Moreover, climate strikers participating in our research (see section Material and methods) were quite excited about the prospect of voting in the next provincial elections (Shields, 2019). Such a stance should rejoice the vast majority of academics studying "democracy" in school and believing that the goal should not be for youth to become autonomous and enjoy sovereign power at school, but rather to be trained to vote at school, so that they develop this habit once they reach voting age. In other words, the goal is not to increase youth power and autonomy, but reduce adult electoral abstention (Milner, 2005; Pache-Hébert et al., 2014; Lacroix, 2016; Godbout, 2017; for a more critical perspective, see Westheimer and Kahne, 2004; Reginensi, 2005; Dupuis-Déri, 2006; Wall, 2011; Garneau, 2016; Caron, 2018). One of the strikers interviewed here stated that "Everyone at my school has worked out the voting age. […] I am afraid that there isn't enough time left, that's why it's important to act now. I have hope for the next elections." Nevertheless, there

[1]This columnist tends to see tyranny, totalitarianism, and witch-hunts everywhere (see his February 14 and April 23 2020 columns, and also Ancelovici, 2017 and Le Glaunec, 2020).

is no way of knowing if these youth will vote once they reach adulthood, nor whether their vote will have an impact on party programs or the composition of parliament or government. A 15-year-old respondent commented with stunning clarity, "It's important to vote, but I know we grow and I don't know how I will see things at that time," when she reaches the age of majority.

It seems more interesting, politically speaking, to observe that this youth movement for climate confirms the hypothesis of Adams (1991) and other authors who see school as a political space, where students engage in important conflicts. These political struggles are not only vertical because they seek to put pressure on the government and political parties and on the school administration, but they are also horizontal because students for and against mobilization and camps defending different or even competing practices and perspectives are placed in opposition to each other.

Researcher, Sarah Pickard, explains that ecologist youth prefer "(DiO) politics" or feel they have no choice but to practice it. After Do-it-Yourself (DiY) from the punk movement, producing its own publications (zines) and music without the involvement of private companies (e.g., record labels), and Do-it-Together (DiT) from disabled activists, DiO politics "is when citizens [?] take initiatives and act politically without relying on traditional collective structures, such as political parties and trade unions, to inform, organize and mobilize in a top-down way" (Pickard, 2019, p. 5). For present young ecologists, DiO politics are about individual lifestyle politics (veganism, recycling, boycotting, etc.) and autonomous, horizontal organization of collective direct actions bringing people together, channeling emotions such as frustration and anger, fostering joy and hope, and eventually functioning in a bottom-up fashion to put pressure on decision-makers at the top of our political and economic institutions.

The DiO politics approach is all the more necessary and legitimate for these young, primary, and high school ecologists because student councils and green committees often lack real power and are kept under adult authority (as we shall see) (Westheimer and Kahne, 2004; Dupuis-Déri, 2006; Simon, 2020). Consequently, their DiO politics are expressed through protests, school strikes, and actions such as die-ins, blockades, banner drops after scaling urban structures, and super-gluing hands onto shop windows, i.e., through civil disobedience.

Therefore, these ecologist direct actions at school and outside of school raise questions discussed in moral and political philosophy about civil disobedience actions. According to a more moderate approach, civil disobedience is only justified in liberal-republican regimes when it succeeds in rallying majority opinion and protests an unjust decision or law according to the fundamental rights of a country. In this regard, John Rawls described his approach as a "constitutional theory of civil disobedience" (Rawls, 1999, p. 319-343). Zinn (1968) decried the limits of such an approach, observing that civil disobedience can also be used to challenge global problems, such as poverty or war (and he could have included pollution), and not simply an isolated law. Together with Henry David Thoreau and other proponents of civil disobedience, he also argued that a single individual might be justified to oppose the will of the majority.

Nevertheless, Ronald Dworkin distinguished three types of civil disobedience, according to their grounds: (1) integrity-based, corresponding to situations in which an individual feels compelled to disobey in order to preserve moral coherence, for example, by refusing to go to war; (2) justice-based, when it is a matter of defending minority rights or protesting an oppressive policy; and (3) policy-based, against a law or decision perceived as dangerous to the entire population. Dworkin also differentiated two strategies. The first, a persuasive strategy, "hopes to force the majority to listen to arguments against its program" (Dworkin, 1985, p. 109). From a deliberative approach, there is a hope that the civil disobedience and popular protest have positive effects by: (1) widening the agenda, (2) increasing participation, (3) representation, (4) disseminating new information and arguments, (5) stimulating imagination, (6) pushing decision-makers to act, and, potentially (7) opening a new round of deliberation (Dupuis-Déri, 2007). However, this deliberative approach seems overly optimistic in light of the obstinacy of political authorities in ignoring disobedience movements and the asymmetry of power relations in "pluralist" societies (Fuji Johnson, 2012). Dworkin consequently allows for a disruptive approach, a "non-persuasive strategy" that "aims not to change the majority's mind, but to increase the cost of pursuing the program the majority still favors" (Dworkin, 1985, p. 109). According to Dworkin, the former strategy (persuasive) is more legitimate because it is consistent with the majority rule, whereas the second strategy (disruptive) is less so because it imposes the will of a minority over the majority. To illustrate the second case, he discusses a very sensitive issue in the 1980s, namely the deployment of Euromissiles in Western Europe enabling a "limited nuclear war." The majority may have believed that these extremely dangerous and destructive weapons represented a good way of limiting the risk of war by discouraging the USSR from launching a traditional attack with the Red Army or atomic strikes. This was the (fundamentally irrational) logic of the "balance of terror" of the Cold War. The minority practicing civil disobedience, numbering in the millions in West Germany and elsewhere, could thus be considered as a significant threat to military and political ("better red than dead") stability in Europe. In such a context, more intense state repression can be anticipated (see also Arendt, 1972).

These philosophical discussions about the legitimacy of civil disobedience take for granted that the disobedient lives in a liberal-republican regime and enjoy the so-called freedom of press and association and free elections. Yet, according to the French philosopher Manuel Cervera-Marzal (2013, p. 13–14), "civil disobedience is at least legitimate, if not necessary, in a clearly undemocratic regime, where human rights and freedom are systematically violated" (see also Walzer, 1970). In this respect, it should be politically relevant to highlight that the youth in Québec can neither vote nor run for municipal, provincial, or federal elections, but also that parents and adults ruling the school system strictly limit and infringe their freedom of expression and association and maintain oversight of school committees, such as elected student councils.

MATERIALS AND METHODS

The study focused on the under-studied experiences of youth from 12 to 17, who have yet to reach the age of majority but are politically active in school. In 2015, a study on "democracy and protest in high school" in Québec was initiated—well before Greta Thunberg was heard of—by designing a mixed research method. In Québec, there have been studies of youth political involvement examining specific cohorts; for example, the *post-secondary* student movement (including Surprenant and Bigaouette, 2013; Ancelovici and Dupuis-Déri, 2014; Theurillat-Cloutier, 2017; Ancelovici and Guzmán-Concha, 2019), or "youth" between 15 and 30 (Gauthier, 2003) or 18 and 30 (Gallant, 2018), or women between 18 and 30 years (Quéniart and Jacques, 2004).

A search through archives of periodicals at *Bibliothèque et archives nationales du Québec* (BAnQ) and Québec media websites allowed produced documentary sources pertaining to 250 school strikes across Québec history. About 20 semi-directed interviews were conducted with 12- to 17-year-old students and 55 interviews with adults, mostly between 18 and 25 years old and who shared teenage memories. Although the study did not specifically focus on the topic, a number of respondents had participated in Extinction Rebellion meetings and actions in Montréal and Sherbrooke. After the interviews, students forwarded copies of letters sent to students and parents by the school administration. This material serves as the basis of an initial analysis of climate mobilizations in 12 schools in Québec (three private and nine public). To respect anonymity, names of students or affiliated schools will not be cited, where this would allow for identification of respondents.

This is a preliminary research about the youth climate movement in Québec. In the future, there will doubtlessly be further examination of this mobilization: through other methodologies, questions, and reflections. Most importantly, students currently attending high school will certainly study their own movement. All of this work will contribute to gain a clearer understanding of the movement composition, its motivations, its political meaning, and its consequences.

RESULTS: "GREEN" ACTIONS IN SCHOOLS

In schools, young people who wish to get socially and politically involved can join the student council, an elected body, though in reality dominated by adults who sit on the board and prepare the agenda, determine speaking order, and decide what will be discussed. Moreover, the school administration reserves the right to veto decisions rendered by the council, as reported by several young people who volunteered their time with such councils. In essence, adults can reject the candidacy of students deemed problematic, irresponsible, or not very presentable, and even manipulate election results (studies of student councils and school democracy confirm this fact, without giving it too much emphasis—Pache-Hébert et al., 2014; Godbout, 2017). Students may also get involved in various school committees: newspaper or radio, Amnesty International, etc. The International Day Against Homophobia also presents an opportunity to speak out, specifically when a member of the teaching staff is known for homophobia. School mobilizations may take the form of petitions, sit-ins, and more recently social media campaigns, such as the 2018 *Carrés jaunes* (yellow squares) movement protesting dress codes deemed sexist.

Thus, young students try to convince adults ruling their schools to do their share to save the planet, or to let them make some ecological improvements at school, long before considering strikes or resorting to civil disobedience and DiO politics. Indeed, students all around the world have been suggesting environmentally friendly ideas for years and setting up green committees in schools, organizing film projections and talks on waste sorting and producing natural wax food wrap, among other projects, or participating in the Youth Climate Action Conference in Australia in 2007 (Partridge, 2008; Corner et al., 2015; O'Brien et al., 2018; and United Nations, *Youth in Action on Climate Change: Inspiration from Around the World*, 2013; see also Fisher, 2016; Cocco-Klein and Mauger, 2018; Holmberg and Alvinius, 2020). In the province of Québec, from 2017 to 2019, there have been three editions of the Sommet jeunesse sur les changements climatiques (Youth Summit on Climate Changes), which brought together about 350 high school students (*Le Soleil*, May 18th, 2019).

Yet, youth who participated in this study highlighted different forms of adult instrumentalization or opposition to their plans to "green" their schools. This begins in primary school, where green committees organize "clean-up days" for all students, who have to come with garbage bags to pick up trash around the school. Under the appearance of DiO politics, it appears to be a greenwashing operation organized and coordinated by and for adults who thus get free—and more or less enthusiastic—labor to clean the grounds at no cost to the administration.

The interviews for this study also revealed that school administrations often use student council members to carry out tasks lending the appearance of sincere concern for the environment. The Collège Mont-Saint-Louis (Montréal) boasts in its 2018–2019 annual report (accessible online) that its student council—the *Association générale des étudiants* (AGE)—organized an "electronics pick-up for environment week." However, a student from that school confided that "the problem with the AGE is its lack of power. It is to make us think that we have power, while we have none. Even teachers know it. It's mostly adults who handle everything."

The same control and opportunism seem to be at work with students who volunteer to sit on green committees. In a Montréal school where uniforms are mandatory, the green committee decided to organize a thrift sale for used uniforms to avoid waste. The school administration explained that the company selling uniforms would dispute the loss of revenues[2]. The same green committee proposed banning plastic bottles from the cafeteria, but the service provider threatened to increase prices to compensate for losses. "It's always a matter of money," expressed

[2]A similar project was started at another Montréal school, without any backlash from the company.

the student describing these projects. He also denounced the fact that the same supervising teacher who established the committee held a member status, allowing him to reject student plans by saying that "the administration will not agree with this or that." Some students also protested against food waste in the cafeteria. In vain. A Secondary four delegate to the student council at a Montréal school explained that,

> "the student council and board have a legal basis in the Education Act, but green committees don't. It's entirely up to the school administration and the teacher in charge. In my school, a teacher formed the green committee after climate strikes, and students on it were mostly volunteers, for example to recycle."

He also remarked that attempts to introduce recycling at schools ran into two problems: recycling is not included in the job description of janitors and recycling companies do not have formal permission to enter school grounds with their trucks. This serves as an excuse to have students work as volunteers. A school administration for instance agreed to install composting bins but asked students to pick them up, transport them, and wash them according to a schedule planned by a teacher.

The same power relations are reproduced in the Association des élèves du secondaire (Association of Secondary Students) (AESCSDM), founded by the Montréal School Board (CSDM). The AESCSDM is introduced on its official website as "a voice which speaks for them [the students] and represents them." Approximately, 40 students participated in an assembly gathering about once a month from December to the end of the school year. Three adults from the CSDM also participated. In 2019, a delegate proposed during an assembly that the AESCSDM calls for climate strikes at all CSDM schools. The adults interjected stating that more information was needed about the mobilization and that, most importantly, consideration should be taken to avoid tarnishing the CSDM image. According to a delegate, "these interventions nipped the idea in the bud. There wasn't even a vote on the proposal. Yet we don't represent the CSDM, we represent students from the CSDM! But they told us, 'You can't!"

In another Montréal school, a green committee, set up without adult participation, proposed gardening workshops and flower boxes to be installed in front of the school. In vain. In another school in Montréal, a student council delegate initiated a green committee in February 2019 without support from the administration, to relay calls to protest on Friday afternoons and offer alternative actions to students who could not or did not want to go on strike for fear of reprisal. In reaction, the administration decided to create its own green committee in the fall of 2019, with student council members and an adult to supervise them. The student who provided this information was outraged by this maneuver: "It's so immature! They are playing a game, but we aren't there to play. It's hard to work with immature people, who very often lie to us." The principal even handed out candies one Friday to discourage youth from striking.

In other schools, the administration simply refused to allow a green committee to form, sometimes out of concern of being associated with groups like Greenpeace. Students, therefore, continued to engage in political training and activism outside school. As such, one student participated in an ecology training camp, where she heard for the first time about indigenous struggles and direct democracy. She then drew the conclusion that school is "a kind of dictatorship."

RESULTS: CLIMATE STRIKES

Students have been organizing strikes since at least the second half of the nineteenth century, though very little scholarly research pertain to this phenomenon (Great Britain being an exception: Adams, 1991; Cunningham and Lavalette, 2016). At times, student strikes are part of national mobilizations—for example, against racial segregation in the United States in the 1960s, against South African apartheid in the 1970s and 1980s, against the dictatorship in Haiti in 1985, during the first Intifada in Palestine around 1990, against the political elite— "dinosaurs" —in Thailand in 2020—and even of international mobilizations, such as those against both wars on Iraq in 1991 and 2003.

In Québec (Dupuis-Déri, 2020, 2021b), student strikes have been used to defend comrades expelled by the administration, protest anti-Semitic comments, oppose tuition increases, obtain a functional heating system, and establish anti-racist and anti-sexist codes. "Strikes" have sometimes been organized by parents keeping children at home as a form of protest, for example, to get adequate school transportation or to defend the French language. Most often, however, students are the ones initiating strikes, though strikers may be members of political organizations. During the 1930s economic crisis, for example, members of Young Pioneers, a socialist organization, were among the twenty-seven 11-year olds striking at Aberdeen School in Montréal to demand free milk and clothing for children whose parents were unemployed. In 1947, the "chocolate bar strike" mobilized youth across Canada in April and May against post-war speculators jacking the price per bar from 5 to 8 to increase profits. Students protested and stormed newspaper offices, a radio station, the Winnipeg City Hall, and provincial parliaments in British Colombia and Manitoba (Fitzsimmons Frey, 2014).

Other movements affected the entire province of Québec. As such, high school students went on strike against an increase of the minimal passing grade of 50 to 60% at the beginning of the 1980s; in opposition to wars against Iraq in 1991 and again in 2003; and, in 1999, against the cancelation of extracurricular activities, a pressure tactic used by the union of teachers in its negotiations with the government. In the latter, the movement featured numerous bridge and highway blockades and the police arrested 270 youth in the Chomedey de Maisonneuve schoolyard in Montréal (*Le Devoir*, September 24, 1999).

This overview of student strikes and the social and political engagement of students at school does not directly explain the strong youth mobilization for climate in Québec. Plenty of other countries had similar student strikes in the past, and for climate. Nevertheless, recalling the history helps to nuance exceptionalism around climate mobilization, which in any case was preceded by numerous "green" actions in schools.

In 2019 in Montréal, Sara Montpetit relayed Greta Thunberg's call for strikes every Friday afternoon. She had earlier been the Secondary two delegate to the student council at Robert-Gravel public school in Outremont (Montréal). She realized then that the council was somewhat ineffective and powerless. Therefore, she called for action through private social media, specifically Instagram, without the support of any institutional school committee. About 200 students responded to the call on the first Friday, including 100 at her own school. The administration put them in detention, during which they had to write an essay on individual political engagement. Similar repression did not discourage Friday strikers from pursuing their cause, but Sara Montpetit became overwhelmed by the volume of organizing tasks and thus put out a call on social media for a meeting in a café to get help.

Approximately 40 students from different schools responded to the invitation, dividing up tasks and responsibilities, ergo founding *Pour le futur Montréal* (For the future Montréal). Based on the suggestion of Sara Montpetit, students stood on tables in school cafeterias to harangue their peers and encourage them to join the Friday afternoon strike. In some schools, strikers stood on chairs in the lobby or paraded in the corridors chanting and banging on lockers to encourage other students to rally. Many strikers ceased attending the detention, with or without support from their parents.

Leading up to the first global day of action for climate on March 15, 2019, students from Robert-Gravel School got permission from the administration to hold a general assembly supervised by a teacher in the cafeteria. Such concessions are very rare in the history of high school strikes (though a few instances occurred during the "*Printemps érable*[3]" in 2012). At Montcalm School in Sherbrooke, two girls launched a call on Facebook for the March 15th protest, without consulting their school administration. A member of the student council then convinced the administration to announce the call over the school intercom, in exchange for allowing adults to supervise the march.

In preparation for March 15th, several young people created placards and banners at home or at school, developing or adapting diverse slogans, "I came to tell you that you can change"[4]; "There is no plan B"; "The school calls this unjustified absence but we are motivated to save our planet!"[5]. On the morning of March 15th, these young people jumped out of bed, particularly early to participate in picketing in front of their school and block its entrance. At Sophie-Barat public school, for example, the picket lines were spread out and the announcement of administration that classes would be canceled for the day was met with cries of joy. As we shall see, there was no consensus among students over blocking doors and picketing. Students chalked slogans onto the sidewalk in front of some schools. Contingents of strikers then converged on downtown areas to participate in the march. At Magdeleine Public School in La Prairie, on the south shore of Montréal, however, the protest took place at noon on a boulevard. At Academie Lafontaine, a private school on the north-shore of Montréal, the administration organized a human chain around the building. In both cases, no class was canceled.

Situations can thus vary considerably, depending on the educational institution, where power relations arise from an unequal triangulation between students on one hand and two groups of adults, school administrations, and parents on the other hand. Indeed, some administrations communicated with parents to encourage them to discipline their children. At Paul-Gérin-Lajoie-d'Outremont public school, the principal wrote to parents in the lead up to the March 22nd protest, explaining that he had been tolerant up to that point, but that "the Basic School Regulation set out a school calendar in which at least 180 days must be devoted to educational services. In this sense, the code of conduct and other measures thought to be necessary will be applied in case of non-compliance. [. . .] We are counting on your collaboration in encouraging your child's attendance at school." The principal, who specified that he could "ask for a police presence" nevertheless ended his letter on a diplomatic note, calling the "climate and environmental protection cause" just and important and stating that he was open to "organizing a committee to carry out concrete actions for our school and our neighborhood." On March 29th, the principal wrote another letter to parents rejoicing that students had "decided to clean the area around the school," but decrying the fact that "around one hundred students from the school had blocked the entrance [. . .] Our socio-community officer as well as police colleagues [sic] had to be called" in case "the situation degenerated." The principal then promised to invite the MP of the riding to meet the students so that "their voices" could be heard.

Power relations shifted throughout 2019. For example, many school administrations were tolerant of the first Friday afternoon strikes but later clamped down on the movement, which did not seem as if it was going to subside. The detention periods were granted and exams scheduled for Friday afternoons, which penalized strikers using academic performance evaluations. Teachers more sympathetic to the movement projected movies instead to avoid penalizing strikers.

At the start of the 2019 fall term, CSDM declared September 27th to be a "pedagogical day," thus unburdening school administrations from the necessity of ensuring that 140,000 students attend class. A student involved in *Pour le Futur Montréal* called this decision "greenwashing." During the previous winter, she had participated in unsuccessful negotiations to convince the CSDM to allow students to go on strike. This shift on the part of the CSDM in the fall resulted in tension between the government, the Board, and the unions of teachers. As such, the Pointe-de-l'Île School Board (CSPI) decided not to follow suit, on the pretext of "responsibility to ensure the safety of its students on this day, which is officially a school day" [*Métro* (Montréal), September 19, 2019; *La Presse*, September 17, 2019; *La Presse*, September 18, 2019].

Students can thus sometimes benefit from significant institutional support during the mobilization, or, on the contrary,

[3]Often translated as "Maple spring" in French it is a pun on "Arab spring" (2011) and refers to the student strike that overtook Québec in 2012.

[4]In French, "Je suis venue te dire que tu peux changer." Lyrics from, "La fille de personne" (no one's daughter) by Hubert Lenoir.

[5]Literal translation of a play on words, "L'école appelle ça une absence non motivée mais nous sommes motivées à sauver notre planète!".

run into inflexible adults betraying democratic ideals. For instance, two students were suspended by the administration of Des Monts comprehensive school, in Sainte-Agathe-des-Monts in the Laurentians. "For people who asked for democracy, it's pretty extreme," one of the punished students told the media. In meetings with the school administration, with participation by the school security, the students had asked in vain for a strike assembly. Then they organized the assembly autonomously. The administration explained that students should have gone to the student council and that an assembly vote was invalid "because students are under 18" (they are nevertheless permitted to elect student council members). This independent assembly also voted to create a student organization separate from the school administration (Carabon, 2020).

RESULTS: CLEAVAGES AND CONFLICTS BETWEEN STUDENTS

As we can see, the political process leading to climate strikes and protests has been lengthier and more complex than media coverage would indicate. Moreover, the youth climate activism has had its fair share of conflict and interpersonal and collective divisions that do not receive media coverage, leading to present youth mobilization as mass, pretty festive, and homogenous. As a student from Sherbrooke said, "It's really divided, everyone has an opinion about the environment" and "lots of people want to look good, but don't change their behavior." One boy explained it this way, "I am not environmental, I don't believe in climate change, but I want to [go on strike] to play video games." Many students provide various justifications for opposing the protests, for example, the importance of not missing exams or because "it's wrong to protest," as one student said about the September 27, 2019 march. These varying positions result in friendship disappointments and stigmatization of ecologist students. "There are people I can no longer talk to," one student told me. Another said he was subject to provocation: "my friends teased me, they deliberately threw things that could be recycled or composted into the garbage in front of me and watched me pick them up and take them to recycling or compost bins." Participants to my research also pointed out that it is generally not only challenging for younger Secondary one and two students to stand on their grounds against both the administration and their parents but also hard for them to interact on an equal footing with Secondary four and five students, who tend to initiate and lead mobilizations.

A student as a public school in Montréal differentiated three tendencies among students in relation to climate: (1) "those who don't care," because "there are lots of climate skeptics"; (2) "those who protest, but don't know what they are talking about because they consume products from multinationals made by children"; and (3) students "who go to every protest" and hold relevant information and demonstrate real coherence, for example, by buying only second-hand clothing. The tensions between these positions may result in insults on social media or in person. As one student recounted,

> "I was subject to insults. Because I was against the picket line [during the strike], they said that I was a hypocrite and I didn't really want to do anything for the environment. But these Secondary 5 folks just want an excuse to miss school, they buy and wear brand clothing while all my clothes are second-hand and I try to be vegetarian. We are organizing for the right reasons but we lose credibility with pickets. We discuss a lot with the administration, we do everything to get the administration really on our side [. . .] we want there to be composting, recycling. [. . .] We organize 'Wednesday pick ups' on the grounds with gloves and bags, we pile it up and show the bags to the whole school, to prove that you have to 'act concretely' and to show them everything that is thrown on the grounds."

The ideological divisions among students reflect different ways of conceiving DiO politics, more or less autonomous and conflictual toward adults and institutions and debate over the best ways to struggle for the climate and the environment. Here, we seem to come back to the traditional dichotomy between a reformist and institutional environmentalism and a radical and autonomous ecologism (Gandon, 2009; Combes, 2010; Dufoing, 2012; Larrère, 2012, p. 110). We can also see an opposition playing out between the forms of mobilization identified by Adams (1991) in his study on strike of pupils in the United Kingdom: alliance (with teachers, parents, and media) or confrontation (strikes, pickets, sit-in, etc.).

School administrations may manipulate these divisions between students to obstruct the strike movement. The Père-Marquette school administration, for example, had a real communication strategy to discourage students from striking and channel them toward institutionalization. In April 2019, the president of the Board of the school and the principal jointly signed a letter to parents and students, to "inform them of concrete actions." For example, "the student council was met with and has prepared itself to examine the best way to consult the student body about changes [. . .] toward reducing the ecological footprint of the 1,350 students." The letter also announced that a group of Secondary five students—seven girls—had proposed installing compost and recycling bins, replacing paper plates with ceramic plates in the cafeteria, and encouraging students to bring their own utensils to avoid throwing out plastic utensils in the cafeteria. The letter proudly highlighted the establishment of a team "to clean up around the school," including a large neighboring park, and a second one, a "Protect our Future" student team, to raise awareness with fellow students about environmental issues. It also raised the possibility of opening an "eco-shop." On the surface, this looks like DiO politics, but in reality, the actions were authorized, supervised, and instrumentalized by the school administration. This letter was accompanied by another message from the principal, this time addressed only to parents. It explained that he had spoken to "several politically involved and activist students" who "participate in the marches" but who did not encourage other students to "limit access to education," that is, block the school and go on strike. The principal finally emphasized that "the administration, the school-team, representatives of the board and a *majority* of pro-environmental students want, both for academic success and environmental reasons, classes to take place normally" (our italics). It is impossible to know how the

administration was able to assess what the "*majority* of pro-environmental students" wanted.

That said, the same individual can be seen as too moderate in one situation and too radical in another. One student, for example, got a poor reception from the green committee by the "little clique of insiders" who thought her proposals were too "radical" because she suggested supporting the strike and starting a poster campaign in the school. At the same time, she herself ended a friendship with a comrade she saw as too radical and "angry" at the administration, and she was afraid that his idea of locking the doors on the day of the strike would lead to their getting kicked out of school.

Another Secondary three student also found herself placed at times on the side of moderation and respect for the school, and at others on the side of the unruly protest. The administration at her school had refused to organize a general assembly about the climate strike on March 15 2019. Reacting to an announcement by the administration over the intercom that there would be classes the following day, March 15th, she got on a table in the cafeteria and shouted, "The earth is a time bomb, it's our future!" and announced the strike and march the following day. The student was immediately sent to the administration, who suspended her for 3 days for "insubordination" and demanded that she be accompanied by her parents when she came back. After the winter 2019 protests, the same student negotiated with the administration and got composting, recyclable utensils, a clean-up day in the recreation area outside, and the formation of a green committee, supervised by a teacher who had set up a "green brigade," which went to the cafeteria and classes to raise awareness and organize talks. Things thus seemed to be moving in a positive direction for this student, who entered Secondary four in fall 2019 and again submitted a request to the administration to organize a strike assembly for the September 27th global protest. The school administration told her that secondary students had "no right" to hold such assemblies and suggested instead that she run for student council, so that "I wouldn't get back onto the table."

RESULTS: AUTONOMOUS ACTIONS AND LEGITIMACY OF CIVIL DISOBEDIENCE

In part because of the institutional limits the strikers encountered in their schools, youth adopting a more conflictual posture joined local committees of Extinction Rebellion (XR) Youth, an organization, which practices civil disobedience, often risking arrest (Axon, 2019). Youth, who took part in this study, had participated in several of these actions, including an action on April 17, 2019 outside Montréal office of Québec Prime Minister François Legault. Thirty ecologists took part, with adults, including an 82-year-old activist, helping out. Some activists chained themselves to the building, others painted its windows and blocked Sherbrooke Street before starting to march (*La Presse*, April 17, 2019). A few days later, Extinction Rebellion protested, pouring fake blood outside a Montréal hotel, where the Nature Champions Summit was being hosted by the Federal Ministry of the Environment (*Radio-Canada*, April 25, 2019). On May 27th, some activists disrupted the general assembly of the Québec Oil and Gas Association, whereas others glued the palms of their hands to the doors of the hotel where the event was taking place (*Journal de Montréal*, May 27, 2019). On October 12th, Montréal police arrested about 40 ecologists who had blocked Sherbrooke Street (*La Presse*, October 12, 2019). On November 29th, dozens of activists protested in shopping centers to denounce overconsumption, including in Sherbrooke. Some activists unfurled banners in shopping centers, blocked entrances to shops, and glued their hands to windows. The police made several arrests (*Journal de Montréal*, November 29, 2019).

Here, we see a form of DiO politics. Even within a rather radical network such as Extinction Rebellion, however, there may be a myriad of interpersonal and collective divisions. In Montréal, the first meetings of the youth section brought together around 40 young people in the offices of Greenpeace to discuss, "lots of things, everything, it was really nice. There were proposals for actions, we discussed who was willing to be arrested, etc." However, the girl and boy who started the group were a couple and their conflictual separation set off maneuvering over alliances in the collective, despite a mediation committee composed of four girls. "Don't start a group as a couple," one of the respondents concluded. This split not only followed logics of friendship and enmity but was also a conflict between "moderates" and the "extreme left," as one of the study participants characterized the camps.

While the "moderates" wanted to speak strictly about the environment and included pro-independence Québec nationalists, the "extreme leftists" wanted to broaden the analysis to issues, such as racism, particularly in relation to First Nations indigenous people. Moreover, arrests—even willingly risked—increased the anger that many of them felt toward the police. This is also a driving force behind the political action of other Québec youth, particularly in "youth centers," where people identify with the *Collectif opposé à la brutalité policière* (Collective Opposed to Police Brutality) (COBP) (Greissler et al., 2020, p. 145–149). Others believed that the struggle against the police did not line up with the environmental cause. The situation deteriorated over the weeks, with a flood of sometimes virulent cyber-messages, and several very intense meetings marked by tears and shouting. This conflict led to the departure of members of the moderate camp[6].

Even though the situation may be tense and conflictual among young ecologists, there are still points of convergence and connections between more moderate and more radical tendencies. One Montréal student, for example, volunteered to take part in a collective action risking arrest, even though he had no civil disobedience training, in order to actually assess the relevance of this tactic for CEVES. CEVES was launched in February 2020 as a partnership between *Pour un futur Montréal* (PLF), *Devoir environnement collectif* (Collective

[6]There are necessarily contradictory perspectives in this kind of conflict and thus other ways of describing the situation than the one offered here; moreover, the situation undoubtedly evolved after this study was completed, just before the COVID-19 pandemic started, in the winter of 2020. Here, the author simply wanted to make the point that groups like Extinction Rebellion are also affected by divisions, which influence their composition and political choices.

Environmental Duty, but "*devoir*" also means homework) (DEC), and *La Planète s'invite à l'Université* (The Planet Goes to University) (LPSU) with the mandate of organizing a week of strikes (later canceled because of COVID-19). This province-wide organization brought together both secondary and post-secondary youth under a primary principle of respect for "the science and indigenous knowledge" of First Nations. It offered training workshops in high schools through green committees. During workshops, students were encouraged to brainstorm possible actions in their schools, seen as sites of "transition." Promoting diversity in public speaking, CEVES had university (Christina Lau, McGill University), CEGEP (Tristan Pérez), and high school (Mika Pluviose) spokespeople, the latter being also a member of Extinction Rebellion who signed with other young and racialized spokespeople an open letter denouncing the "mainstream environmental movement" for its lack of diversity and representativity, tokenism, systematic discrimination, and oppressive practices (Zadigue-Dubé et al., 2020).

DISCUSSION

It might be argued that such DiO politics and autonomous direct actions are legitimate according to the political philosophy. Although civil disobedient youth is said to be "represented" by student councils, there is always at least one adult sitting on any committee of students and maintaining control of decision-making processes, even if student members are elected or not. Therefore, these students and their associations are not politically free (sovereign), since they are kept under what one may call the "political domination" of adults. Moreover, students have generally no say in school rules, codes of conduct, and punishments, and no way of challenging the interpretation and application of said rules established by adults (Adams, 1991; Raby and Domitrek, 2007; Raby, 2008; Caron, 2014; Demers et al., 2018). Finally, attempts made by adults and some students to moderate and neutralize other students may lead to serious consideration and acceptance of autonomous direct action and civil disobedience as a last resort.

While evaluating the legitimacy of civil disobedience, one may draw upon Alan Carter's "defense of radical disobedience" (Carter, 1998), developed from an ecological perspective in opposition to far more moderate theories of philosophers such as John Rawls and Ronald Dworkin [he also could have included Jürgen Habermas]. His inspiration came from the 1990s when sabotage actions by the Animal Liberation Front, Earth First! and the Earth Liberation Front caused damages estimated at hundreds of millions of dollars. It was also a time when British ecologists mobilized against the development of the M11 highway by occupying building rooftops and trees and Reclaim the Streets organized anti-capitalist street parties in the financial district of London.

According to Alan Carter, we should not only consider the political regime, will of the majority, and fundamental rights of individuals and minorities but also the interests and well-being of unborn future generations who cannot take part in present decisions, to accede or oppose to them. "The date of birth of the victim is morally insignificant," reinforces Carter (1998, p. 38), who believes in the moral and political responsibility to act against an immediate ecological catastrophe that will also kill people in the future. In such a situation, we cannot remain inactive under the pretense that only governments have the responsibility to act or that freedom of expression allows us to express our concerns in the media. We must both change our own behavior and act collectively to convince or force the majority and the government to do so as well. He concludes that political forces (governments, parties, etc.) and economic forces (private companies and the wealthy) must be targeted by radical disobedience to prevent ecological catastrophe, but he should also have included school administrations as legitimate targets for ecological activists. Although Carter considered individual adults currently living and future generations, his thinking clearly aligns with the youth climate movement. The latter addresses most adults holding political and economic power not only in the name of generations to come, including children of present-day children but also their own generation, that are expected to suffer adverse effects of the climate crisis once becoming adults.

For young people involved, it is undoubtedly a very intense, existential, and political experience, as this Secondary three student from a Montréal school testifies:

> "It is so powerful to be together with everyone; it gives a feeling of being able to do anything, especially all these people of my age, minors, with the same ideas, the same political goal: 'OK, we will face the consequences of missing school, but it isn't a problem because this is more important.' It's really beautiful, there's real power, it gives us hope, our generation is our best hope. We are the ones who are going to be left with this problem. I think of my little cousins who were just born, of my future children. How is it that it is us, children who don't even have the right to drive a car or vote, who have the responsibility to save the human species?"

CONCLUSION

While it is always risky to make predictions, we can assume that this cohort of strongly mobilized high school students will, in a few years, join the *post-secondary* student movement and re-energize it. Indeed, the Québec *post-secondary* student movement is known to be one of the most dynamic and contentious in North America, which partially explains the lower tuition fees in this province (Ancelovici and Guzmán-Concha, 2019). Yet, the movement has been more or less in abeyance due to the relative failure of "national" strikes for free education and against hydrocarbon in 2015 and for paid traineeships in 2019.

One of the participants in this study, who had reached the age of majority and participated in CEVES, remarked that,

> "high school youth are starting to have organized bases that are quite a bit stronger than we had, they will benefit from allies in the struggle, like Greenpeace and *La planète s'invite à l'Université*, that's why it works, but also because the issue is clearly more pressing and this crisis will directly affect them more and more, much more than a potential increase in tuition. They are ready to take more risks. They are also very well informed, they present and discuss concepts, they participate in discussions during CEVES training camps, even though we remain concerned with university students imposing their ideas on high school students."

The issue is in fact of unequaled importance, as a student at the international school Du Phare, in Sherbrooke, said in September 2019, "Like grown-ups now, we have an obligation to take responsibility for the 6th extinction, take responsibility for our self-destruction. Because multinationals subjugate democratic regimes through lobbying, in which neither the environment nor citizens are variables" (Lessard, 2019). It has been more than 65 years since this catastrophe was announced. Indeed, ecologists who could be grandparents or even great-grandparents of the current youth generation already sounded the alarm in the 1960s. For example, ecologist Murray Bookchin, born in 1921, wrote an article in the journal *Anarchy* in 1965 that was entitled "Ecology and revolutionary thought," in which one can read:

> As an example of the scope of modern man's disruptive role, it has been estimated that the burning of fossil fuels (coal and oil) adds 600 million tons of carbon dioxide to the air annually … aside from an incalculable quantity of toxicants. Since the Industrial Revolution, the overall atmospheric mass of carbon dioxide has increased by 25 percent over earlier, more stable, levels. It can be argued on very sound theoretical grounds that this growing blanket of carbon dioxide, by intercepting heat radiated from the earth, will lead to more destructive storm patterns and eventually to melting of the polar icecaps, rising sea levels, and the inundation of vast land areas. Far removed as such a deluge maybe, the changing proportion of carbon dioxide to other atmospheric gases is a warning about the impact man is having on the balance of nature.

Since then, a youth generation has emerged that understands the urgency to act, *en masse*. For many strikers today, the climate strike should not only be general but also permanent because it is a matter of their very survival.

DATA AVAILABILITY STATEMENT

Requests to access the datasets should be directed to Francis Dupuis-Déri, dupuis-deri.francis@uqam.ca.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Comité institutionnel d'éthique de la recherche avec des êtres humains de l'UQAM [CIEREH@UQAM.CA]. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR'S NOTE

This article will resituate the Québec-based mobilizations of the 'Youth strike for climate' within the little-known tradition of student strikes and the history of "green" actions in schools. This will allow institutional blockages to be identified before examining divisions among strikers and then addressing the issue of legitimacy of radical civil disobedience. Two research assistants worked (media web sites) on this project: Mélissa Castilloux, MA candidate, and Héloise Michaud, Ph.D. candidate (political science, Université du Québec à Montréal—UQAM).

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

FUNDING

The author research project Démocratie et contestation dans les écoles secondaires au Québec (Democracy and protest in high schools in Québec) is supported by funding from the Social Sciences and Humanities Research Council of Canada.

ACKNOWLEDGMENTS

The text has been translated from the French by Mary Foster, and revised Catherine Déri.

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Conflict of Interest: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Political Science

ORIGINAL RESEARCH
published: 07 May 2021
doi: 10.3389/fpos.2021.633563

Challenging Climate Strikers' Youthfulness: The Evolution of the Generational Gap in Environmental Attitudes Since 1999

Jasmine Lorenzini[1]*, *Gian-Andrea Monsch*[2] *and Jan Rosset*[1]

[1]Institute of Citizenship Studies, University of Geneva, Geneva, Switzerland, [2]FORS, University of Lausanne, Lausanne, Switzerland

In 2019, youth took to the street to express their fears and ambitions in relation to climate change. Alongside, many adult and senior citizens expressed their solidarity. While the media present environmental issues as being generationally dividing, we know little about potential differences between generations in terms of environmental attitudes. In this paper, we analyze data collected in the framework of street demonstrations in Switzerland and longitudinal data collected in the Swiss population. Our analyses of survey data on climate strike demonstrators in Switzerland show that while the early demonstrations attracted mostly youth, the age composition of climate strike demonstrators became more diverse over time increasingly including members of different generations. Furthermore, we explore how age differences evolved over the last 20 years using the Swiss Household Panel data. Our analyses show that the share of individuals who favor the environment over the economy is greater among younger generations and that the climate strike generation stands out with the largest share of pro-environmental attitudes. However, all generations have moved in parallel over the last twenty years following a non-linear but generally upward trend illustrating that the political context affects all generations. Overall, our analyses contribute to understanding incremental changes in public attitudes in the environmental area and the role played by generational renewal in these regards.

Keywords: environmental attitude, climate strikes, youth, age, generations

OPEN ACCESS

Edited by:
Matt Henn,
Nottingham Trent University,
United Kingdom

Reviewed by:
Carla Malafaia,
University of Porto, Portugal
Robert A. Huber,
University of Salzburg, Austria

***Correspondence:**
Jasmine Lorenzini
jasmine.lorenzini@unige.ch

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *25 November 2020*
Accepted: *15 April 2021*
Published: *07 May 2021*

Citation:
Lorenzini J, Monsch G-A and Rosset J (2021) Challenging Climate Strikers' Youthfulness: The Evolution of the Generational Gap in Environmental Attitudes Since 1999. Front. Polit. Sci. 3:633563. doi: 10.3389/fpos.2021.633563

INTRODUCTION

In 2019, young people across European countries took to the streets to express their environmental concerns. In particular, school and university students organized numerous protest events during that year. In Switzerland, many of these protest events took the form of climate strikes organized in several cities across the country on at least 18 occasions since December 2018. This wave of protest characterized by regular strikes and demonstrations culminated with the demonstration that took place in Bern on September 28, 2019 which gathered around 100,000 protesters coming from the whole country. This demonstration was one of the most sizable protest events in Switzerland since the Second World War. In their reports, the media have put a strong emphasis on the youthfulness of participants in these events, calling participants *Klimajugend*[1] or

[1]Which could be translated as youth for the climate (see e.g., SRF, the Swiss public television).

describing the mobilization as being a youth movement.[2] The media framed it as *youth protest*, thus, suggesting that the climate is a preoccupation mostly of young people.

While youth were instrumental in initiating the movement, we know little—beyond media reports—about the age distribution of participants in these demonstrations (apart from the two reports from the climate strike international team, see Wahlström et al., 2019; de Moor et al., 2020). It is likely that the characteristics of participants to these events evolved as demonstrations became larger over time. The demonstrations could draw from environmental activists who participated in previous waves of mobilization and/or from a broader audience of citizens sensitized to the environmental question in the last decades. Research shows that social movements durably shape the action repertoires of those who engage in protest during their formative years, individuals who came of age during the 60s and 70s remain the most active generation in the streets (Caren et al., 2011; Grasso, 2014; Giugni and Grasso, 2019). In addition, over time, social movements have broad cultural impacts and contribute to important shifts in public opinion (Amenta and Polletta, 2019). Social movements shape the political attitudes of those who engage in protest but more generally those of broad segments of the population (Rochon, 2000). In fact, research on public opinion shows relatively little polarization along generational lines about environmental issues (Kissau et al., 2012; Franzen and Vogl, 2013; Beiser-McGrath and Huber, 2018; Gray et al., 2019).

However, given the unprecedented nature of the climate strike movement, it is likely that these findings from previous studies no longer apply. In other words, the generational gap in pro-environmental attitudes might have widened over the last few years and that current youth generation displays different opinions on environmental issues as compared to other generations. After all, previous youth generations have not initiated environmental movements, so maybe there is something specific about the current youth generation. At least, this is the narrative expressed in the media, which characterized the demonstrations as youth events and insisted on generational differences on environmental issues. Given the lack of studies on the age composition of the climate strike movement and the absence of more recent analysis of the generational gaps in environmental attitudes that would include the current youth generation, we propose to study the following research questions. First, what is the composition in terms of generations of the climate strike demonstrations? Second, to what extent the generation who initiated the climate strike differs from other generations in terms of pro-environmental attitudes, today and when these older generations were young?

Answering these questions enables to characterize the current environmental movement in terms of generations engaged in the events they organize and to assess potential generational cleavages around environmental issues in Switzerland by looking at levels of support for these issues across generations and how they evolve over time. Is the fact that youth initiated the movement linked to their biographical availability and propensity to protest? Or, does it reflect the fact that today's young generation has specific preferences that differ from previous generations? These questions speak to the literatures on social movements, as well as to the literature on public opinion. The literature on social movements puts emphasis on youth biographical availability (Wiltfang and McAdam, 1991; Corrigall-Brown, 2011) and highlights the continued protest potential of the *social movement generation* (Caren et al., 2011). Whereas, public opinion research tends to link age with specific interests associated with life cycles (Andor et al., 2018) or contextual factors (Gray et al., 2019) that shape the specific preferences of age groups.

The climate strike demonstrations offer an opportunity to analyze generational effects on participation in events associated with the environmental movement. We test these effects in a country where the environmental movement has organized many protest events during the last decades. Hence, in a context where the environmental movement contributed to shaping the action repertoires and environmental preferences of different generations. Switzerland represents an interesting case study for two reasons. First, the demonstrations related to the Friday for the Future movement have attracted very large numbers of demonstrators. In comparative perspective and relative to its population size, Switzerland is one of the countries with the highest rate of participation in these demonstrations.[3] Second, it represents a case in which the environmental movement has a long history (see section 2 below) and in which this movement has been institutionalized already in the 1970s.[4] Switzerland represents a case in which large differences across generations are less likely.

Our empirical analysis consists of two parts. First, we explore the generational composition of the climate strike demonstrations, in the early phase of the movement and 6 months later, to understand who the climate strike demonstrators are. Second, using longitudinal data, we examine how widespread is support for the environment across different generations in the Swiss population. Our results indicate that while climate strike demonstrations had a high proportion of youth in March 2019, a majority of the participants to the climate strike events in September were aged 35 years or more. Thus, they are not part of the climate strike generation. This shows the ability of the movement to bring large shares of the population to the streets, but also its mischaracterization by the media. The analysis of panel data shows that the climate strike generation holds more pro-

[2]For instance, on March 15 2019, one of Le Temps headlines is: « Face à "l'urgence climatique," la jeunesse s'est emparée de la rue » (translation : « To call out the "climate urgency," youth has conquered the streets »).

[3]According to the Fridays for the Future website, more than 1.5% of the Swiss population participated in demonstrations making it the third country with the highest participation rate in the world after Austria and Italy. For details see: https://fridaysforfuture.org/what-we-do/strike-statistics/map-percentage/.

[4]As an example of the success and institutionalisation of the environmental movement, one could mention that Switzerland was the first country in the world to elect a Green representative in a national election in 1979.

environmental preferences than older generations do. However, the analysis also reveals that the change has been progressive with each generation being slightly more pro-environment than its predecessor is and that all generations moved in parallel over the last 10 years becoming significantly more pro-environment during that decade. Overall, those results show that there is no strong generational cleavage regarding environmental protection in Switzerland.

In the next section, we first review the literature that links age, generations, and political activism as well as environmental preferences. Building on existing research on youth social movement activism and political attitudes, we formulate two expectations related to youth participation in the climate strike and their environmental preferences compared to older citizens. In addition, we propose two accounts of changes over time in environmental attitudes. Next, we track environmental protest waves in Switzerland to identify environmental generations. Then, we present the data, our operationalization of key variables, and the methods that we use to compare generations and to track changes over time. Lastly, we present and discuss our findings and we conclude with a discussion of the limits of our paper as well as avenues for further research.

Age, Activism, and Political Preferences

Successful social movements span multiple generations and contribute to social change through different processes. In this paper, we first analyze the composition of climate strike demonstrations in terms of age to see which generations participate in these protest events. Here, we build on the literature on biographical availability (McAdam, 1986; Wiltfang and McAdam, 1991) and the effects of social movements on political socialization (Caren et al., 2011). In addition, we consider two alternative accounts of how social movements contribute to social change. These contrasting views are associated with the study of generational changes (Mannheim, 1970) and that of post-materialism (Inglehart, 1977).

The literature on youth political participation often studies youth political disengagement (Henn et al., 2002; Amnå and Ekman, 2014; Dahl et al., 2018). Research shows that young people tend to be less engaged than older citizens in institutional politics but they do participate in politics through other means (O'Toole, 2003; Earl et al., 2017). An extensive literature argues that youth are more likely to engage in social movements. It is commonly held that young activists, are more progressive than the rest of society (Milkman, 2017). However, what is more important is their biographical availability defined as "the absence of personal constraints that may increase the costs and risks of movement participation" (McAdam, 1986: 70). These personal constraints relate to family and employment situation. Those individuals who are not in a stable relationship and are still studying are deemed more "available" to engage in protest activities, namely that they have more time that could be dedicated to protest. In addition to biographical availability, Schussman and Soule (2005) examine political engagement and structural availability. Political engagement refers to political attitudes such as political interest and efficacy, while structural availability relates to participation in civil society organizations and other networks that promote political activism. In other words, young people are more likely to engage in political activism because they have the time, the interest, and the networks. This comes close to the famous civic voluntarism model which explains that people engage because they want to (political attitudes including openness and willingness to change society), they can (political resources including time), and because they have been asked (Verba et al., 1995).

This suggests that citizens protest when they are young and then refrain from political participation or turn to institutional politics. However, research shows that individuals who came of age in periods of intense political mobilization remain more active in protest politics throughout their lives (Caren et al., 2011; Grasso, 2014; Giugni and Grasso, 2019). These individuals form *social movement generations* who adopt specific action repertoires in which protest is more prominent. In addition, these early political experiences shape how they understand subsequent political events (Bartels and Jackman, 2014). Thus, lending support to Mannheim's theory of generational change. Young people who experience their formative years in a given historical and social period belong to a generation (Mannheim, 1970). A generation is a group of persons who come of age at the same time and share a lived experience of this historical period. Although individuals may hold different values depending on their socioeconomic standing and partisanship, this means that they share similar understandings of the world. Not all periods are equally likely to have a strong impact on youth. Intense periods of social change are more likely to have a durable impact on youth understanding and perception of the world around them, thus to influence their values and their behaviors (Rochon, 2000). Sometimes, these periods of social change are tied to protest waves, phases of heightened political conflict (Tarrow, 1989), during which protest events regularly take place. These movements question prevailing understandings of society and propose alternative models. These events contribute to young people's political socialization. Youth learn to see the world through specific lenses. Young people acquire political values as they discuss with their peers in periods of intense political mobilization, but also within the family. Jennings et al. (2009) analyze these processes and show that transmission of political values within a family are stronger when these values are salient in the broader political context. Hence, when environmental issues are high in the political agenda there is a stronger transmission within families of political values and environmental concerns. Giugni and Grasso (2019) observe that two generations who came of age in periods of intense mobilization are more active on the streets than other generations.

Other studies show that social movements transform society more thoroughly, they influence not only young people who belong to those social movement generations but society as a whole (Amenta and Polletta, 2019; Rochon, 2000). In this vein, researchers argue that western societies have embraced post-materialistic values (Inglehart, 1977). The idea is that social movements' influence reaches broader segments of society and transforms the political values across different generations. In this case, there are two implications for action repertoires and political

values. In terms of action repertoire, it relates to the idea of a normalization of protest which means that protest is a frequent mode of political action used by more diverse social groups and increasingly building on professional social movement organizations (Tarrow, 2011 [1994]). When it comes to political attitudes, this would mean that social movements contribute to the diffusion of new political values in society and, therefore, generations are indistinguishable in terms of political attitudes. Thus, it requires to understand how specific age groups form preferences with regard to environmental issues and how these preferences evolve over time to understand the dynamics of public opinion and how generational change might affect the aggregate preferences of the public over time. Or, in other words, to understand whether age has become a new cleavage structuring environmental politics as a consequence of the rise of environmental issues. Previous accounts put little emphasis on this structural element (Kissau et al., 2012; Goldberg, 2016). For those reasons, it is of importance to study the impact of age and generations on environmental attitudes.

Age and Pro-environmental Attitudes

Existing research on the relationship between age, generations, and environmental attitudes provides rather inconsistent results. Age and generational effects are discussed in a large number of studies of public opinion (Franzen and Meyer, 2010), but are rarely the specific focus of research, usually featuring simply as control variables. Andor et al. (2018) show that in Germany age is related with concerns about climate change in a non-linear fashion with highest degrees of concern being found in middle age groups and relatively lower levels of concern among the youth and elderly survey respondents. Attitudes toward public spending for the environment conform more to the theoretical model as it is the oldest age categories that are least supportive of such policies. A similar trend with low levels of support for public spending for the environment among the elderly have been found in other contexts including Sweden or the USA (Carlsson and Johansson-Stenman, 2000; Johnson and Schwadel, 2019). Gray et al. (2019) focus on differences in attitudes between four generations and show that there is hardly any difference between them regarding their level of environmental concern and the actions they would be ready to take to protect the environment.

There is little research focusing specifically on age or generational effects on pro-environmental attitudes in Switzerland. Existing studies show that attitudes toward the environment are similar across age groups in Switzerland. For instance, Franzen and Vogl (2013) show that despite an increase in media attention to environmental issues since the 1990s public opinion has on average moved very little in relation to these issues between 1993 and 2010. Furthermore, no effect of age was found regarding environmental concern and willingness to pay for the environment. Another study focusing on post-electoral survey data in 2007 has shown that environmental protection is the issue about which there was the highest level of agreement between age groups with issues such as same sex marriage or the intervention of the state in the economy being much more divisive along generational lines (Kissau et al., 2012). Beiser-McGrath and Huber (2018) show that preferences of Swiss respondents are much more closely associated with psychological rather than sociodemographic factors. Similarly, in a recent survey of public opinion on how the covid-pandemic might affect the environment, all age generations held similar opinions with clear majorities believing that the economy will be given priority over the environment in the long run (Monsch et al., 2020).

All in all, existing research does not show compelling evidence for the existence of systematic age or generational gaps in environmental concerns and policy preferences in Western democracies. One of the limitations of the current literature is that it mostly relies on cross-sectional data (see however, Johnson and Schwadel, 2019) and thus does not address the issue of how generations might change over time or how specific events might moderate the effect of age on preference. Also, no study, to the best of our knowledge, focused specifically on very young individuals and there is a risk of overseeing some large age differences that would be visible only among youngest generations.

Environmentalism: Youth, Generational, or Social Change

In the empirical part of our study, we examine generational differences in environmental protest participation and pro-environmental attitudes. First, regarding protest action repertoires, the literature on biographical availability suggests that we should expect a gap in relation to the participation of various age groups in protest events associated with the environmental movement with young adults making up the bulk of protesters. There are, however, reasons to believe that, given the long history of activism around environmental issues in Switzerland, members of older age groups (i.e., individuals of the environmental movement generations) also joined the movement, which revived some of the topics that were on the agenda of former movements. Hence, we examine the composition of the climate strike movement in terms of generations. We expect to observe an encompassing movement bringing different generations to the streets.

In the second part, we compare pro-environmental attitudes of different generations in 2017 and over time. Here, we consider two mechanisms of change over time. The first postulates that, independent of the age of the individual, the *broader political context* shapes political attitudes and behaviors. Hence, not only young people who come of age during a period of intense environmental mobilization adopt environmental attitudes but, to some extent, all citizens do. This means that all generations will be more preoccupied by the environment over time. In this case, we should observe an upward trend in environmental preferences across all generations. The second relates to *generational change*, we postulate that being socialized in a period of intense environmental mobilizations forms stable predispositions toward the environment that translate into specific attitudes and actions. If this is the case, the share of citizens who prioritize the environment should remain stable over time within a specific generation. In addition, we should observe variations between generations socialized in more intense

periods of environmental mobilization, namely those coming of age around 1973 (the occupation of Kaiseraugst) and around 1986 (the Chernobyl accident). From that perspective, the greater concern for environmental issues among younger individuals would be linked to the fact that they grew up in contexts in which environmental issues became more salient. In this case, we anticipate a higher concern for environmental issues among generations of youth who experienced environmental movements in their formative years.

Environmental Movements and Climate Strike in Switzerland

One of the key features of the environmental movement is its success. As Touraine argues, major social transformations in the post-industrial society are associated with this movement (cited in Rootes, 2004; Giugni and Grasso, 2015). Although it is difficult to assess social movement outcomes, Rucht (1999) argues that the success of the environmental movement can be evaluated in relation to four elements. First, the movement grew importantly with more sympathizers and more resources available. It also consolidated, in part thanks to institutionalization with the creation of Green parties and many large environmental organizations that collaborate with the state. Giugni and Grasso (2015) argue that the institutionalization is a key feature of the movement. Second, the movement is an important agenda setter. Environmental issues are not only high in the political agenda, but also in citizens' minds and preoccupations. This is its third impact, the environmental movement transformed citizens' political attitudes and behaviors. Lastly, it contributed to the rise of a new economic sector and to new technologies. In relation to all these elements, the ecological movement has contributed, at least to some extent, to social changes. It reached broad segments of the population through the creation of environmental organizations, including green parties, and contributed to the diffusion of environmental attitudes in the population. This latter point is most important for us here and we will examine in the empirical section to what extent this claim is true among the Swiss population.

Environmental Protest Waves in Switzerland

The Swiss environmental movement is amongst the strongest in Europe, it benefits from a large anchorage in society with many formal organizations and broad membership (van der Heijden et al., 1992). The expansion and diversification of social movements are often associated with protest waves. Although the Swiss movement is less contentious than the German one (van der Heijden et al., 1992), several important protest waves shaped the movement and contributed to its expansion. **Figure 1** presents protest events associated with the ecological and antinuclear movements in Switzerland between 1975 and 2011.[5]

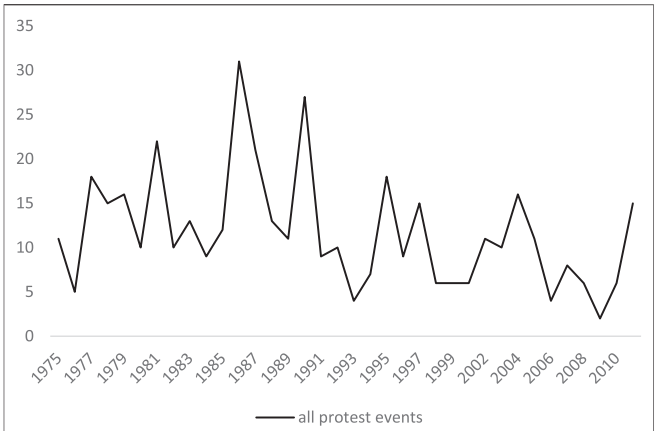

FIGURE 1 | Environmental protest events in Switzerland (1975–2011). Note: Sources Marco Giugni (1975–1995) and Swen Hutter (1995–2011). Protest events were identified and retrieved from national newspapers.

In **Figure 1**, we observe a first period of environmental mobilization in the period 1977–1981. This relates to and follows the occupation of Kaiseraugst to oppose the project to construct a nuclear plant on that site (Giugni, 2019).[6] A first protest took place in 1973 and, then, in 1975 activists occupied the site for ten weeks. The Federal Council abandoned the project in 1988. Another intense period of mobilization appears during the period 1985–1991, with a clear peak in 1986 when 31 protest events took place. This peak is associated with national and international events that triggered protest. At the national level, a chemical accident in Basel[7] and, at the international level, the Chernobyl accident.[8] In 1990, the Swiss people voted on a popular initiative demanding to stop constructing nuclear plants. Activists who campaigned on this issue also organized protest events to gain visibility in the media for anti-nuclear and ecological arguments.

Later, during the 1990s and 2000s, the environmental protest scene is more quiet. In the 1990s, the ecological movement mobilized around two issues: the death of forest and acid rain. In 2004, ecologists mobilized against chemical waste dump and GM food experiments in Swiss universities. There is again a peak in 2011 with the anti-nuclear mobilization that followed the Fukushima disaster. Antinuclear protesters gather every year in Beznau (a nuclear plant in central Switzerland) calling for the closure of one of the oldest nuclear plants in Europe still in operation. In 2011, the movement mobilized 20,000 protesters as well as numerous ecological organizations and political parties, the highest mobilization since 1986.

[5]The early period from 1975 until 1995 is drawn from Giugni (2004) and for the years 1996–2011 we used data collected by Hutter (2014). Both datasets are collected following the same method, protest events are identified in the Monday edition of the NZZ (see Hutter and Giugni, 2009 for more information).

[6](see Giugni, 2019 for detailed accounts of ecological and antinuclear protest events).

[7]Toxic agrochemicals were dropped in the Rhine River following a fire in a chemical industry plant (Sandoz chemical spill).

[8]Following the Chernobyl accident, in 1986, 30'000 people marched to Gösgen nuclear plant.

In 2019, youth have initiated the climate strike movement. For citizens who are young, this movement represents the first opportunity to engage in environmental protest events. The climate strike movement famously initiated in Sweden when Greta Thunberg sat in front of the Swedish parliament to call for strong action on climate change. In Switzerland, the beginnings can be traced back to the first action that gathered about 500 climate strikers, most of whom were school students in Zürich on December 14, 2018. A week later, the strike gathered around 4,000 participants across three Swiss cities (Basel, Bern, and Zürich). It quickly became a national movement and climate strikes were organized in sixteen cities and towns on January 18, 2019. Throughout 2019 and until March 2020 events were organized on at least eighteen occasions in a total of about 30 different cities across the country.[9] Most of the events planned in the spring of 2020 had to be canceled due to the Covid-19 pandemic and the limitations for public gatherings that were decided by the Swiss government. However, the movement remains mobilized despite the strict measures in place, as the occupation of the square in front of the Federal Palace during the fall 2020 parliamentary session demonstrated.

Environmental activism has been present in Switzerland for decades; previous generations took to the streets and used protest events to express their environmental concerns. Opportunities for environmental sensibilization, thus, abound since at least half a century.

Environmental Movement Generations in Switzerland

Neil Caren et al. (2011) refer to the Americans who came of age during the mobilizations of the 1960s and 1970s as the social movement generation. Other studies working on different countries also identified this generation as the most active in terms of protest participation (Giugni and Grasso, 2019). In this paper, we seek to construct political generations related to a specific social movement, namely the environmental one. There are different ways to group individuals in terms of cohorts (people born in specific years) or generations (people born in longer periods that experience historical changes in society). In this paper, we construct three environmental movement generations that correspond to the individuals who were young during periods of intense political mobilization around environmental issues. Previous work identified the period that range from 15 to 25 years old as the impressionable years—political events have a more lasting impact on individuals' political preferences, they shape how they view subsequent political events (Bartels and Jackman, 2014; Grasso, 2014). We consider that the formative years cover the premarital period—the average age of marriage in 1973 was 27 for men and 25 for women (Rosillion, 2008). Hence, we include all persons who were aged between 16 and 28 years old at the peak of the protest wave. Following this procedure, we constructed the *Kaiseraugst generation* around the 1973 protest wave and the *Chernobyl generation* around the 1986 protest wave. We compare them to an older generation including all those who were born during the war (WWII) and the pre-war period, as well as to a younger generation of people born in the 1970s and early 1980s. The younger generation overlaps between generations XY depending on how the age range is defined, however the cut off year for generation X and Y is set around 1977/1978 (Jorgensen, 2003). **Table 1** presents in detail birth years included in the different generations. Lastly, we consider the *Climate Strike generation*—those individuals who were young during the protest events organized by the Fridays for Future movement in 2019.

DATA AND METHOD

For this study, we use original Climate Strike data (CS) and the Swiss Household Panel (SHP). The CS data allows us to examine the generational composition of the climate strike demonstrations. Whereas, the SHP, offers a longitudinal overview of environmental attitudes of different generations among the general population.

Climate Strike Survey and Swiss Household Panel

The climate strike data were collected in the framework of a large coalition of research teams across different countries (Wahlström et al., 2019; de Moor et al., 2020). The Swiss data were collected by the leading author during three demonstrations: two that took place on March 15th, 2019, in Geneva and in Lausanne, and one in Bern on September 28th, 2019. During each of these three demonstrations a team of students and researchers distributed 1,000 flyers to access an online survey about their current participation in the demonstration, their political attitudes, their political behaviors, and socio-demographic control variables. The participants were selected using a procedure to randomize the selection and to construct a representative sample of participants in the demonstration (Walgrave and Verhulst, 2011). As we handed out flyers to access the online survey, we asked one in five potential survey respondent to fill a small questionnaire to assess the sociodemographic profile, political attitudes, and relation to protest of the people who participate in the different demonstrations. This allows us to analyze the composition of the event and, thus, to gain knowledge about the population from which the sample is drawn. We compare survey respondents to demonstrators in terms of sociodemographic profiles (sex, age, and level of education), political attitudes (political interest), and relation to protest (prior participation in demonstrations, timing of the decision to participate in this demonstration). In so doing, we can assess how representative the sample is. Comparing survey respondents to street demonstrators, we identified one systematic bias, those demonstrators who are interested in politics are more likely to answer the online survey than participants invited to fill in the online survey who are not interested in politics. The response rate for the three demonstrations range from 15 percent in Geneva to 29 percent in Bern and the total sample includes 608 respondents (see **Table A1**).

[9]These estimations are based on the information provided on the website of the movement itself: https://de.climatestrike.ch/wiki/Klimastreik. They are likely conservative as, according to the media, at least 170 single climate strike events took place in 60 different cities in 2019 alone (see e.g. *Le Nouvelliste,* 26.11.2019).

TABLE 1 | Generations, protest year, and birth years.

Generations	Peak of protest	Age during protest years	Birth years	Age in 2019
Prewar/war	—	—	<1945	>74
Kaiseraugst	1973	16–28	1945–1957	62 to 74
Chernobyl	1986	16–28	1958–1970	61 to 49
X and Y	—	—	1971–1990	48 to 29
Climate strike	2019	16–28	2003–1991	28 to 16

Regarding the Swiss Household Panel, we have fourteen available waves over a period of eighteen years (1999–2017). In total, we have three samples as the SHP added two refreshment samples to their original sample of 1999 in 2004 and 2013 respectively. As for every panel study, attrition is one of the biggest sources for bias. However, existing analyses have shown that attrition is mostly random and estimate the nonresponse bias as mild (Voorpostel, 2009). Nevertheless, non-respondents tend to be younger, male, lower educated, single, with less interest in politics and civic engagement, as well as equipped with lower levels of political and social trust. In an attempt to control for attrition bias, we conducted all analyses twice: once with standardized longitudinal weights and once without weights. We include all individuals in our analyses as soon as they turn sixteen and integrate them in the analysis.[10] For example, an individual who is born in 1994 is included in the analysis from 2010 onwards. This adds up to a sample of 12,931 respondents in 1999 and 12,164 respondents in 2017. Individuals are included individually and not by groups and the results cannot be interpreted as within individual changes over time but as changes between generations over time.

Dependent Variable: Pro-environmental Attitudes

Our dependent variable are opinions regarding the prioritization of the environment over the economy. When working on environmental attitudes, it is important to ask what it means to be concerned by environmental issues. Working on the idea that we are now in a post political era, some argue that the issue of climate change is a consensual one. Almost everyone admits that this is one of the most pressing issue of our time, yet the issue is presented in apocalyptic terms that prevent any action from being taken (Swyngedouw, 2010). The environment is considered as valence issue, that is an issue on which a vast majority of people have the same position but give different priority to that issue. Hence, we need to devise measures of environmental concern that capture support for the environment as well as the cost of this action. We argue that environmental concern can be measured when real choices are offered as for example to prioritize the environment over the economy. This means that people are ready to give up growth and eventually some of their material well-being to promote an alternative relation to the environment—that is not one of extraction and exploitation. In fact, the climate strikers called for "system change and not climate change" in the framework of the protest events that we analyze.

In the SHP, we have a question measuring this tradeoff. The question asks: "Are you in favor of Switzerland being more concerned with protection of the environment than with economic growth, or in favor of Switzerland being more concerned with economic growth than with protection of the environment?"[11] It is measured on a three-state interval variable: "in favor of stronger protection of the environment," "neither," "in favor of stronger economic growth." We dichotomize the variable opposing those who say they support stronger environmental protection to all others (those who support neither and those who support stronger economic growth).

Independent Variable: Age and Generations

To study the relation between generations and pro-environmental attitudes, we construct five generations that correspond to the generations identified in relation to environmental protest waves in Switzerland (see **Table 1**). For the CS data, we consider the age of the respondent in 2019 whereas, for the SHP, we consider the age in 2017 (the last available wave of the panel with the environmental question). When constructing these five generations, we observe that the prewar/war generation includes very few respondents in the CS data (see **Table A2**). Hence, we do not consider this generation in the analyses of the CS.

RESULTS

Climate Strikers: Youth or Cross-Age Call for Action?

During the year 2019, climate strikers took to the streets to express their worries and their dissatisfaction with how the government is handling the issue of climate change. Many observers around the world qualified this protest wave as a "youth movement," in fact many school pupils and students engaged in these actions. However, in the Swiss case, climate

[10]At fourteen, respondents fill out for the first time the individual questionnaires including all the variables of interest here.

[11]Original versions of the question in German, French, and Italian are available on the SHP website: https://forscenter.ch/projects/swiss-household-panel/. The question was asked in all years between 1999 and 2009 and then in 2011, 2014, and 2017. The question will also be asked in the 2020/21 version of the survey that is still in the field at the time of writing this manuscript.

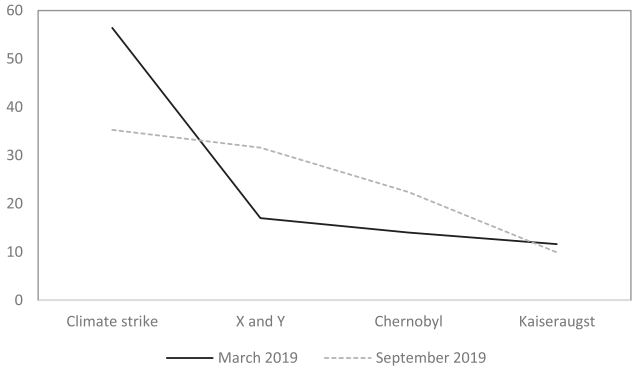

FIGURE 2 | Generations among climate strikers who took to the streets in March 2019 (Lausanne and Geneva) and September 2019 (Bern). Note: We run a chi-square test to compare respondents who belong to the different generations in March and September 2019. We find that differences in the share of respondents from the Climate strike, the X and Y, as well as the Chernobyl generations reach conventional levels of statistical significance. There are less members of the Climate generations in September and more members of the generations X/Y and Chernobyl. The Kaisergaust is equally present in protest events that took place in March and in September 2019.

strikers mobilized across age categories. **Figure 2** shows that the climate strike generation constituted an important share of demonstrators in the early phase of the protest (56.4 percent), whereas in September 2019 they represent only a third of all demonstrators (35.3 percent). By the fall, the movement mobilized far beyond schools and universities including an increasing share of people from older generations. In particular, the share of demonstrators who belong to the generation X and Y increased (from 17.0 to 31.6 percent). Regarding the two environmental generations, we observe two distinct trajectories. While the share of demonstrators who belong to the Chernobyl generations increased (from 14.0 to 22.4 percent), the share of demonstrators who belong to the Kaiseraugst generation remains stable over time (11.6 vs. 9.9 percent). We also examined the age distribution and we observe a peak among the very young participants, less than 20 years old (figure presented in **Figure A1**). Climate strike demonstrators aged 17 years old display the highest percentage with 7.4 percent of the overall sample. Similarly, 18 and 19 years old have slightly higher percentages than age groups of the climate strike generation (respectively 6.3 and 6.6 percent). In the other three generations, we do not observe any clear pattern. Overall, we find that all age categories are present within each generation.

Figure 2 shows that the climate strikers are not all young. In the fall, the climate strikers who took to the street include a cross-generational coalition of citizens. Interestingly, the environmental generations (Kaiseraugst and Chernobyl) represent a small share of the climate strikers. They add up to a quarter of all demonstrators in March and about a third in September 2019. Whereas, the generation X and Y, which did not experience any major environmental protest wave when they were young, are as active as the younger (climate strike) generation. This shows that far from being a *youth* movement, the climate strike movement is an encompassing movement. It brought different generations to the streets of Swiss cities in 2019. In spite of the presence of different generations on the streets, these findings show little support for the idea that the environmental generation remain more active in protest over time. We find that the generation X and Y who did not experience environmental protest waves when they were young joined the climate strike generation on the streets of Swiss cities in 2019. Our findings also show that members of the Kaiseraugst generation were equally present on the streets at the onset of the movement in March 2019 and in the fall. Providing some support for the idea that early socialization in protest might contribute to future protest and more specifically for abeyance theory (Taylor, 1989)—individuals who belong to the Kaiseraugst generation might have remained active in environmental organizations and, therefore, can more rapidly be mobilized for protest events in line with this political engagement. Let us now move to the dynamic perspective and seek to understand how change happens, through period effects when the whole population moves up or through generational effects.

Changes in Environmental Attitudes in the Swiss Population

Descriptive analyses of environmental attitudes among different generations provide us with some useful hints regarding how changes in environmental attitudes take place. **Figure 3** displays the share of respondents who favor the environment over the economy for the five generations over time. In line with current recommendations (see e.g., Julious, 2004), we present these estimates with 84% confidence intervals. The 84% confidence intervals allow to assess visually whether differences in the means across groups (or in that case also across years) are significant at $p < 0.05$. If the confidence intervals do not overlap, the difference between the means is significant. The picture that emerges from **Figure 3** is quite telling regarding differences in pro-environmental attitudes be they related to age, generation, or period. Overall, two trends emerge from this picture. First, at any given point in time, younger generations are more likely to be on average more favorable to the environment than older generations. While adjacent generations do not strongly differ from each other, significant differences exist between more removed ones.

Although differences across generations are relatively small, the overall picture shows greater environmental concern among younger generations. Most importantly, it appears that generations evolve in parallel and seem to respond to more general trends in society toward an increase in environmental concern. This lends support to the idea that the whole society is holding more pro-environmental attitudes over time. For instance, in all generations, pro-environmental attitudes have increased during the 2003 to 2007 period as well as between 2009 and 2019. These results show that environmental concerns are related to the broader political context and increase over time across generations.

In order to examine the idea that change is specifically connected to generations who came of age in periods of intense environmental

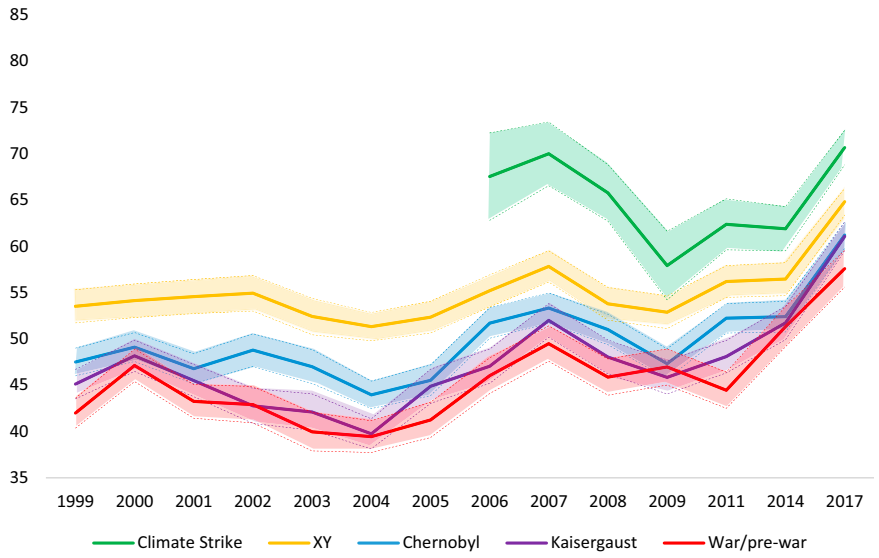

FIGURE 3 | Share of respondents who believe that the environment is more important than the economy in different generations and over time.

protest, we zoom on these generations. The Kaiseraugst generation appears to be closely aligned with the pre-/war generation. We do not observe a major gap between these two generations when it comes to their environmental attitudes. In fact, the environmental preferences of these two generations do not differ from a statistical perspective as can be seen in **Figure 3** thanks to the confidence intervals. However, when we compare the pre-/war generation to the Chernobyl generation the gap appears to increase. The environmental preferences of the Chernobyl generation do not differ from those of the Kaiseraugst generation from a statistical point of view. Yet, the environmental preferences of the Chernobyl generation are significantly different from those of the pre-war and war generation. This relates to the idea that there are no major gaps between older and younger generations that cohabit within a given society since intermediary generations create bridges (Mannheim, 1970). The Kaiseraugst generation paved the way for the Chernobyl generation, which pushed up more significantly the share of citizens who hold pro-environmental attitudes and differs more from older generations. This is confirmed when we compare the younger generations to older ones. Statistically significant difference appears when we compare the climate strike and the X and Y generations to the Kaiseraugst and Prewar/war generations. However, only the climate strike generations systematically differs from the Chernobyl generation in terms of environmental preferences.

DISCUSSION

Previous research has shown that youth are particularly likely to participate in social movements. It is also clear by analyzing the development of the climate strike movement in Switzerland that it has been initiated by young individuals, mostly school students, echoing what has happened in other countries. This central role of youth in initiating the movement is actually common for the emergence of many social movements, however often it is more associated with university students (e.g., May 68 movement, the Indignados, Black Lives Matter). What is specific about the climate strike movement is that it was initiated in schools thus by individuals who by and large did not have citizenship rights due to their very young age. Based on the media accounts of the climate strike movement we would expect that protesters were almost exclusively very young. However, given the long history of environmental politics in Switzerland, we anticipated that members of older generations who possibly participated in previous waves of environmental protest, would join the climate strike movement. Indeed, we observe that older citizens drawn from both their parents and their grandparents' generations have joined young people on the streets in the fall of 2019. In September 2019, youth represent only a third of the 100,000 protesters who took to the streets.

Regarding environmental attitudes, it is of course tempting to think that the emergence of the climate strike movement reflects a large gap in environmental preferences and concerns across generations. After all, if pupils who were in school took the street in 2018/19 and those who were in a similar situation a decade before did not, it must mean that they hold different preferences. The current youth generation has indeed been exposed to more information about climate change than any other and there are reasons to believe that it has a better understanding of this issue than its predecessors at the same age. In addition, one could argue that this generation is more likely than others to be conscious of the fact that it will be dramatically affected by climate change. The prevalence of public discourse about climate make it clear for youth that they will be personally affected, which might be less obvious for generations whose remaining life expectancy is shorter. However, the information to which the current youth generation is exposed to is actually not specific to them and other generations might be affected by this information as well. Also, given the already visible consequences of climate change nowadays it is not obvious that

any generation might feel potentially unaffected by it. It is therefore unlikely that there is an abyssal gap in the environmental policy preferences between generations.

We show that the current youth generation holds more pro-environmental attitudes than its predecessors. Moreover, we show that the share of pro-environmental preferences has been increasing from one generation to the other, given that the attention brought to environmental issues has been growing since the 1990s at least (Franzen and Vogl, 2013). Hence, we observe an overall greening that spans across age categories and we do not find empirical support for the idea that some generations, given their exposure to social movements' environmental ideas during their formative years, are more likely to hold pro-environmental attitudes.

CONCLUSION

We started with the commonly held belief that the climate strike is a youth movement and that young people hold more pro-environmental attitudes. Using protest event data, climate strike survey, and longitudinal data, we deconstruct these ideas. We show that climate strikers who took part in the national demonstration in Bern were drawn from all generations. In addition, the Swiss Household panel data show that the gap in pro-environmental attitudes between youth and older respondents is only limited. Looking at the Swiss population as a whole it appears that youth have more pro-environmental preferences than older generations. However, each generation has been more pro-environmental than its predecessor has. This already lends support to the idea that generations live together and that ideas travel across generations. In fact, our analyses of longitudinal data shows that different generations tend to adopt more pro-environmental attitudes at the same time. Thus, pointing to a period effect. In addition, we find limited evidence that the generations coming of age in periods of intense environmental mobilization hold more pro-environmental attitudes than other generations.

In this paper, we examined generational differences in protest participation and pro-environmental attitudes. First, we situated the climate strike in a broader understanding of the environmental movement in Switzerland. Protest event data shows that several protest waves took place over the period 1975–2015. This is important because it means that previous generations mobilized to defend the environment when they were young and this might have multiple long-term consequences. First, it might durably shape the environmental attitudes of those who participated in these protest waves but also of others who were coming of age at the time of this event. This corresponds to the idea of generations socialized in periods of intense social change and durably marked by this experience. Second, the environmental ideas at the core of these mobilizations might contribute to broader social change. The movement results in the creation of institutions (both political parties and environmental organizations) that seek to influence public opinion through different means. They might act directly on decision-making processes within political institutions but they also seek to gain media attention. Overall, this means that environmental attitudes may travel in society through multiple routes following different protest waves.

Building on the information about environmental protest waves in Switzerland, we identified generations of young people that came of age during intense periods of environmental mobilization. Those who were young during the Kaiseraugst occupation, those who were young when the Rhine River pollution and Chernobyl accident happened, and those who were young as the climate strike demonstrations took to the streets. Our longitudinal analyses show that the climate strike generation stand out and hold more pro-environmental attitudes than any other generation. However, they are still young at the time of our study so we cannot say whether this relates to youth or to a specific socialization of this young generation that will hold throughout their life. When we turn to the other two environmental generations, we find that the Kaiseraugst and the Chernobyl generations do not stand out in terms of environmental preferences. Instead, they appear to be part of a more general trend in society—the diffusion of pro-environmental attitudes across all age groups and generations.

From a policy perspective our results are mixed. On the one hand, they show that there are no clear generational cleavage on environmental issues in Switzerland. This suggests that there is room for finding broad coalitions that encompass all generations to protect the environment. On the other, these results also make it clear that overall changes in the opinions of citizens are relatively slow. While the share of environment supporters has increased across all generations over the last decade, the pace of this change might be seen as insufficient to address the urgent environmental challenges linked with climate change.

Finally, it is important to note some of the limits of our research. We are not able to identify respondents who participated in the environmental mobilization in the past and to compare their environmental attitudes to those who did not participate in the same generation or in other generations. This means that we are testing the idea that generations socialized in intense periods of mobilization with data that make the test difficult to pass. In addition, we are not able to identify the external effects that might account for the period effect that we identify. Important events in the environmental movement are the 2009 mobilization around the COP in Copenhagen. This event raised high expectations and triggered a broad disillusion after its failure. However, we do not observe important shifts in pro-environmental attitudes around this event. Similarly, in 2015, the COP in Paris was a highly mediatized event. Yet, our data do not allow following the ups-and-downs in public opinion, instead we measure aggregate changes within generations. One of the avenues for future research is to try to disentangle the age, cohort as well as period effects, which could be achieved by modeling environmental attitudes at the individual level.

DATA AVAILABILITY STATEMENT

The data analyzed in this study is subject to the following licenses/restrictions: The paper builds on three datasets, the protest event datasets are available here (https://poldem.eui.eu/), the climate strike data is only available for the national teams who took part in the data collection for the time being, the Swiss Household Panel data is

available for researchers here (https://forsbase.unil.ch/project/study-public-overview/16970/0/). Requests to access these datasets should be directed to https://poldem.eui.eu/ and https://forsbase.unil.ch/project/study-public-overview/16970/0/.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

FUNDING

JL and JR thankfully acknowledge the support of the Leenaards Foundation (research project: Engagements civiques et politiques des seniors: se battre pour le climat pour bien vieillir?).

ACKNOWLEDGMENTS

A previous version of this research has been presented at the Annual Conference of the Swiss Political Science Association in Luzern in February 2020. We are grateful to the panel participants for their helpful comments. We would also like to thank the two reviewers who provided useful comments to improve this contribution. JL and JR thankfully acknowledge the support of the Leenaards Foundation (research project: Engagements civiques et politiques des seniors: se battre pour le climat pour bien vieillir ?). We are also grateful to Amédée Félix for excellent research assistance.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

APPENDIX

TABLE A1 | Climate strike survey information.

City	Date	Estimated number of participants	Distributed flyers	N	Response rate (%)
Lausanne	15.03.2019	12,000–15,000	1000	183	18
Geneva	15.03.2019	5,000–6,000	1000	154	15
Bern	28.09.2019	100,000	1000	271	29

TABLE A2 | Percentage of respondent in each generation (CS and SHP) and in the Swiss population (Swiss Federal Office for Statistics—OFS).

	Climate strike			SHP	OFS
Generations	**Geneva**	**Lausanne**	**Bern**	**Switzerland**	**Switzerland**
Climate strike	52.3	59.9	35.3	19.7	15.1
X and Y	19.6	14.8	31.6	24.8	28.3
Chernobyl	13.1	14.8	22.4	24.4	19.2
Kaiseraugst	13.7	9.9	9.9	20.4	13.3
Prewar/war	1.3	0.6	0.7	10.7	9.2
N	153	182	272	12,003[a]	8,419,550[b]

[a]*The percentages presented here and the N are calculated on the 2017 SPH wave.*
[b]*The percentages do not add up to 100 percent because the table does not present Swiss residents who are younger than 16 years old (14.9 percent of the population).*

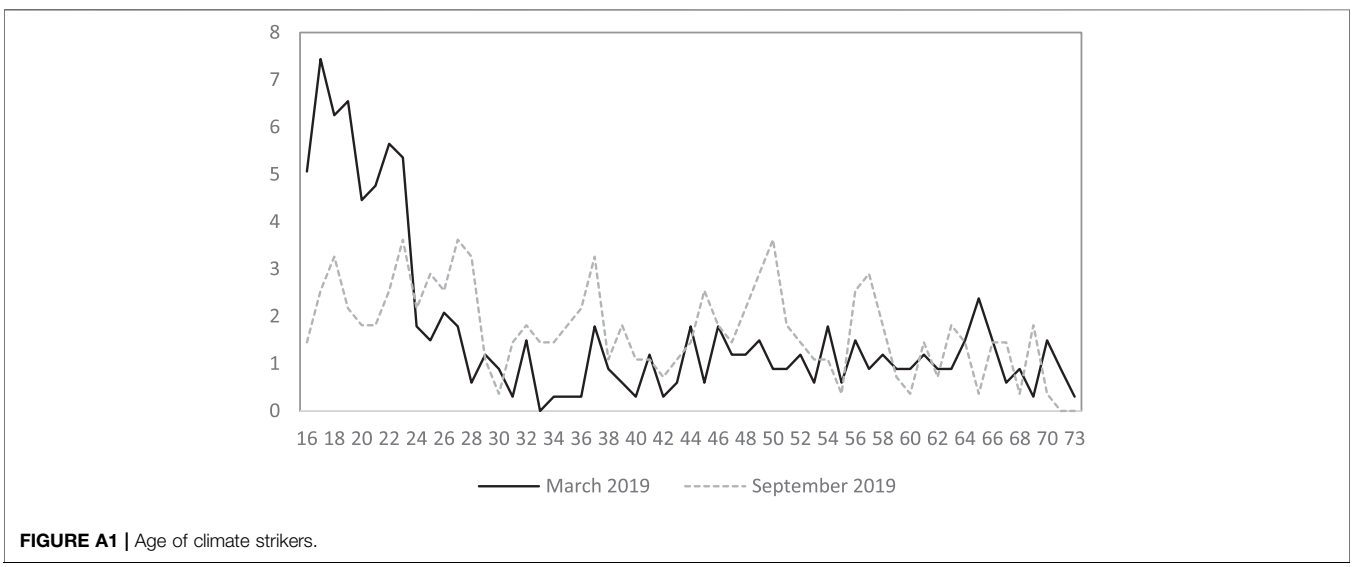

FIGURE A1 | Age of climate strikers.

frontiers in Political Science

ORIGINAL RESEARCH
published: 10 May 2021
doi: 10.3389/fpos.2021.672362

Young Rebels Who Do Not Want a Revolution: The Non-participatory Preferences of Fridays for Future Activists in Finland

Janette Huttunen[1]*

[1]Faculty of Social Sciences, Business and Economics, Åbo Akademi University, Turku, Finland

Young people's lack of participation in elections has been taken as a sign that the young are wary of representative democracy and reject traditional authorities. Instead of election participation, it is expected that the young want more possibilities for direct involvement in political decision-making. Fridays for Future (FFF) is a global, youth-led climate movement that has been able to mobilize millions of young people around the world into political action (de Moor et al., 2020; Wahlström et al., 2019) in times when youth participation is generally declining, especially in traditional forms of political participation. While many have taken this as evidence that young people dismiss representative democracy in favor of a more participatory democracy, in-depth studies of their motivations are still lacking. This article helps fill this lacuna by providing a case study on Finnish FFF participants. Through semi-structured interviews and theory-guided content analysis with 15- to 20-year-old climate activists, the Finnish FFF participants' attitudes toward political participation are examined. The data consists of 11 one-on-one in-depth theme interviews with young people, who participated in the FFF movement by attending at least one protest in Finland in 2019. The interviews focused on the following themes: motivation for participation in the FFF movement, interviewee's background, and the participant's ideas regarding politics, democracy, and political participation. The interviews were combined with material from various news sources to contextualize the information in the analysis phase. Based on the empirical evidence, I argue that although these young citizens have become politically active in a climate protest movement, it does not necessarily mean that they want major reforms to the representative democracy toward a more participatory system. Instead of more participatory possibilities, the Finnish climate activists want a better-functioning representative system with politicians who listen to their demands.

Keywords: youth participation, fridays for future, political participation, single-issue movements, qualitative methods

OPEN ACCESS

Edited by:
Matt Henn,
Nottingham Trent University,
United Kingdom

Reviewed by:
Roger Soler-i-Martí,
Pompeu Fabra University, Spain
Bernd Bonfert,
Cardiff University, United Kingdom

***Correspondence:**
Janette Huttunen
janette.huttunen@abo.fi

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *25 February 2021*
Accepted: *23 April 2021*
Published: *10 May 2021*

Citation:
Huttunen J (2021) Young Rebels Who Do Not Want a Revolution: The Non-participatory Preferences of Fridays for Future Activists in Finland. Front. Polit. Sci. 3:672362. doi: 10.3389/fpos.2021.672362

INTRODUCTION

In the fall of 2018, 15-year-old Swedish activist Greta Thunberg held a one-person protest outside of the Swedish parliament and started the global climate movement 'Fridays for Future' (FFF). Fridays for Future is a modern climate protest movement consisting largely of school students, who use civil disobedience in the form of school strikes to protest inadequate climate actions taken by politicians.

The movement demands political leaders to take action in the fight against global warming and has been successful in mobilizing the young masses into protest, gain substantial amount of media-coverage, and a wide, global scope, with climate strikes organized around the world (Wahlström et al., 2019; de Moor et al., 2020).

Since young people often participate less in institutionalized politics (e.g., Furlong and Cartmel, 2007; Bennett, 2008; Grasso et al., 2018), it is important to examine cases when young people do engage in politics to understand their attitudes regarding political participation. This article provides a case study on young FFF activists in a country where the movement has been active since its early stages, Finland. I examine the Finnish climate activists' attitudes toward democracy and political participation, with the goal to shed a light on whether the young people who have become active in a mass youth movement want more participatory possibilities for their political engagement, as is often expected (see e.g., Inglehart, 1997; Dalton, 2008; Chou, 2017). In the context of this article, the concept 'participatory' refers to the idea of more direct and active citizen participation in political activities outside of the institutionalized forms of political engagement.

Studies examining people's ideas of democracy and politics rely usually on mostly quantitative data, which can be problematic when studying the young, because in surveys, what is defined as 'politics' and 'political participation' usually stem from an adult-centric perspective (see O'Toole et al., 2003; Farthing, 2010). Since young people may have a different view of what consists as political compared to older people, we might ignore vital parts of the overall picture if we only rely on survey data. Preferences for democracy are complex issues that are difficult to translate into survey questions, since most surveys only allow respondents to evaluate how the current system is working without inquiring about possible alternative decision-making procedures (Bengtsson, 2012). The significance of youth-led conceptualization is also noted e.g., by Pontes et al. (2018), who highlight the importance that "the acts that they [researchers] consider to represent political engagement are likewise considered as political engagement acts by a younger audience."

The type of political structures citizens want are altogether an understudied subject, especially in regards to current young people and we therefore know very little about their expectations for democracy. To some extent, this is because young people constitute a small proportion of respondents when examining similar questions with data from surveys representative of the general population. This article therefore contributes to the research field by using a qualitative approach and data collected with semi-structured interviews with young FFF participants in Southern Finland. By using interviews, it is possible to give the young activist the freedom to conceptualize what democracy, politics, and political participation is for them and to study these questions from a more youth-led and open perspective.

Based on the interviews, I argue that although the Finnish FFF participants have become politically active in a climate protest movement, it does not necessarily mean that they want to see major reforms of the representative democracy toward a more participatory system. Instead of more participatory possibilities, the Finnish young climate activists want a better-functioning representative system with politicians who listen to their demands.

This article is structured as follows: first, a literature review regarding youth participation is provided. Thereafter, the case study of the FFF movement and Finland is discussed. Then, the research design is presented, followed by the analysis part, where the Finnish FFF activists' ideas of participation and democracy are discussed. Lastly, a discussion based on the analysis is provided.

LITERATURE REVIEW: YOUTH POLITICAL PARTICIPATION AND IMPLICATIONS FOR DEMOCRACY

Studies show that young people are less active in core representative institutions such as elections and political parties (e.g., Chou, 2017; Grasso et al., 2018). One interpretation of the developments in youth political engagement contends that young people do not want to be more active in democracy. Participation in general is hard and it requires cognitive skills to fathom complex political matters, which young people often still need to develop (Stoker, 2006, p. 151). Instead of political participation, individualized young citizens are more likely to abstain from politics and focus on other issues more relevant to their lives, such as education, entering the work force, or starting relationships.

However, a plethora of research on youth participation explain the development in a different way. What I here term the *participatory perspective*, is arguably the most popular perspective in contemporary research on youth participation within political science. Scholars within this field contend that young people today have developed more participatory norms and they therefore reject the traditional representative democratic structures (see e.g., Inglehart, 1997; Dalton, 2008, 2016). Consequently, young citizens' apparent lack of engagement in the traditional institutions of politics does not signal political apathy: on the contrary, young people are involved in political matters, but they participate in different ways than older generations do. Several studies investigating youth participation contends that the decline in electoral participation and party membership (e.g., Furlong and Cartmel, 2007; Bennett, 2008; Grasso et al., 2018), is evidence of a *shift* in young people's participation habits (e.g., Inglehart, 1997; Dalton, 2016; Chou, 2017; Pickard, 2019; Huttunen and Christensen, 2020). Instead of merely showing their opinions on the Election Day, young people participate in myriads of ways between elections, e.g., in single-issue movements, social movements, through ecological consumption and online activism, and they have a broader view of political participation than previous generations. This entails a need to reconfigure and broaden traditional definitions of political participation (e.g., O'Toole et al., 2003).

The shift in youth participation is due to various societal, economic, and political changes. Inglehart's post-materialism theory (1997), which seemingly provide a suitable explanation for why we observe such developments in the participation habits of younger generations, explains that rising material well-being after WW2 led to societal change from material to post-material priorities in Western societies, which have transformed expectations and attitudes regarding political participation across generations. According to the post-materialism theory, young people differ from older generations in their habits regarding political engagement: the young expect more participatory and elite-challenging forms of political engagement. Rising education levels combined with easier access to political information strengthen citizens' abilities, or at least their belief in these abilities, to make independent political decision without interference from political elites (Dalton et al., 2001; Dalton, 2007). Building on Inglehart's post-materialism theory, Dalton explains that young people's political engagement is affected by their ideals and expectations regarding democracy, and their views on what "good" citizenship entails (see e.g., Dalton, 2016). Citizenship is defined by Dalton (2008, p. 78) as a shared set of social norms and expectations about citizens' role in politics and consequently, citizenship views have implications for political engagement since they express norms of political action. Young people foster a more engaged norm on citizenship, which increases self-expressive values as well as the ability and desire to participate more directly in the decision affecting one's life, in an elite-challenging way when necessary (Dalton, 2008; Dalton, 2016). Instead of filling a citizen duty, by e.g., voting, Dalton's theory suggests that the young want to participate in more engaged and active ways in politics by, for example, working with public interest groups, contacting politicians directly or through political consumerism (2008, p. 85).

In addition to value changes, reasons for the shift in youth participation can be sought from the political system. Pickard (2019) argue, "many young people are turning to non-electoral forms of political participation because they are disillusioned and disappointed with electoral politics, which generally fails to engage with them" (Pickard, 2019, p. 375). Many young people feel alienated from traditional politics (e.g., Henn et al., 2002; Stoker, 2006; Quintelier, 2007), and many young people have a negative view of politicians and political parties (Chou, 2017; Pickard, 2019). When electoral politics generally fail to engage the young (see e.g., Cammaerts, 2012; Pickard, 2019), young people turn to other forms of political engagement in order to get their voices heard. The young are active in wide range of non-electoral forms of political participation that covers a wide range of themes (see e.g.,'Do-It-Ourselves' politics by Pickard, 2019, p. 256). Their political activity range from directs actions and campaigns to boycotts. Young people are more cause-oriented in their participation habits: their political activity is based on a particular cause or issue and they let the cause determine how to participate and they are more interested in single-issue movements as a channel for their political activity (Kimberlee, 2002; Chou, 2017). They also make use of democratic innovations such as the citizens' initiative (Huttunen and Christensen, 2020). The rising educational levels as well as changes in society have led to young people having various capitals that enables them to act politically in various forms of political participation (Pickard, 2019, p. 375). Different forms of non-electoral political engagement expand the repertoire of political participation and young are both initiators and early adopters of such politics (Chou, 2017; Pickard, 2019, p. 377, p. 17). Instead of ideologies, specific post-materialistic issues, e.g., environmental protection or concerns over inequalities in society, mobilize them. When issues instead of ideologies mobilize the young into participation, political participation becomes more episodic and dependent on current events rather than a constant ongoing stream of political engagement, embodied by e.g., party activities. New digital technologies have also enabled young people to participate politically in a broader range of activities online (Pickard, 2019, p. 375).

In contrast to the participatory perspective, an opposite perspective on youth participation is plausible. What I here term the *stealth perspective* is a collection of ideas that are more skeptical of the active participation of the young. According to the participatory perspective, young people are more likely to favor high levels of citizen participation in different forms of political engagement outside of the institutionalized forms of politics, and they are likely to view participation as inherently valuable and important (Inglehart, 1997; Dalton, 2016). However, even when the young do participate in the more engaged, cause-oriented or single-issue forms of political engagement, and display political activity outside of the formal political structures, they might not necessarily do so because they are unhappy with the current representative system and want to transform fundamentally the functioning of representative democracy. There are myriad of reasons for participation. Many young people feel alienated from traditional politics and the political process (Henn et al., 2002; Stoker, 2006; Quintelier, 2007), many young people have a negative view of politicians and political parties (Chou, 2017), and they are disillusioned and disappointed with electoral politics (Pickard, 2019). There are systematic biases and different disincentives for political participation that could explain why young people are abstaining from formal politics (Chou, 2017) and putting their political engagement in other forms, such as single-issue movements, even when they do not fundamentally demand more participatory political processes. Therefore, youth mobilization in single-issue movements, cause-oriented politics, or other forms of more participatory political engagement, does not automatically equal a desire for more opportunities for citizen participation in general. Young people might state in surveys that they want more opportunities for citizen participation, but survey responses are always limited to what we ask the respondents–if there is no other way to express dissatisfaction with the representative system than by choosing more participation over representation, the results might not reflect people's real preferences (e.g., Hibbing and Theiss-Morse, 2002; Bengtsson, 2012).

Rather than an inherent desire for more citizen participation in the political processes, youth mobilization can be driven by the fear that the existing system and established actors fail to respond

adequately to their concerns. This sentiment is reflected in Stealth Democracy, where Hibbing and Theiss-Morse argue that Americans' strongest political goal is to take power away from self-serving politicians (2002, p. 130). Crucially, this goal does not mean that people want more options for active citizen participation for so-called ordinary citizens, rather they want a system where elected representatives are fair and knowledgeable of citizens' wishes (Hibbing and Theiss-Morse, 2002). Even though citizens do not want to participate in politics, they might take an active role to take power away from self-serving politicians (Hibbing and Theiss-Morse, 2002, p. 130) or they want to be able to participate when they see that a political decision has a direct effect on them (Stoker, 2006, p. 150). When applying the stealth perspective on youth participation, mobilization among the young occurs not so much because younger generations are more participatory in their preferences for political processes in general, but because they believe that politicians fail to consider the interests of the young.

In addition to these two perspective on youth participation within the political science field, as the case study (explored further below) operates with young people who are active in the FFF movement, it is necessary to discuss perspectives from social movement studies. Social movement studies suggest that participation in social movements do not necessarily or automatically mean that the activists' want to change the existing political structures. Rather, social movement studies operate under the assumption that activists try to act in the existing democratic processes and primarily demand changes in the policy-making processes, as e.g., the 'political opportunity structure' theory (see e.g., Kriesi, 2004; Cammaerts, 2012) explains. Kriesi (2004) suggests that social movement activists have learnt to employ different types of collective actions that are increasingly overlapping with actions used by more institutionalized groups, which can contribute to an "increasing integration of social movement actors into the policymaking process" (2004, p. 85). As political opportunity structures, which are out of activists' control, affect the expectations of whether different collective actions taken by activists are successful or not (Cammaerts, 2012), engagement in certain types of activities can be more reflective of the opportunities for participation rather than a reflection of actual preferences for specific forms of participation. Environmental movements in particular have often developed close links to institutionalized politics, as the movements themselves have had strong tendencies toward institutionalization, characterized both by the internal process of professionalization and formalization but also regular access to policy-makers (see e.g., Thörn and Svenberg, 2016). Climate movements tend to demand responsibility at the political level, and are thus motivated to influence political leaders (Thörn and Svenberg, 2016).

Within the FFF movement, previous studies suggest competing ideas regarding democracy and political participation. In Germany, the movement has brought climate change to the forefront of the political agenda without challenging the underlying rationales behind climate actions nor contesting the established climate change measures, thus working closely linked to the institutionalized politics, despite the existence of more radical subgroups in the movement (Marquardt, 2020). In Britain, on the other hand, the young activists state to be committed to reaching significant change in the power structures of society through non-violent direct action, as their demands do not operate within the borders of existing systems (Pickard et al., 2020). Next, the Finnish case study is presented.

THE CASE STUDY

This article contributes the research field of youth participation by examining the Finnish FFF participants. I examine the attitudes regarding political participation and democracy that the young climate activists who have participated in the FFF movement in Finland in 2019 foster.

The FFF movement has grown into a global phenomenon not only in the environmental field, but also in regards of mass youth participation. In March 2019, an international FFF climate protest mobilized over 1.6 million (Wahlström et al., 2019), and in September 2019 over 7.6 million (de Moor et al., 2020), people around the world to protest global warming. The movement has been particularly successful in engaging young first-time participants–a study on the global climate march on March 15th, 2019 revealed that the average figure for first-time participants among school students was at around 38% across all countries studied (Wahlström et al., 2019).

Finland is a neighboring country to the movement's birthplace Sweden, and is among the first wave of countries where the movement spread in 2018. The Finnish political system is predominantly based on representative principles, and even young people tend to have a rather conservative and traditional view on politics and for example rank voting as the best way to influence politics (Myllyniemi, 2014). However, the FFF movement has been successful in mobilizing young people in Finland since fall 2018. In September 2019, during the international climate strike, as many as 16,000 people according to some estimates participated in the main demonstration in Helsinki, with smaller demonstrations organized around the country.

The Finnish parliament elections were held in spring 2019 and climate change was one of the main issues in the elections. After the elections a new leftish-green government, which emphasizes the urgency of climate actions in its governmental program, was formed, replacing the previous conservative government. Thus, exploring the Finnish FFF activists at this time provides a possibility to explore how these young activists see political participation and democracy when the political context and leadership are seemingly favorable for their demands.

Examining the FFF movement in Finland provides also an excellent opportunity to explore whether the type of assumptions we have on youth participation, especially regarding their desire for more citizen participation, hold true when the young activists are interviewed in-depth, in a country where the young should have a multifaceted concept of democracy that goes beyond representative structures. Despite the strong focus on the representative system and the more traditional views held by the young (Myllyniemi, 2014), Finland has made use of different participatory innovations that have been introduced within the institutional realms of political participation. Most prominently, a national citizens' initiative has been available for citizens over 18-years-old since 2012, and has been

actively used by the young millennial generation (Huttunen and Christensen, 2020). Furthermore, various democratic innovations such as mandatory youth councils at the local level, makes it plausible that young people are aware of the different opportunities to participate between elections. Additionally, research on citizens' general political process preferences in Finland shows that the population in general holds multidimensional preferences for how political decisions should be made (e.g., Bengtsson and Mattila, 2009; Bengtsson, 2012; Bengtsson and Christensen, 2016). Therefore, the Finnish climate activists operates in a context where their ideas regarding political participation and democracy should not necessarily be limited to the traditional realms of politics. In the following, I outline how the perceptions of the youth activists were examined.

MATERIALS AND METHODS

In order to further our knowledge of youth preferences for political engagement, there is a need for more qualitative approaches that allow us to research the question without the limitations of a survey with pre-defined questions and answer alternatives. As Pontes et al. (2018) showed in their study, when qualitative methods are used it is possible to derive a more youth-led definition of political engagement. This case study aims to provide perspectives on the ideas that Finnish young people who participate actively in a global environmental movement have on democracy and participation.

Quantitative studies have presented a clear picture of the socio-demographic background of the typical climate activist: she is female, educated, and young (Wahlström et al., 2019).[1] The goal of this study is to deepen the understanding of young climate activist ideals and expectations for democracy by using semi-structured interviews and qualitative content analysis. The methodological choice is made in order to gain a deeper understanding of how the climate activists justify and explain their activism. Statistical methods make generalizations possible, but this is not the only suitable goal in research–sometimes a closer look at issues are necessary when there is a need to answer questions that we do not necessarily know to ask in surveys (see George and Bennett, 2005).

Qualitative methods are used to answer questions about experience and meaning, usually from the perspective of the participants (Hammarberg et al., 2016). These type of case studies are preferable to quantitative studies when conceptual validity is essential. Through in-depth interviews with participants, it is possible to let the young respondents express their experiences and ideas in their own terms (O'Toole et al., 2003, p. 74). By asking open-ended question in interviews–thereby leaving the conceptualization to the respondents–it is possible to identify how respondents themselves think about the topics (George and Bennett, 2005). As argued by e.g., (O´Toole et al., 2003), using surveys in youth studies might lead to under-reporting of political engagement because of how the surveys questions are interpreted by respondents. By using a qualitative approach, this can be avoided and a deeper understanding of their underlying motivations can be established (see e.g., Pickard, 2019; O´Toole et al., 2003).

The gathered data used in this article consists mainly of one-on-one in-depth theme interviews with 11 Finnish 15–20-year-olds,[2] who participated in the Fridays for Future (FFF) movement by attending at least one protest in 2019. These interviews were combined with material from various news sources to contextualize the information. The focus was on adolescents, young people turning into adults who are facing their first political experiences, since political experiences that happen during formative years have a great importance for later life's political attitudes and behavior (e.g., Carpini, 1989; Dinas, 2013; Quintelier and Van Deth, 2014; Delli).

Since the FFF movement is an open grassroots level movement with a low level of organization, it presented a challenge to find people who were willing to be interviewed. The respondents were identified from multiple source; through social media with hashtag #ilmastolakko ('climate strike'), during the international climate strike in September 2019, and through respondents' recommendations for other possible interviewees through snowball sampling. This multiple sources approach made it possible to locate both more active participants in the movement as well as people who had participated only once, therefore allowing a broader spectrum of participants and a more accurate picture of the average FFF participant. To arrange the interviews, the respondents were contacted through social media (Instagram, Twitter, Facebook), and via e-mail.[3]

There were 11 interviewees, of whom 7 were women and 4 were men, which follows the general gender division in the movement (Wahlström et al., 2019; de Moor et al., 2020). The number of interviewees was settled to 11, as the data felt saturated at that point since the interviews tended toward repetition (e.g., Hammarberg et al., 2016). The most important selection variables[4] used in the selection of interviewees were age and participation in the strikes: four of the interviewees were active members of the FFF movement,[5] while eight had participated on the strikes once. All of the interviewees were from Southern Finland. The interviews were conducted between May 2019 and October 2019. All respondents were interviewed in person by the

[1]Although the median age of FFF protesters increased over time, young people still constituted a large bulk of the climate strikers (de Moor et al., 2020).

[2]The Finnish national board on research integrity (TENK) guidelines state that when studying children of the age of 15 and above, their own consent is sufficient to conduct the study, therefore the age limit for the respondents were set on 15. All respondents were informed about their rights regarding the interviews and research both in person and in written form, in a manner that a minor can understand (TENK, 2013).

[3]Seven possible respondents declined the interview.

[4]Additional information about the interviewees: five out of 11 were under 18 years of age (i.e., minors). Majority of the interviewees were educated or on a path toward higher education: nine out of 11 interviewees were either in high school or in university. From the interviewees five out of 11 did not report being active in any societal or political organizations, while six reported activity in such organizations. Out of the six, three reported being active in a political organization. Five were from a municipality with less than 100,000 inhabitants, two from a municipality with less than 150,000 inhabitants and four from a bigger city (including the capitol region).

[5]Active membership is here defined as all participation in the movement's activities that exceeds involvement in one strike.

same interviewer; the interviews were recorded and then transcribed.

The interviews focused on the following themes: motivation for participation in the FFF movement, interviewee's background, and their ideas regarding politics, democracy, and political participation. Particular focus was here paid to the parts of the interview where the interviewees discussed political participation and their perceptions of democracy. The material was analyzed by using theory-guided content analysis (Krippendorff, 2012), which focuses on the interviewees' conceptions of and ideas on participation. In the analysis, a key goal was to identify what kind of factors and themes the respondents themselves emphasized as important when discussing political participation, and what themes were repeated throughout the interviews. These factors and themes were then compiled and matched with the theoretical framework to identify what conceptions of participation they adhere to.

This study was conducted in accordance with The Finnish National Board on Research Integrity TENK's "Ethical principles of research in the humanities and social and behavioral sciences and proposals for ethical review",[6] which researchers operating in Finland must comply to when conducting research with human participants. In addition, this study and article is written in accordance with TENK's "guidelines for the responsible conduct of research and for handling alleged violations of conduct", which promotes the responsible conduct of research.

RESULTS

In many ways, the global climate activists appear to be poster children for the idea of cause-oriented young people (e.g., Kimberlee, 2002; Chou, 2017) who participate in more direct, active and engaged ways to influence political matters. Therefore, it would be plausible that these young people have a more participatory perspective on their political engagement. However, a further examination within the Finnish FFF activists paints a more complex picture of the ideas these young activists have in regards to political participation.

The material from the interviews were compiled together and matched with the theoretical framework. After compiling the material, it became clear that certain specific attitudes toward political participation and democracy were repeated in most interviews. Despite the expectation that these young citizens will display more participatory preferences–that the Finnish FFF activists prefer more opportunities for active and direct citizen involvement in political processes instead of participation in the institutionalized forms of engagement–two perspectives regarding political participation and democracy rose from the material. In the Finnish context:

Activity in the FFF movement does not necessarily equal support for more citizen participation in general.
Activity in the FFF movement does not mean rejection of established democratic norms, practices or political authorities.

Despite the differences in interviewees' age and level of engagement in the movement, these two perspectives were evident throughout the material. Below, these perspectives are explained further.

Activity in The FFF Movement Does Not Necessarily Equal Support for The More Citizen Participation in General

The global FFF movement uses rhetoric such as 'we should not have to be here', referring to the climate strikes, while demanding adults and politicians to take political responsibility for the problem that they have caused. As the movements' leading figure, Greta Thunberg stated in her speech for the UN in 2019:

> My message is that we'll be watching you. This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you. You have stolen my dreams and my childhood with your empty words. Yet I am one of the lucky ones. People are suffering. (NPR Staff, 2019)

The Finnish leading climate activists' Atte Ahokas's had a similar message in an interview with The Finnish Public Service Media Company Yle:

> We young people shouldn't be here. It is not our job to tell how this crisis will be solved. We are here to demand that adults begin to do their jobs. (Tola, 2019)

This type of public statements already suggest that the participatory perspective might not be able to explain mobilization in the FFF movement since leading FFF figures do not demand more citizen participation or more possibilities for direct citizen participation for the young, instead they are highlighting adult responsibility to act. Instead of more participatory options for the young, their message behind the reasons for involvement in the FFF movement is that the issue of climate change is too important for them and they feel obliged to act. As Pickard suggest, youth-led protest actions can be made out of necessity and sense of injustice (Pickard, 2019, p. 380).

In the interviews conducted with the Finnish FFF participants, following types of reasoning were highlighted when the interviewees talk about their motivation for participation in the movement:

> Most what motivates and the reason why I want to influence is future and the threat that if we don't start to do any actions then that future is gone. And especially I am most worried about my children and

[6]For more information on the guidelines: www.tenk.fi/en

> grandchildren's future, they don't even have anything to do, no chance to affect their future.–if we want to live on this earth, **we have to take action**.
>
> Well somehow have just started to wake up that our age class and like life's biggest crisis that like has to get solved somehow or even slowed down even a little bit so that we can live, and our future generations can live on earth. Because this is a crisis so soon there is nothing that can be done.
>
> Even though I myself already have the right to vote, not all young people have it yet and **I want to somehow show to the decision-makers that this really is a really important thing** and like this cannot be swept to the side this is really about like my generations like future in these climate, like if climate actions are not done like ambitiously enough.

The interviewed Finnish activists are not participating because they necessarily want to be more actively involved in politics in general. Instead of an inherent desire for more citizen participation, or wish to participate in a broader repertoire of political actions, the Finnish FFF activists are taking to the streets because they feel the need to defend their and future generations' rights to a habitable planet, threatened by the climate crisis. The interviewees feel that the issue is currently not taken care of by the decision-makers. In the interviews, they highlight ideas that are corresponding to Pickard's (2019, p. 377) argument: the young are turning to this form of non-electoral political action because they are disappointed with the formal political system and politicians, who have failed the young in the fight against global warming. The interviewees are not willing to give decision-makers the opportunity to be self-serving (Hibbing and Theiss-Morse, 2002), but rather they are willing to participate when the need arises and they want their demands to be heard by formal political decision makers. The dissatisfaction with the established formal system (see Pickard, 2019, p. 377), and the stealth democratic concept of participation as a way to take power away from self-serving politicians (Hibbing and Theiss-Morse, 2002), seem to motivate the participation in the FFF movement instead of an inherent desire for more citizen participation.

Even though the interviewees do not seem to have participatory preferences, they do want to be heard. Some system-level theories on youth disengagement in politics explain that one reason for young people's non-participation can be due to politicians' failures to address issues that are of importance or concern for young people, such as the climate change (Henn et al., 2002; Kimberlee, 2002). For these Finnish climate activists the opposite seems to be true: they are activated by politicians' failures and willing to use their activity to influence political change.

Further support for the argument that activity in the FFF movement does not equal support for the participatory perspective can be found in the interviewed activists' attitudes toward the options for political activity at their disposal. The majority of the interviewees said that they are happy with the opportunities they have and that they do not want more possibilities for participation. Despite stating that they are interested in politics and that they see politics as something important, many felt that they, and citizens in general, had enough options for political participation if they wanted to use them.

> But like at the moment the kind of activities I know I don't really come up with the kind I would want to get involved with. If I wanted to participate in young people's political activities, I would probably already have participated.
>
> And like maybe that possibilities for influencing would be pretty similar since I don't really know how to do better.
>
> So I think the way people can influence politically at the moment is good, but I feel like people don't use it like right. Or like somehow care enough about the things so that they would for example affect through consumption, they're just like I am just one person what difference does it make but if a lot of people think so so yes it's a little. Not so much that I would change the means of my political influence, but I would change what people think about political influence.

Those of the interviewees who were not happy with the kind of options for political activity that they had generally wanted to lower the voting age to 16. This indicates that instead of fostering participatory values, the Finnish FFF activists actually support representative democracy, even if they want it to be more inclusive of and more attentive to the demands of younger citizens.

In contrast to the participatory perspective, a different interpretation holds that even if young people do participate in participatory forms of politics, engagement in such activities is not driven by an inherent desire to be active in politics but rather out of necessity, e.g., in order to take power away from self-serving politicians (Hibbing and Theiss-Morse, 2002, p. 130). Thus, all young citizens' activity cannot automatically be interpreted as a desire for more participatory options for citizens in politics. The interviews suggest that in Finland the activity in the FFF movement does not necessarily equal support for more participatory forms of political engagement, rather the young activists want to participate in the institutionalized forms of politics. This is notable, as it contrasts e.g., studies made in Britain where the local FFF activists are committed to systemic change through non-violent direct action (Pickard et al., 2020).

Activity in The FFF Movement Does Not Mean Rejection of Established Democratic Norms, Practices or Political Authorities

The Finnish young climate activists do not seem to have more participatory preferences. Instead, they might support the representative system more than expected. The Finnish interviewees display a great support for the representative

system, as voting is considered by far the best way to influence politics among the young activists. The interviewees' age and whether or not they were eligible to vote or not did not have an effect on the popularity of elections as the best way to influence politics. Instead of being active themselves, these young climate activists seem to want to participate politically by electing politicians, who will represent them and their interest in the decision-making processes. As one interviewee put it:

> You vote for a person who is as similar as you as possible, they bring your voice out there in Parliament. The most important and biggest way you can make a difference.

Activity in the FFF movement does not mean that these Finnish climate activists reject established democratic norms, practices or political authorities. Instead, their ideals come across as being consistent with the ideal of a well-functioning representative democracy. The interviewees believe that their vote matters, that politics and political decision-making are affected by citizens' votes and that election participation is important. This is highlighted by the answers given to the question why voting is the best way to influence, for example:

> Well because there are so many of us here and everyone really has one voice and one voice is really meaningful to me and in a way it's probably the easiest way to get things right. And what can really make a big difference if people only vote, especially if young people vote. So that is maybe what comes to mind first.
>
> Go to the polls. What does it matter, it does matter. Vote and doing the research [of candidates].[7] They are the best ways [to influence politics].

Not only did the interviewees believe their vote matters, they also based the importance of election participation on normative grounds. As one interviewee highlighted:

> But some basic doctrines have been forged in the head at home. Environmental issues are important. Voting is important.

Other explanations in support of voting provided by the interviewees ranged from 'it is the least you can do' and 'someone might say does it matter, well it does matter', to the classic arguments 'if you do not vote, you cannot complain' or 'if you do not vote, someone else (read: an older person) will vote for you'. In general, despite their activity in a protest movement and using civil disobedience to further their political demands, the interviewees were not rejecting established representative norms. Rather, they were enforcing them by the usage of classic arguments used to highlight the importance of election participation.

[7]To clarify the quote by the interviewee, the author has added the brackets.

The interviewees do not seem to reject political authorities either. As the FFF movement is a protest movement, that uses civil disobedience to further their demands, it would be plausible that activity in the FFF movement would mean rejection of political authority. The rejection of political authorities would essentially entail that through their activity in the FFF movement the participants want to diminish the power of political authorities. However, the interviewees are participating in the climate strikes in order to convince the decision-makers into action, therefore displaying support for the political authorities and their capability and desire to act on the demands of young climate activists. The support for political authorities that the Finnish interviewees display may be due to the leftish-green government taking power shortly before the interviewees were conducted, as the interviewees might be more positively inclined toward decision-makers they believe to be favorable for their demands. However, as social movement studies suggest, it is typical for social movement activists to try to operate in existing political processes and influence and demand responsibility from the policymakers (Kriesi, 2004; Thörn and Svenberg, 2016), regardless of who is in power.

The idea of FFF protesters not rejecting authority can find support from other channels in general as well. The 'Youth climate strikers' open letter to world leaders', which was issued by the global coordination group of the youth-led climate strike ahead of the international climate strike day March 15th and published by Guardian, says:

> We demand the world's decision-makers take responsibility and solve this crisis. You have failed us in the past. (Guardian Letters, 2019)

Despite stating that the politicians have failed the young, in this letter the FFF movement's global coordination group is not demanding power away from politicians, and thereby rejecting authority, but rather the writers try to appeal to political authorities to solve the climate crisis. Instead of rejecting the authorities, they are leaning on the authorities to solve the issue (Hibbing and Theiss-Morse, 2002, p. 13). In the Finnish context, similar sentiments can be found in interviews given by climate strike participants in the largest newspaper in the country, Helsingin Sanomat (HS):

> We do not expect the laws to be changed immediately due to our demonstration, but we want decision-makers to listen and pay attention (Vuorio, 2019)
>
> Decision makers make big decisions that everyone has to follow. They make laws. They have a bigger voice than I do and that is why it is important that they hear my voice (Takala, 2019)

Previous research done on the FFF movement supports the sentiment that the participants in the FFF movement want authorities to take action to resolve the issue–they are on the streets to put pressure on politicians, not to override them. Wahlström et al. (2019) research from international

climate march in March 2019 demonstrate that the FFF participants wanted to influence particularly politicians: they regarded their participation as a way 'to pressure politicians to make things change' (91.1% agree or strongly agree). As the FFF participants are putting their faith in politicians through their political activity, the activity in the FFF movement cannot be seen to equal rejection of authorities.

Despite not rejecting authority, the interviewed Finnish FFF participants want politicians to listen to their demands better. Variety of research demonstrates that young people feel that they are not being heard by politicians, or that they feel like they cannot influence politics (e.g., Henn et al., 2002; Kimberlee, 2002; O'Toole et al., 2003; Quintelier, 2007). The Finnish interviewees have a complex relationship with the authorities. These climate activists feel that even though politicians might listen, they do not hear young people's demands and they fail to take appropriate action:

> At the moment, the vast majority are like they might say that they support the goal of one and a half degrees, but they are not ready for the action it requires and have not yet begun to do so even though we have been demanding it in large numbers.
>
> Hearing and listening is different. The politician might hear you, they can be told, they can be there, they can say something but I think, it can even be listening, but at this point I'm going to be happy with the amount of listening when we get something other than a newspaper article about how a politician say it is great thing that young people are moving. When it is visible in their decisions.
>
> They are interested [in what young people have to say] but they believe that young people are not going to vote. That is why many politicians are more interested in retirees' issues, they are active voters. In the next election, we are in our twenties and then they can become maybe more interested, more serious, so that politicians also get young voters.

These examples show that the Finnish FFF participants want to be heard and they want decision-makers to do adequate climate actions. Through active participation, the interviewees felt that they were pressuring politicians into hearing young people's demands and voices.

DISCUSSION

Based on the ideas regarding political participation and democracy that the interviewed Finnish FFF participants demonstrate, I argue that the young activists, despite their evident involvement in a major, global protest movement, do not display more participatory preferences when it comes to political decision-making, nor are they rejecting established democratic norms, practices, or political authorities. Instead of wanting more direct and active citizen participation in non-institutionalized forms of political engagement, the Finnish FFF activists prefer a better functioning representative system.

The different forms of political participation are not mutually exclusive: the young can participate in multiple ways at the same time, both in single-issue movements and by voting, and the different forms can form a positive cycle of political engagement (Pickard, 2019, p. 397). However, young people's lack of election participation is often explained by their more participatory preferences (see the literature review). Especially groups of active young people are expected to foster a more participatory perspective on democracy and political participation, when they have become active in a single-issue movement. In the case of Finnish FFF participants, however, the participation in a protest movement does not appear to mean rejection of electoral politics–rather the interviewees see the value in voting. The results demonstrate that the involvement in the FFF movement may be driven by a sense of immediate urgency rather than a demand for a fundamental transformation of democracy: these young people participate out of necessity–to ensure that the decision-makers do a decent job in an important political question. Borrowing from Pickard (2019), this case study supports the idea that "the nature of young people's non-electoral participation tends to be personalized (i.e., tailor made or custom-built) according to circumstances and values, rather than moved by self-centered benefits" (2019, p. 397). The Finnish FFF participants have chosen the FFF movements' protest activities as their form of political participation because they feel they are not being heard by decision-makers otherwise, not because it necessarily fits their preferences and ideals for participation. In addition, these findings support the notion that the political opportunity structures (Kriesi, 2004) affect the form of political engagement employed by participants of social movements. As many of the Finnish FFF activists are minors without the right to vote, the movement's activities provide them opportunities to demand responsibility from decision-makers in the issue of climate change, without necessarily revealing anything about their preferences for political engagement. This is one reason, why these kind of qualitative studies that deepen our understanding on the topic of young people's ideas regarding democracy and political participation are important.

These findings can have important implications for the future of Finnish democracy. When even the most-likely case of young people support the existing representative system over more participatory options, it shows that the classic representative democratic system still plays a vital and important role, even for those young people who are active in a protest movement. What is demanded is not a radical transformation, but mechanisms to ensure that politicians remain attentive to the demands of younger citizens. The Finnish FFF activists do not demand a revolution, but they want politicians to do their job better

and work to ensure a viable future even for younger generations. Instead of more participatory options for the young, a viable reform option may be lowering the voting age to 16 since similar reforms have successfully engaged younger citizens elsewhere (e.g., Wagner et al., 2012)

These findings have limitations. It is not possible to make broad generalizations based on this limited data. Also, despite the FFF movement's wide popularity even in Finland, the climate activists only make up for a small part of the current young generation and we know that socioeconomic factors such as class, education, and gender affect political participatory habits and preferences among young people (e.g., Henn and Foard, 2014; Chou, 2017). Previous global quantitative research shows that the activists are in general well-educated (Wahlström et al., 2019) and this holds true also for the participants in this study. Additionally, it is possible that the Finnish activists' positive attitude toward representation and the emphasis they put on the role of elections might be an effect of elections proximity, as the parliamentary elections were held shortly before the interviews were conducted, but also the election outcome. Perhaps the young activists have more trust in the new leftish-green government that took office in spring 2019, to handle climate issues and to respond to activists' demands, which is why they are seemingly not rejecting authority when it comes to their ideas regarding political participation. In future studies, in order to deepen our knowledge on the issue, studies with a larger and more representative sample could provide additional insights.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

FUNDING

Åbo Akademi University's APC-Pool supported the open access publication of this article.

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Conflict of Interest: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Political Science

PERSPECTIVE
published: 10 June 2021
doi: 10.3389/fpos.2021.636583

Perspective From a Youth Environmental Activist: Why Adults Will Listen to Youth in Politics

Jenna M. Hartley[1], *Katelyn M. Higgins*[2]*, *M. Nils Peterson*[3], *Kathryn T. Stevenson*[1] and *Megan W. Jackson*[4]

[1]Parks, Recreation, and Tourism Management Department, North Carolina State University, Raleigh, NC, United States, [2]Undergraduate Environmental Sciences Program, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, NC, United States, [3]Fisheries, Wildlife, and Conservation Biology Program, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, NC, United States, [4]Environmental Inquiry Teacher, Lincoln Heights Environmental Connections Magnet Elementary School, Raleigh, NC, United States

This perspective article is divided between the account of an emerging youth political activist, Katelyn Higgins, and the subsequent collaborative research project she coordinated. After 10 years of experience in youth political action, Higgins worked with co-authors to develop a qualitative study to explore the processes underlying youth influence over local environmental policymaking. We present findings from that study to supplement her perspective. The study supported fourth and fifth grade teachers by offering a marine debris curriculum which encouraged students to share their knowledge with local community members through environmental activism events. At the first event, students aged 8–10 presented at a town hall meeting; we interviewed 16 adults in attendance. The second "event" was a series of video PSAs (Public Service Announcements) in which students from across the state of North Carolina, United States, explained the harms of marine debris. Those PSAs were emailed to local officials; we conducted follow-up interviews with two officials. Four themes emerged to characterize how adults responded to youth environmental activism: young people were inspiring; adults want to support young people; and adults view young people as able to provide leadership for local action and challenge the establishment. Youth leaders and those looking to support them should be encouraged by these results, as they suggest adults, including local public officials, consider youth voices valuable and uniquely situated to foster productive political processes for addressing marine debris. Future research should continue to explore the degree to which positive feelings expressed by adults translate to action.

Keywords: youth, civic engagement, environmental activism, youth activism, intergenerational learning, leadership, environmental education, marine debris

OPEN ACCESS

Edited by:
Sarah E. Pickard, Université de la Sorbonne Nouvelle Paris III, France

Reviewed by:
Benjamin Bowman, Manchester Metropolitan University, United Kingdom
Yeojin Kim, Central Connecticut State University, United States

***Correspondence:**
Katelyn M. Higgins
kmhiggin@ncsu.edu

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *01 December 2020*
Accepted: *21 May 2021*
Published: *10 June 2021*

Citation:
Hartley JM, Higgins KM, Peterson MN, Stevenson KT and Jackson MW (2021) Perspective From a Youth Environmental Activist: Why Adults Will Listen to Youth in Politics. Front. Polit. Sci. 3:636583. doi: 10.3389/fpos.2021.636583

INTRODUCTION

Youth political activism around environmental challenges has become globally prominent. From local action in childhood hometowns to international school strikes supporting climate action led by 15-year-old Greta Thunberg, young people are taking leadership roles in politics (Marris, 2019). For many young people, environmental activism—taking steps to inspire actions among others (Arnold et al., 2009)—begins within their families or close friends (Ballantyne et al., 2001; Williams et al.,

2017; Lawson et al., 2019). For instance, young people start conversations among family and friends after learning about environmental issues in classrooms (Walker, 2016). Beyond these initial conversations, young people participate in formal activism events such as attending school strikes (García-Albacete, 2014), taking on leadership roles within organizations and communities (Zeldin et al., 2013), and both running for and winning public offices at increasing rates (Eichen, 2018).

Recent research regarding young people in political spheres suggests they can inspire change among adults; however, research is needed to understand the mechanisms of this influence, and whether the influence translates to action. Evidence suggests that adults hold positive perceptions of youth roles in formal political spheres (Thew, 2018), and that youth influence their parent's views on controversial issues despite partisan divides (Bloemraad and Trost, 2008) through intergenerational learning (Duvall and Zint, 2007; Lawson et al., 2019). These supportive parental responses, however, may operate more as platitudes stifling social and cognitive unease presented by youth activism than as precursors to actively supporting policy change (O'Brien et al., 2018). Fortunately, emerging research suggests youth activism can promote behavior and policy change in some contexts including climate change (Haynes and Tanner, 2015) and marine debris (Hartley et al., 2021). Though little research has explored the mechanisms for this process, several studies posit that young people may activate common values of wanting the best for future generations (Lawson et al., 2019), and so may be uniquely equipped to galvanize environmental action. In this paper, we contextualize descriptions of Higgins' development and experience as an environmental activist with primary qualitative research to shed light on the role of young people in political processes associated with responding to the environmental issue of marine debris. The supporting qualitative content was driven by the question *"what factors contribute to positive adult responses to youth environmental activism, and what are those responses?"*

Personal Perspective From a Youth Environmental Activist

Consistent with evidence demonstrating that young people can influence parents and family members (Ballantyne et al., 2001; Williams et al., 2017; Lawson et al., 2019), Higgins' first steps toward environmental activism started at home. Starting around age 10, Higgins studied energy conservation, renewable energy, and water pollution, and shared her discoveries with family members around the dinner table. Adults in her family began discussing their collective energy demands and how they could make small improvements in their home. They decided to reduce energy waste, prioritize carpooling, and prioritize environmental issues when evaluating political candidates. Many of Higgins' memories at her grandparents' house include the use of single-use plastic cups and plastic water bottles, yet after years of familial encouragement from their granddaughter, there has not been a single-use cup or water bottle in their home for over 5 years. They often call their granddaughter for her advice on environmentally responsible purchasing decisions, including their switch to hybrid vehicles.

Higgins also saw the same intergenerational learning occur among the youth she mentored. Higgins worked as a counselor at the Love A Sea Turtle (LAST) outdoor summer education camp for 8 years, where she fostered confidence and action-oriented traits among younger campers. Several years later, Higgins ran into one of her former campers and their family in the grocery store. Immediately, the mother of the former camper jokingly chided Higgins, saying, "Thanks to you, we can't use any plastic in our home anymore, we always refuse straws at restaurants, and I can no longer send my kids' school lunches with zip lock bags in them" (*K. Higgins*, personal communication, 2014). Although the nature of the conversation was convivial, the undertones were significant: Higgins realized that her influence on the LAST camper had led to subsequent intergenerational learning outcomes for that camper's parents and their associated environmental behaviors. These personal anecdotes reflect research suggesting intergenerational learning shifts familial attitudes and behaviors on environmental issues including water pollution (Uzzell, 1994), air pollution, litter (Ballantyne et al., 2001), and climate change (Lawson et al., 2019).

Higgins decided to expand her efforts into community action. At 16, she was selected as one of the 15 inaugural members of the EarthEcho International Youth Leadership Council, which galvanized her interest in more formal environmental political activism. Her youth council peers introduced state bills to require installation of solar panels on new buildings, demonstrating to Higgins that youth political participation was possible. Later that year, she traveled to Washington, DC, where she and other youth council members made Congressional visits where Senators showed interest in what the youth councilmembers had to say. These interactions solidified Higgins' belief that politicians would be willing to talk to and authentically engage with young people.

Energized by her trip to Washington, DC, Higgins began to incorporate more formal political activism into her efforts with LAST. She began by helping to develop a water quality testing classroom at a local park, where visitors could engage in an international citizen science project. Higgins promoted opening day to community leaders, the town mayor, and multiple news outlets. At that formal opening, the mayor of Greenville, North Carolina announced a proclamation[1] that World Water Monitoring Day would be a city holiday each year. Fueled by this success, Higgins took another trip to Washington DC with LAST the following summer. Armed with evidence, research, talking points, and a fervor often unique to young people, she organized a meeting on seismic blasting and offshore drilling with the environmental advisor to her state Senator, Thom Tillis. At the time, President Trump was suggesting offshore drilling on the coast of North Carolina and Senator Thom Tillis had expressed support for the plans (Hotakainen, 2018). The conversation was difficult—the young people did not feel as though they were connecting with the environmental advisor to their Senator. However, despite not seeing eye-to-eye in their initial meeting, shortly thereafter, Thom Tillis reversed his stance on offshore drilling in NC (Cama, 2019).

Higgins is now leveraging her college years to learn more about the mechanisms of youth influence over adults. In one of

[1]Greenville, North Carolina World Water Monitoring Day Proclamation Day: https://www.facebook.com/watch/?v=1856624627704390 (accessed April 10, 2021).

TABLE 1 | Primary questions used for interviews with informants who either attended an in-person youth-led civic engagement event or watched a youth-developed PSA video on marine debris.

1. Why are you here today?
2. What are your reactions to the event?
3. How do you perceive the roles of youth in solving environmental challenges in your community?

her first classes, she read several papers documenting intergenerational learning (e.g., Lawson et al., 2018) and began the undergraduate research project assessing efficacy of youth-led efforts to impact marine debris policy described below.

METHODS: YOUTH POLITICAL ACTIVISM STUDY

We completed a qualitative study to investigate adult responses to both in-person (e.g., presentations at town hall meetings) and virtual (e.g., video public service announcement [PSAs]) political activism delivered by fourth and fifth grade students (students aged 8–10) during 2018–2020. The activism events focused on marine debris in North Carolina, United States. Guided by the question, *"what factors contribute to positive adult responses to youth environmental activism, and what are those responses,"* we were interested in reactions to the presentation by both voters and local officials—including changes in attitudes and/or action—as well as how the presentations influenced adults' views on youth roles in political processes. As our aim was to provide context for Higgins' experience, we chose to capture immediate, initial reactions from adults with intercept interviews. Below we summarize our research methods, on which we expand in **Supplementary Appendix 1**.

Interview Protocol

We used a qualitative approach (O'Leary, 2017) to explore local officials' (n = 4) and community adult (n = 14) perceptions of young people in public political spheres. One-on-one, semi-structured interviews began with open-ended, primary prompts that allowed participants to drive the conversation (O'Leary, 2017) (**Table 1**).

Student Presentations

Students designed and carried out activism events as part of a year-long marine debris curriculum. Grounded in pedagogical strategies designed to maximize students' competence (Mitra, 2004; Zeldin, 2004), self-confidence, and agency (Bandura, 1989), the curriculum included background information on marine debris, hands-on explorations of marine debris impacts, and civic engagement activities such as creating either video PSAs or conducting in-person community events[2]. One in-person presentation to a Board of Commissioners in Fuquay-Varina, NC (February 2020) occurred before response to the COVID-19 pandemic forced the students to focus on PSAs. At the board meeting, the young people wanted their community officials to learn about the marine debris issue and develop community ordinances to reduce sources of marine debris. Students gave each board member a white board and marker, and requested that the board members respond with their guesses for how long it takes various items to break down in the ocean, displaying their answers to local meeting attendees (n = 75+). The highly erroneous responses provided the students an engaging and comedic platform from which to discuss the issue. Students designed and delivered the presentation. Students also created a logo and slogan, "*A Dash More Fantastic, We Use Less Plastic*," based on their town's own official tagline, "*A Dash More*," and then used the town hall meeting to garner support for it. Students envisioned the logo as a way for businesses to display their support for marine debris solutions with a sign or sticker in their storefront window. Through this process, the students provided concrete solutions to the marine debris issue in their own community and called on their officials and community members to take action. Subsequent follow-up activism efforts included contacting local businesses to encourage use of the logo, and other students developing 37 total PSAs across the entire state of North Carolina (see YouTube link[3]), which we direct-emailed to local officials. As with the in-person event, students designed and delivered the PSAs, with support from teachers. A review of video PSAs points to similar goals—to educate viewers on the issue and inspire action.

Data Collection

We recruited participants through intercept sampling at the in-person event (i.e., directly approaching town hall participants), or via email invitation for the video PSAs. We conducted 16 intercept interviews at the in-person event and two phone interviews with local officials who viewed the online PSAs. All participants were given pseudonyms.

Data Analysis

We analyzed all transcripts using NVivo software, Version 12 Pro (QSR International, 1999). Prior to conducting the interviews, we created a coding framework based on existing literature related to adult attitudes toward youth political activism (Derr et al., 2018; Payne and Hart, 2020). We shaped themes and subthemes by iterative cycles of analysis, as the authors read over the transcripts for word repetition, explored context and usage of certain concepts and words, and examined the interconnections therein (O'Leary, 2017).

[2]Duke University Marine Lab, Community Science Team's Marine Debris curriculum: https://sites.duke.edu/communityscience/files/2020/06/DUML-Marine-Debris-Curriculum2020.pdf (accessed April 14, 2021).

[3]PSA videos affiliated with this project: https://www.youtube.com/channel/UCDi6GpY4b1RIEYw_H8OcXvA (accessed April 10, 2021).

FINDINGS

Four central themes emerged around adult responses to youth activism. Informants reported that young people were inspiring, that they wanted to support young people, that they viewed young people as able to provide leadership for local action, and that young people could effectively challenge the establishment. Informants perceived young people to be change-makers and referred nearly unanimously to them as "the future." Many informants also took note of how informed, empowered, and solutions-oriented the students were, with comments such as *"Young people can not only teach adults, but teach other young people lifelong habits for environmental sustainability."* Even the Mayor commented publicly on the leadership and inspiration displayed by the students at the end of the event by saying to everyone in the room, "*We've got to use things sensibly. I think it's a little bit deeper than just plastics. 'Where do we want our world to be 50 years from now?' ... We learned a lesson today from our young people."*

Youth Are Inspiring

Young people were described as inspirational as they build hope in the future. Josh said, *"If they [the young people] can bring awareness to what's going on today and make a small change, maybe that can make a big change in the future."* While reflecting on the town hall event, Cassie told us, *"When you're older, you forget at that age how passionate you can be about something and you can tell they really weren't just reading the script, they were really into it."* Informants described young people as inspirational leaders repeatedly:

> "I feel like they are going to be the leaders in environmental change, and they're doing a great job already in an elementary school."—Mike, Town Hall Event.
>
> "It's very important because they're learning at a young age what would impact them and the environment, so I would think, definitely, they have a voice even now at this young age, and I think it's wonderful."—Brian, Town Hall Event.
>
> "They're passionate enough about it that they are standing up here in front of a room packed full of adults that they don't know."—Jocelyn, Town Hall Event.
>
> "This is going to be a mission for them in the future so it's awesome that they're starting now."—Alexis, Town Hall Event.
>
> "And then they can start influencing their parents and their own [families'] purchasing to make those changes . . . so I think they are [family] influencers, and then also getting involved within their communities."—Stephanie, PSA video.
>
> "I guess just being young, you have the mindset that you want to hear what they have to say."—Maria, Town Hall Event.

Adults Want to Support Youth

Informants reported wanting to help young people because they were future leaders, and *"the ones that have the ideas, they're flexible and open to being those change-makers."* Informants also noted a desire to support the young activists educationally and emotionally. Brian said, *"If they learn this stuff now, hopefully it'll carry on throughout their adult life."* Lauren supported that idea by saying that the best thing adults can do to support young people is to, *"I mean—simply—that's the best thing I can say is: continue their education."* Emotional support and encouragement were also mentioned multiple times. Matt noted, *"It was very important for them [the youth] to feel as if they were being heard"* and went on to elaborate, "*I think it was good for them to be in this venue to present that, because it made a connection to them in the future about government and [officials] being willing to listen."*

Youth Can Provide Leadership for Local Action

Adults believed that young people could provide leadership for local action by being spokespeople on partisan issues. After watching the PSA videos, Katie explained, *"I really do think that the voice of young people in this [politics] is so important because there's such a divide between old policymakers and legislators."* Similarly, Maria described youth as being trusted messengers, saying, *"I thought they did a very well-prepared job, and I probably listened to them more than I would if it was some older people up there,"* which Mike echoed with, *". . . hearing their statistics, I'll probably make a lot more effort to use reusable bags and take other steps to keep stuff out of the landfill."* Similarly, young people were described as providing leadership needed for action with comments such as, *"I really view young people as leaders and passionate committed leaders that clearly are informed . . . and are passionate about the environment, not only for humans."* Dawn described the young people as communicators doing *". . .a great job of presenting some severe problems that we're faced with in the future."*

Several informants applauded the students' solutions-oriented approach that included a "seal" that students designed for restaurants or local businesses to display confirming their commitment to reduce single-use plastic. *"Having the symbol posted at the restaurants that they happen to be straw optional or paper straw to get the awareness [out] there"* came up for multiple informants.

"I think they can have a big impact, especially the more voices that are heard from the community, not only to the elected officials, but for private businesses as consumers . . . I think it can be impactful in that way because you can make a choice on a vendor or business based on some of their policies if those things are important to you."—John, Town Hall Event.

"I think that's kind of the key to changing things letting these kids know . . . their voice can make changes in their small community, like the signs they're talking about at restaurants."—Jocelyn, Town Hall Event.

"They've got some of the businesses around here to recognize it as well!"—Brian, Town Hall Event.

Youth Can Challenge the Establishment

There was an overwhelmingly positive response to the students "challenging" their Board of Commissioners in-person at the town hall event. Respondents found the white board activity informative and engaging. Informants said:

"I thought they were challenging to the board and asking good questions, and I thought it got a good response from everybody . . . They did a good job making points and actually challenging the elected officials, so it was comical—I thought they did a great job."—Lauren, Town Hall Event.

"[I liked] all of the facts, and I think the questions to the commissioners themselves was very impactful because they [the commissioners] were way off-base for most of them."—Chloe, Town Hall Event.

"I like the statistics [on] how long things take to break down—that really helps to give it scale."—Mike, Town Hall Event.

"I thought it was very creative, the way they asked questions of the town council."—John, Town Hall Event.

DISCUSSION

It should perhaps come as no surprise that young people are inspirational, able to capture the emotional and educational support of adults, and can be viewed as leaders towards positive change despite their young age. The young people in our study were operating in formal adult spheres (i.e., town hall meetings and PSAs targeting community officials), but youth broadly are approaching systemic change both from within and outside of the system itself (Rickford, 2016). For instance, young people are presently standing on the frontlines with the DREAMers, March for Our Lives, the International Indigenous Youth Council, and the Black Lives Matter movements, largely driving calls for systemic change around a host of issues (Hogan, 2019). Our study provides one additional account of how youth activism can engender positive responses from adults within local political systems. Our results suggest that when young people engage in local environmental politics (e.g., town halls) or grassroots campaigns (e.g., video PSAs), adults seem prepared to respond with support, trust, and change, even if they did not immediately respond with a pledge for action.

The receptiveness of the adults in this study to youth-led environmental activism holds promise for both young people and communities. With the direct adult support of youth-led initiatives, young people may feel empowered in their communities, as the young people in this study were after playfully challenging local officials. This type of youth-led environmental activism can help youth influence their own futures (Kirshner, 2015), particularly when it inspires a nurturing response from community adults like Matt who said his efforts to *". . . [make] a connection to them . . . about government and [officials] being willing to listen,"* reflected his desire to promote future civic activism among youth. Further, we found evidence that adults looked to the opinions of young people in their community for direction on how to prepare for the future and preserve it for coming generations. This is consistent with recent research that shows when young people are empowered and have high levels of agency, their concrete policy suggestions are generally well-received by adults (Thew, 2018). In short, evidence supports that young people benefit from environmental activism (Chawla and Cushing, 2007; Kirshner, 2015), and that this activism is shaping adult environmental perceptions (this study; Lawson et al., 2019; Hartley et al., 2021). This study is consistent with these findings, suggesting that meaningful civic education for young people (Brodie-McKenzie, 2020) can empower, support, and amplify the voices of young people, and help young people and adults alike move towards becoming better citizens.

Positive adult responses to activism among young people may backfire when it occurs without corresponding changes in adult behavior and policy action (Silberman, 2018). Civically engaged young people (e.g., Greta Thunberg) report feeling dismayed that transformative social change in the form of political or environmental impact is not taking shape (Payne and Hart, 2020). In fact, Thunberg herself recently expressed disappointment that her environmental initiatives did not seem to be making an impact in subsequent political action (Payne and Hart, 2020). Translating individual officials' support for young peoples' activism into policy change is challenging and faces barriers including partisan gridlock (Iyengar and Westwood, 2015). However, young people can promote officials' support for specific policies (Hartley et al., 2021), a critical step between supporting the ideas of young people and enacting policy. In this study, policy did follow the event, as the town where the students conducted their in-person civic engagement event adopted a plastic reduction policy eliminating the use of plastic bags for yard debris and loose-leaf collection four months after the event (Fuquay-Varina, 2020). Like with Higgins' experience with Senator Tillis changing his stance on off-shore drilling, we cannot be sure that student presentations directly caused the policy change, but the timing is encouraging. We are hopeful that our preliminary findings from this work and future studies in this arena will solidify evidence that youth-led civic engagement and environmental activism can inspire adults to address marine debris (Hogan, 2019).

LIMITATIONS AND FUTURE RESEARCH

We acknowledge several limitations of this study related to its design and timing. First, Higgins' perspective as a youth environmental activist when she was the same age as the student presenters in this project could have impacted the interview process, as well as reading, coding, and thematic analysis of the transcripts, which we ameliorated by closely following interview protocols and iteratively collaborating on data analysis as a research team. Second, although intercept interviews capture adults' immediate reactions to hearing from youth activists, this method may have introduced some degree of social desirability bias (Leggett et al., 2003). However, youth activists have reported feeling as though they are taken less seriously due to their age, not more seriously (Prothero, 2019),

so positive reactions to young peoples' activism among adults in this study are encouraging. Third, contextual factors related to responses to COVID-19 likely shaped our results. Though more in-person civic engagement events were planned, all but one were cancelled. Similarly, social conditions related to the pandemic likely shaped the relative importance of marine debris and the willingness to spend time reviewing PSAs about marine debris among community members and local officials alike. Additionally, considering that political engagement research is rapidly changing (Garcia-Albacere, 2014; Theocaris and Van Deth, 2017), future research should continue to explore mechanisms of youth influence on adults in other contexts, particularly identifying contexts where support for young peoples' activism translates to policy change. This research may include studies that employ more theoretically- and hypothesis-driven analyses than in this perspective piece. For instance, future studies may consider drawing on social constructivist traditions (Vygotsky, 1978) and communication research including the importance of framing and trusted messengers (Nisbet, 2009). Youth voices may resonate with adult audiences based on a frame with shared cultural understandings (Benford and Snow, 2000), such as promoting a better future for children to inherit. Similarly, future research could compare efficacy of messages from youth vs. adult messengers.

CONCLUSION

Youth leaders and those looking to support them should be encouraged by these results, as they suggest adults, including local public officials, consider youth voices valuable and uniquely situated to foster productive political processes for addressing marine debris. As history submits, and as Higgins has seen from personal experience as a young environmental activist coupled with her work as an undergraduate research assistant, young people may be the unsung leaders of the environmental policy movement. Although they cannot vote, they can and do influence their households, communities, and local governments. Empowering young people means that we do not have to wait for them to grow up to see change; they can lead us now, and voters and policy makers say they will listen. After all, our elected officials are charged with enabling the self-proclaimed ideal of "liberty and justice for all," wherein "all" includes the young people in their charge (Hogan, 2019). The time is now for all of us, but especially our local officials and communities, to start moving towards environmental solutions in which our local young people are boldly leading the way.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by North Carolina State University Institutional Review Board (#12847). Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

All authors contributed to study design. MJ implemented research prerequisites with students, including preparation for the Fuquay-Varina town hall event. JH and KH were responsible for data collection and analysis. KH was responsible for transcription of all interview files. All authors contributed to data interpretation. JH was responsible for the initial drafting of the manuscript, with support from KH. KS and MP edited the manuscript, and all authors approve of its final form.

FUNDING

This work was made possible by a North Carolina Sea Grant-funded project. Project #R/18-ELWD-1.

ACKNOWLEDGMENTS

The authors would like to thank North Carolina Sea Grant for funding the research project, and the NOAA Dr Nancy Foster Scholarship for funding the PhD Student at the helm of the paper (Jenna Hartley). Thank you to Dr Elizabeth A. DeMattia of the Duke University Marine Science Lab's Community Science team for conceptualizing and developing the Marine Debris Curriculum that teachers used throughout the year with their students. Thank you to Alexander Johnson (NC State University undergraduate researcher) for assisting with data collection. The authors would like to express their gratitude for the community adults and local officials for donating their time for interviews. Lastly, the authors would especially like to thank the participating teachers and students that made this project possible, all along believing and practicing one of the main tenets of the NC State University Environmental Education Lab: education is empowerment.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2021.636583/full#supplementary-material

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Political Science

ORIGINAL RESEARCH
published: 09 August 2021
doi: 10.3389/fpos.2021.635822

"Glocal" and Transversal Engagement in Youth Social Movements: A Twitter-Based Case Study of Fridays For Future-Barcelona

Ludovic Terren[1]* *and Roger Soler-i-Marti*[2]

[1]Department of Law and Political Science, Open University of Catalonia, Barcelona, Spain, [2]Department of Communication, Pompeu Fabra University, Barcelona, Spain

In the last decade, there has been a significant rise in the number of global social movements, generating claims of a new networked era of global social movements, in which young people often play a central role. Young generations and social movements tend to identify with a diverse set of social and political issues on both a global and local scale, while often displaying a progressive and transversal outlook. Among these youth social movements, we find Fridays For Future, a youth climate organization noted for its unique scope and tactics as well as for illustrating the prominence of environmental issues in youth activism. Since 2018, the movement has progressively grown into a network composed of many local and national groups across the world. Beyond analysis of the global character of the movement and the profile and motivations of its activists, it seems opportune to look at how—at the organizational level—these local groups evolve and position themselves. Based on a social network and a content analysis of Fridays For Future-Barcelona's Twitter account since its creation, this article explores the organization's "glocal" and transversal dynamics, the relationship that might exist between these two, and the potential influence of the COVID-19 pandemic on these processes. The results show that, stemming from a global preoccupation for climate change, this Youth Climate Movement organization has been increasingly oriented towards local-level networking, anchoring its activism in local struggles and realities. They also show a positively-associated process—reinforced by the COVID-19 pandemic—of increasing transversality, reflecting aspirations for global justice and the idea of an interdependency between climate change and other social, political and economic issues.

Keywords: global social movements, fridays for future, climate change, social media, glocal, local, twitter, transversality

OPEN ACCESS

Edited by:
Matt Henn,
Nottingham Trent University,
United Kingdom

Reviewed by:
Sarah E. Pickard,
Université de la Sorbonne Nouvelle Paris III, France
Ana IsabelNunes,
Nottingham Trent University,
United Kingdom

***Correspondence:**
Ludovic Terren
lterren@uoc.edu

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *30 November 2020*
Accepted: *23 July 2021*
Published: *09 August 2021*

Citation:
Terren L and Soler-i-Martí R (2021) "Glocal" and Transversal Engagement in Youth Social Movements: A Twitter-Based Case Study of Fridays For Future-Barcelona. Front. Polit. Sci. 3:635822. doi: 10.3389/fpos.2021.635822

INTRODUCTION

Since the latter half of the 20th Century, there have been consolidated trends whereby social movements have been increasingly globalized and "specialized," or single-issue oriented. From the 1960s onwards, "new" social movements started to put more emphasis on self-expression and to focus on specific causes, while the more transversal collective action of the working class was losing prominence (Tilly 2004). In parallel, concurrent processes of economic globalization and technological change have contributed to further strengthening transnational causes and identities, triggering a significant shift in social movements' claims, strategies and alliances (Tarrow and McAdam

2005). This process has been strengthened in the waves of transnational protests since the 2010s (in which the use of digital media played an important role). Some claimed that we were entering a new era of global social movements characterized by networked citizens voicing their claims at international institutions and economic elites (della Porta and Mosca 2005; Smith and Wiest 2012; Castells 2015). During this same period, research on youth political participation identified similar trends, among which an issue-based engagement, post-materialist values (emphasis on self-expression, global justice, environmentalism, among others) as well as global identities and concerns (Cammaerts et al., 2014; Soler-i-Martí 2015). In fact, some of the most relevant transnational protests of the last decade, from the Arab spring to the last wave of climate movement, have a deep generational dimension.

However, we also find some evidence that nuance both the dynamics of globalization and specialization of social movements. On the one hand, an over-emphasis on international networks might have clouded the importance of local and national contexts in the emergence of collective action and the forms it takes (Voss and Williams 2012), contexts that are still central to the mediation of meanings and symbols (Brennan et al., 2005). Digital media not only enable (or at least facilitate) global connectedness, but they also fortify relationships and broaden networks on a more immediate local, regional, or national scale. Some talk about contemporary social movements as being increasingly "glocal," operating both globally and locally, and with overlapping online and offline networks (Urkidi 2010).

On the other hand, while contemporary youth social movements indeed tend to be more issue-based, or single-issue oriented (Castells 1996), some scholars identify an increasingly transversal approach, as activists address an increasing diversity of issues and adopt what could be called a "cosmopolitan outlook" (Koukouzelis 2017; Sloam and Henn 2019). In line with this idea, even single-issue social movements would be adopting a more holistic view in their diagnoses and demands.

This article aims to contribute to the debate on the role of the local dimension and transversality in global issue-oriented movements. We expect that the reinforcement of local actions and connections with other local movements contribute to the incorporation of new issues into the activism of the global climate movement.

Due to its unequivocally global, issue-oriented and generational nature, the Fridays For Future movement represents an ideal case study. To identify the above-mentioned dynamics and examine their relationship in a specific local context, the paper focuses on the Fridays For Future-Barcelona local group. As done in previous research (de Moor 2020; Díaz-Pérez et al., 2021; Dupuis-Déri 2021), this article uses a local group of the global Youth Climate Movement as a case study. The context of Barcelona, a city with a rich ecosystem of social movements and mobilizations[1], offers an ideal opportunity to study the interactions of the local movement with other organizations and struggles. The Fridays For Future-Barcelona local group was created in February 2019 and is now led by around 20 highly involved and educated young activists (most of them between 15 and 25 years old). As its name suggests, it is part of the global Youth Climate Movement organization "Fridays For Future". This global strike movement was initiated in August 2018 when 15-year-old activist Greta Thunberg—now a leading and inspiring figure of the movement—started a series of strikes outside the Swedish parliament protesting inaction on climate change and the unwillingness of those in power and society in general to give this issue the urgent attention it deserves. Soon joined by others, this novel movement quickly spread globally through the hashtag #FridaysForFuture, and seemingly provided a global platform on which concerned young people from across the world could articulate their claims and organize to push for climate action. Through sustained weekly pressure on authorities *via* school strikes, Fridays For Future activists—in large part composed of high school and college students—have managed to give a new life to climate activism and to substantially increase the prominence of the issue of climate change in the political and media agenda.

This article looks at the evolution of Fridays For Future-Barcelona's "glocal" and transversal nature as well as examines the relationship between these two phenomena. It does so through a content analysis of their tweets and a social network analysis of their interactions (both from the creation of their account in February 2019 until the end of the first COVID-19 lockdown in Spain in mid-June 2020).

More precisely, the article first examines the extent to which global and issue-oriented social movements are reinforcing themselves by anchoring their activism at the local level, creating links with other movements and incorporating other issues into their agenda. Second, it will try to fill a research gap by analyzing the potential relationship between the localization of global movements and the increasing transversality of their demands.

The following section will provide a brief theoretical overview of the global-local dynamics of social movements, as well as of the idea of transversality in social movements. The article will then present the data that were used and the results of the analyses, before moving on to the conclusion.

The results suggest that, arising from a global preoccupation for climate change, the youth climate movement organization Fridays For Future-Barcelona has been focused on local-level mobilizing and networking—anchoring its activism in local struggles and realities. It has increasingly adopted a transversal outlook built upon aspirations for global justice and the idea of an interdependency between climate change and other social, political and economic issues. Finally, the results suggest that this local-level networking has favored the gradual incorporation of other issues into their own discourse.

GLOBALIZATION AND LOCALIZATION OF SOCIAL MOVEMENTS

Although they are not a new phenomenon, through the deepening of globalization and the expansion of information and communication technologies (ICTs), there has been—in the last decades—a significant rise in the number of transnational social movements. These are conventionally defined as social movements that are active in more than one country (della Porta

[1]In the last decade, Catalonia, and Barcelona in particular, has experienced a wave of virtually uninterrupted mobilizations linked to, on the one hand, social and political struggles (reinforced by the 15 M), and on the other hand, to the issue of Catalonia's independence.

et al., 2009; Smith and Wiest 2012). There can be a wide variation in the scope of these transnational movements, from those operating in a few countries to global movements present across nearly all of the world's nations.

Increasingly, those global movements and campaigns arise from global-level influences such as climate change or economic liberalization. Global capital and structures of domination have contributed to exacerbating collective grievances across the world on a variety of issues such as human rights and global warming (Almeida and Chase-Dunn 2018).

In parallel, the advent of new information and communication technologies (ICTs) is believed to have facilitated both the proliferation of non-institutional forms of political participation (e.g., protests, petitions, boycotts, etc.) and the rise of global social movements. ICTs allow for denser ties between activists and social movement organizations across the world (Bennett and Segerberg 2012), and they drastically reduce the costs associated with alternative forms of political participation, for example by allowing for instant communication flows and by reducing the need to meet physically in order to organize and coordinate protests (Earl and Kimport 2011; Kavada, 2015). The outburst of transnational protests (e.g., Arab Spring, Occupy Movement) from the 2010s onwards convinced many observers that we were entering a new era of global social movements. In this "networked" era, digital media play a central role in linking young, well-educated protesters who feel part of global movements making claims targeted at international institutions and economic elites (della Porta and Mosca 2005; Smith and Wiest 2012; Castells 2015).

ICTs intensify connections between global structures and create structural equivalence across different parts of the world, fostering horizontal networks which play a key role in the spread of social movements, with subsequent distinctions in the local forms of collective action (Snow et al., 2004; Erikson and Occhiuto 2017). Beyond their role in facilitating global connectedness, ICTs also strengthen relationships and broaden networks within the more proximate regional or local context. In fact, social movements are believed to be increasingly "glocal," operating both at the global and the local scale, with a strong overlap between online and offline networks (Hampton and Wellman 2001; Urkidi 2010).

As our data suggest, "techno-enthusiasm" surrounding the ability of ICTs to create global synergies and a global public sphere should not cloud the importance of local and national contexts in the emergence and forms of collective action. Scholars studying transnational social movements have in the past been criticized for over-emphasizing international networks and for neglecting the role of the local or national context in which social movement organizations are created and operate (Gordon 1984; Voss and Williams 2012), a context that is believed to mediate the conditions for global collective action (Silva 2013). Yet, it seems that localization and local-level organizing and networking are key components of contemporary youth social movements.

The shifting balance of power across the state, the economy and civil society, and democratic institutions' loss of control over a growing number of policy issues and processes (Strange 1996; Burnham 2001; Crouch 2004) have been particularly evident since the 2008 financial crisis (Miró 2021). These might be contributing to gradual changes in citizen engagement and in the strategies and practices of contemporary social movements (Fawcett et al., 2017). Indeed, as activists grasp the increasing power of the economy in relation to the state—whose capacity to grant concessions is fading—they are building new alternatives for civic engagement within their more direct local context, even when driven by global causes and concerns (e.g., financial crisis or global warming). These are increasingly aimed at engaging civil society instead of opposing the state, which they realize is increasingly unlikely to lead to meaningful change (Williams 2008; Voss and Williams 2012). Faced with a growing dissatisfaction with the functioning of democracy and a loss of confidence in institutions, social movements are developing new democratic practices at the local level, both from theory and from practice, building new spaces of social trust and politics from below (Della Porta 2012). It could be said that globalization shaped social movement dynamics in several ways, on the one hand by linking global structures, and on the other hand, by making civil society the most realistic arena for building alternatives and challenging the status quo.

Local struggles and localization remain the base for social movements and for the mediation of meaning and symbols (Groenewald 2000; Brennan et al., 2005). Contemporary social movements are increasingly built around global and common causes, but are autonomous and place-based, engaging civil society at local and regional levels. In this article, we expect these local interactions to contribute to a progressive increase in the transversality of social movements, partly through the gradual realization of the connections that exist between different struggles.

TOWARDS A TRANSVERSAL ACTIVISM?

The advent of a post-industrial society is believed to have led to important changes in terms of political participation. These are often described as a shift from a class-based ideology and a focus on material wellbeing to the rise of non-institutional and issue-based forms of engagement with a focus on post-material issues like human rights or the environment (Inglehart 1997; Cammaerts et al., 2016).

It seems that contemporary social movements like the Youth Climate Movement are indeed taking position on post-material issues in their activism (although not exclusively as they also address issues like access to housing or healthcare). Yet, instead of showing signs of an end of ideology (cf., Bell 1965), or being strictly issue-based—or single-issue oriented (Castells 1996)—they are increasingly embracing a transversal, or "cosmopolitan" outlook (Sloam and Henn 2019), considered as an ideology and a learning process (Koukouzelis 2017).

The idea of cosmopolitanism is complex, multifaceted and goes beyond transversality (Gizatova et al., 2017). Here, it is understood as a principle of mutual respect and equal moral worth of all human beings, regardless of ethnicity, nation, beliefs, gender, or socioeconomic position (Ypi 2012).

In the case of the Youth Climate Movement, cosmopolitanism could be seen as a response to the "globalization of domination" (Gills 2005), related to the idea that those who have benefited the least from extractivism and economic growth will suffer their consequences the most, in the form of infectious diseases, conflict over natural resources, droughts and forced migration, among others (Brock 2012). Cosmopolitanism, in this case, proposes a normative vision of global justice as a solution to the climate crisis, distanced from international treaties and state negotiations. While the notion of justice was traditionally confined to the politics of nation states, the idea of global justice is central to cosmopolitanism and its rejection of the statist logic of state legitimacy (Koukouzelis 2017). Cosmopolitanism ought not be seen as a fixed principle, but rather as a learning process through social change and connectivity between individuals, groups and society. It has an essential cognitive dimension which, via social processes of contestation and de-contestation of normative ideas, might unify diverse claims under an overarching "value umbrella." This learning process evolves through the realization of new connections between issues that were previously seen as isolated. The ability to see these previously unknown connections represents the foundation for the possibility of global and environmental justice (Delanty 2014). Based on the ideas of global justice and environmental justice, grassroots climate movements have gone even further in the transversality of the concept by adopting the notion of "climate justice" (Chatterton et al., 2013). The latter emphasizes, on the one hand, the connection between the global nature of climate change and its effects on local communities and, on the other, the binding link between "principles of social justice, democratic accountability and participation, and ecological sustainability" (Schlosberg and Collins 2014: 370). Looking at climate activism globally, there seems to be an increasing recognition of the need to adopt a more holistic approach to fighting climate change and reducing carbon emissions. An approach that acknowledges interdependence, that includes everyone and that—as a precondition for solving the climate crisis—addresses the underlying imbalances that have fueled the problem in the first place. These include capitalism, racism, patriarchy, or inequalities (Koukouzelis 2017; Johnson and Wilkinson 2020).

In line with their transversal outlook and this apparent unification of issues and values, research suggests that contemporary youth are more politically and culturally tolerant, and more supportive of social justice than older cohorts (Dalton 2015; Sloam and Henn 2019).

The progressive realization of interdependence (both issues and individuals), shared values, and common positions on a diversity of issues like the environment or gender equality, but also access to housing or healthcare, might lay the ground for the unification of young activists as a coherent political unit striving for global justice and the transformation of capitalist social relations and structures of domination (Hosseini et al., 2017).

The recognition of the need to adopt a more holistic approach and the realization of the connections that exist between different issues could also mark the downfall of single-issue campaigning. The latter, by not accounting for this transversality and intersectionality, might adopt a restrictive focus that merely addresses the "visible part of the iceberg."

Focusing on the animal rights debate, the following quote is a telling illustration of the above claim: "Instead of merely changing the conditions under which animals are exploited, sometimes we can end their exploitation" (Regan 2004, 196).

Going beyond the study of the "glocal" or transversal nature of social movements, this article attempts to fill a research gap by looking at the relationship between localization and transversality, using Fridays For Future-Barcelona as a case study. It draws from the assumption that closer links with other local movements might contribute to an increase in transversality, as activists realize—and act upon—the connections that exist between different issues. On top of this, we will take into account the role of the COVID-19 pandemic and the subsequent lockdown, which likely had—and is still having—a significant impact on activists and social movement organizations worldwide (Pressman and Choi-Fitzpatrick 2020; Thompson 2020).

In doing so, this study relies on Twitter data, in the form of a content and a social network analysis, as will be developed in the next section.

DATA AND METHODS

This article is based on data collected from the social media platform *Twitter*, which remains a very popular and accessible source of data for social science research, often praised for its political value and relevance (Tumasjan et al., 2010; Jungherr 2016). The movement uses other social networks such as Instagram or Facebook, but Twitter is where they post most frequently, better capturing their day-to-day activity, positioning and interactions. Social media data—or digital trace data—allow for observations of online social behavior in its natural setting, behaviors that are not solicited nor potentially influenced by the researcher. Although not devoid of weaknesses (e.g., lack of depth and of individual-level insights), digital trace data provide the researcher with a window into large-scale processes and behaviors, where more traditional survey or ethnographic data might introduce biases, such as those associated with social desirability or a lack of accuracy of retrospective self-reports (Fisher 1993; Stodel 2015). The analysis of the content that the movement publishes on social media is also a very insightful source for analyzing its discourse (Polletta and Gardner, 2015). Social media posts leave a trail of the messages, topics, orientations, and relationships with other actors with whom the movement presents itself publicly.

Taking Fridays For Future-Barcelona as a case study, this article relies on two sets of data that help us improve our understanding of contemporary youth political participation and the Youth Climate Movement. The timeline for both data sets runs from February 2019 (when the organization and Twitter account were created) to mid-June 2020 (corresponding to the

end of the first COVID-19 lockdown in Spain). This time period not only allowed us to observe the organization's evolution from the start, identifying dynamics of localization and increasing transversality, but also to examine the influence of the COVID-19 pandemic and the confinement measures on these identified dynamics.

The first analysis of this article is a social network analysis (SNA), while the second is a content analysis.

Social Network Analysis (SNA) is used to examine patterns in relations between interacting units, focusing on network structures in terms of nodes (i.e., Twitter users) and ties or edges (i.e., the interactions or relationships between these nodes) (Prell, 2011; Scott and Carrington, 2011). They are particularly useful in identifying trends in network dynamics, giving information on the positioning and activity of different actors and organizations.

The social network map presented in the analysis below corresponds to the whole @f4f_barcelona Twitter user-network between February 2019 and June 2020. It is based on all the tweets that appeared in the @f4f_barcelona timeline, including their own tweets but also retweets and mentions (including to other accounts *via* retweets of @f4f_barcelona). The size of the circles corresponds to the in-degree of the accounts (the attention that specific accounts receive in the network—larger circles received more mentions and retweets than smaller ones). The social network map was created through Gephi using the ForceAtlas2 layout algorithm for the network spatialization (Jacomy et al., 2014). The scope (local, regional, national, international) of the accounts were hand-coded by a single coder. When there was doubt, or when no information was available, the accounts were coded as "N/A" (not available).

We carried out a content analysis of all of Fridays For Future-Barcelona's Twitter posts (tweets) from February 2019 until June 2020. The Twitter data were collected from Fridays For Future-Barcelona's official Twitter account using the *Twlets* platform. We then sampled all the tweets present in the network to only focus on @f4f_barcelona's original tweets. These were posted by members of the local group's communication commission. Each of the 724 tweets were hand-coded by a single coder using a codebook that helped us to classify their content. The codebook was developed using a bottom-up approach, identifying relevant variables as part of the data collection process. We used 33 variables of interest that included information about the date of the post, the full text of the tweet, interaction information, multimedia use, main purpose of the tweet, references to climate change or other social issues, the use of future, generational or emergency speech, references to different actors and their scope, or references to the media, among others. For the purpose of this content analysis, we specifically relied on variables related to mentions and references to different types of actors as well as to the different issues that were addressed in the tweets (see **Appendix Table A1** and **Appendix Figure A1** for more details). Based on the full text of the tweets, we also performed an analysis of the evolution of the occurrence of specific keywords.

RESULTS

In this section, we will present the results of the analyzes, starting first with the "glocal" nature of the movement, looking at the scope of their interactions through the social network analysis and examining the evolution in the scope of the movements that they mention and make references to. Second, we will move on to the analysis of the movement's transversality, looking at the evolution of their mentions or references to different issues. Finally, we will look at the relationship between localization and transversality, exploring how interactions with local-level movements and organizations might contribute to the incorporation of other issues into their discourse.

"Glocal" Nature and Localization

Looking at the whole study period, the social network map below (**Figure 1**) shows the scope of the different Twitter accounts with which Fridays For Future-Barcelona (@f4f_barcelona) interact (mentions and retweets). As mentioned above, the size of the circles corresponds to the in-degree of the accounts (the attention that specific accounts receive in the network).

The map shows the significant centrality of local- and regional-level civil society actors in the Twitter interactions of the @f4f_barcelona network.

Looking at the map, we see that although national and international accounts are present across the network, interactions with these accounts are less intense compared to interactions with local- and regional-level accounts.

We see that a majority of the edges come from and go to local- and regional-level accounts, and that the accounts with the highest in-degree are almost exclusively local and regional.

As could be expected, Greta Thunberg also has a relatively high in-degree, being the leading figure of the movement and receiving regular mentions and retweets from some of the accounts in the network. However, she does not appear central as she does not actively take part in the network (she has a low out-degree centrality in the network, meaning she does not initiate many—if any—edges).

This map suggests that, despite the potential of digital media to reach millions of people from across the world and to tap on and cultivate the scale and global dimension of the movement, their use of Twitter is primarily kept within the more proximate local and regional realm, and in many cases reflects connections that exist offline (e.g., joint actions with @xrbarcelona or @qualitat_aire). It is worth mentioning here that 93% of their tweets were written in Catalan. Only 1% of their tweets were written in English, all of which were posted in the first few months after the local group's creation (i.e., before June 2019), suggesting an initial intention to engage at the international level. In line with this, **Figure 2** below shows the evolution of the proportion of tweets that mention or make reference to different international and local/national movements. The blue and red lines correspond—respectively—to Fridays For Future groups or other movements that are based outside of Spain, whether in Europe or elsewhere. The yellow and green lines correspond—respectively—to Fridays For Future groups or

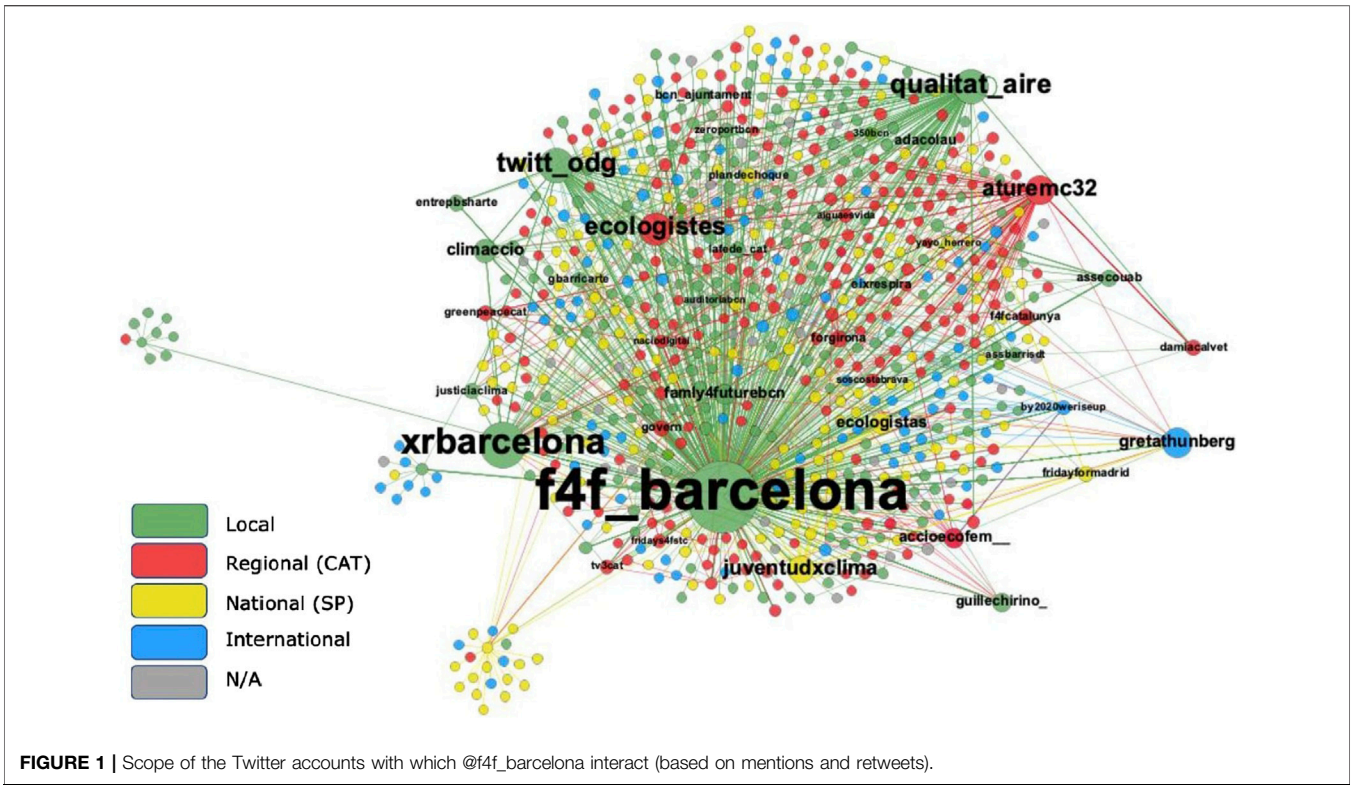

FIGURE 1 | Scope of the Twitter accounts with which @f4f_barcelona interact (based on mentions and retweets).

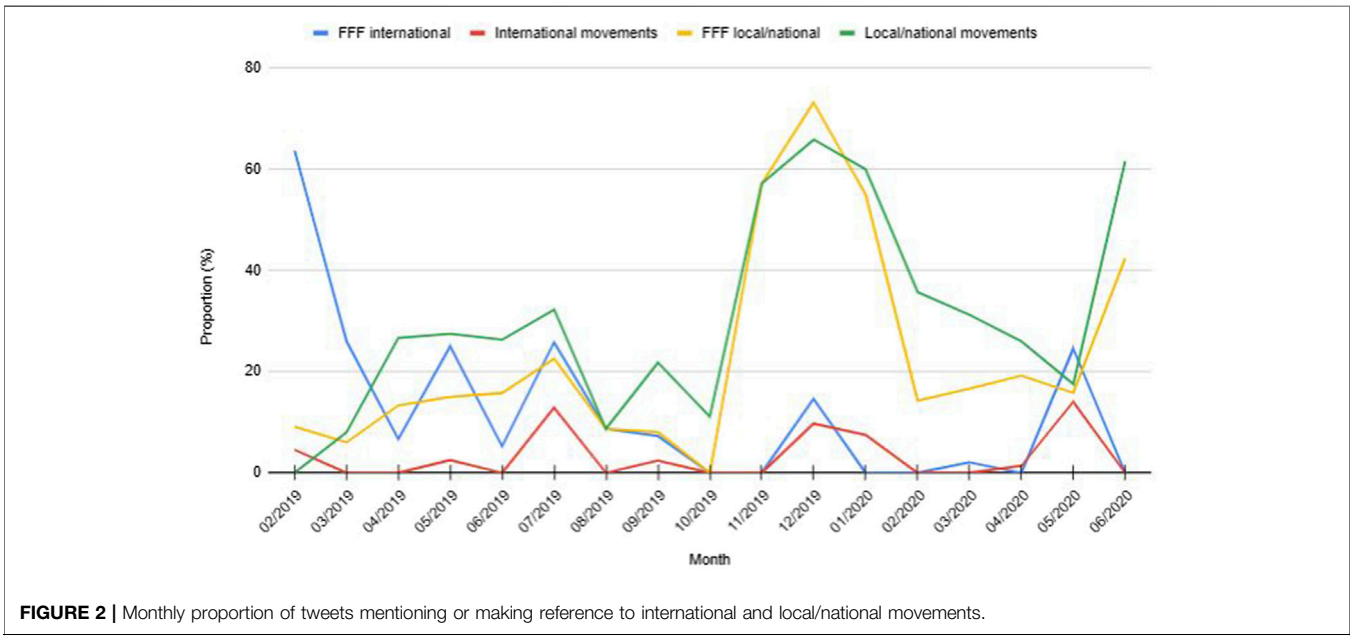

FIGURE 2 | Monthly proportion of tweets mentioning or making reference to international and local/national movements.

other movements that are based either in Barcelona, in Catalonia, or in other parts of Spain.

Looking at **Figure 2**, we notice an initially high intensity of references to and interactions with Fridays For Future groups at the international level. This relation with the global movement is notable during the first weeks following the formation of the local group in Barcelona, but then quickly decreases. Alongside this, in this same early period there seems to be a general increase in the proportion of tweets that mention or make reference to Fridays For Future groups, and in particular other movements, at local and national levels. It is likely that the peak in local/national-level interactions and references in and around December 2019 is

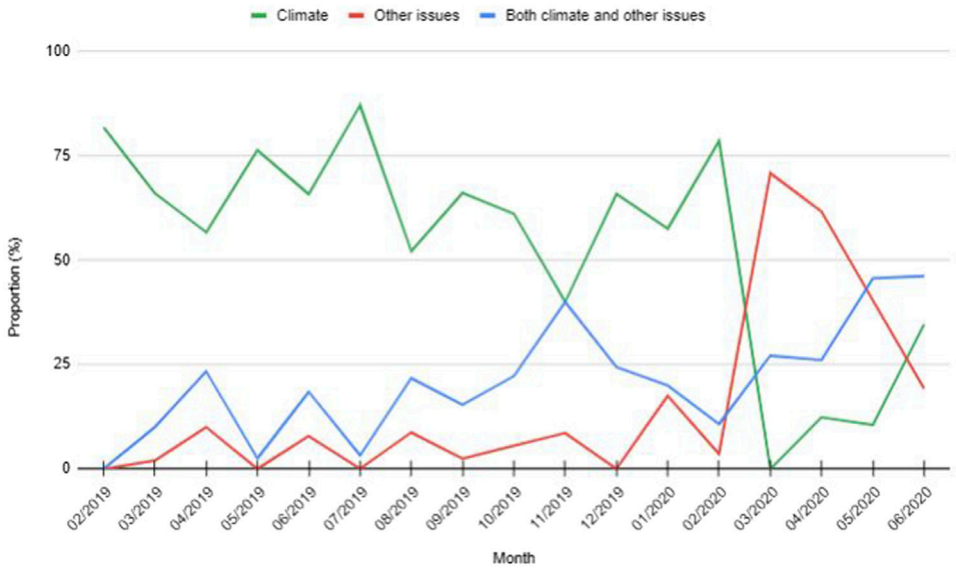

FIGURE 3 | Monthly proportion of tweets making reference to the climate vs. other issues.

partly attributable to the COP25 which took place in Madrid during the first half of this month. There were mobilization efforts among different movements based in Spain, and the organization and coordination of joint actions around the climate conference. Yet, the proportion of tweets in which Fridays For Future-Barcelona refer to and interact with local/national-level movements remains relatively high during the following months, with a new marked increase in June 2020. It should be mentioned here that in the specific case of Catalonia and Barcelona, high levels of mobilization around the independence movement—particularly related to the sentence of separatist leaders in October 2019—might have favored a higher intensity of interactions with local and regional movements. Similarly, the COVID-19 outbreak and the subsequent lockdown are also likely to have contributed to strengthening the links between this youth climate organization and other local movements dealing with other—and often related—issues associated with the pandemic (e.g., access to healthcare, public services, inequalities).

Transversality

As illustrated in **Figure 3** below, the content analysis of the tweets suggests a gradual increase in the incorporation of issues other than climate change or the environment into the activism of Fridays For Future-Barcelona.

The above graph illustrates the monthly proportion of tweets that make reference to climate change or the environment, other issues, or a combination of both. It shows a general decrease in the proportion of tweets that exclusively make reference to climate change or the environment, and an increase in the proportion of tweets that exclusively make reference to issues other than climate change or the environment. These upward and downward trends were particularly pronounced at the beginning of the COVID-19 lockdown in March 2020, when (climate) protests were no longer an option and when a significant amount of attention was given to issues of access to healthcare, the visibility of health workers, or social inequalities. This sudden shift can be explained—at least partly—by the disruptive nature of the pandemic and the subsequent measures adopted by governments worldwide, all of which significantly altered the spectrum of possibilities and future perspectives. It can also reflect an adaptation strategy by Fridays For Future-Barcelona who were willing to keep the movement alive on social media and to emphasize the interdependency of the climate crisis and other issues. However, despite all of this, the graph shows a steady increase in the proportion of tweets that refer to both climate or the environment and other issues, whether social, political, or economic. Reflecting back on the idea of cosmopolitanism as a learning process, this suggests the gradual diversification of their issue focus, along with the gradual realization of the connections that exist between the climate crisis and other social, political, and economic issues. It could in fact be that the COVID-19 pandemic has accelerated a process of increasing transversality that was already under way.

In line with the above, a look at the evolution of the occurrence of specific keywords relevant to social issues in their tweets (see **Figure 4** below[2]) suggests the same trend, seemingly accelerated by the COVID-19 pandemic and the subsequent lockdown.

The graph shows the monthly proportion of tweets that contain selected keywords relevant to social, political, and economic issues, whether of a material nature or not. Once again, it suggests an increase in transversality and in the inclusion of other issues into their Twitter discourse. For

[2]The * at the end of some of the keywords were used to include all the variants of these words. For example, "vulnerab*" accounts for "vulnerable" and "vulnerabilitat."

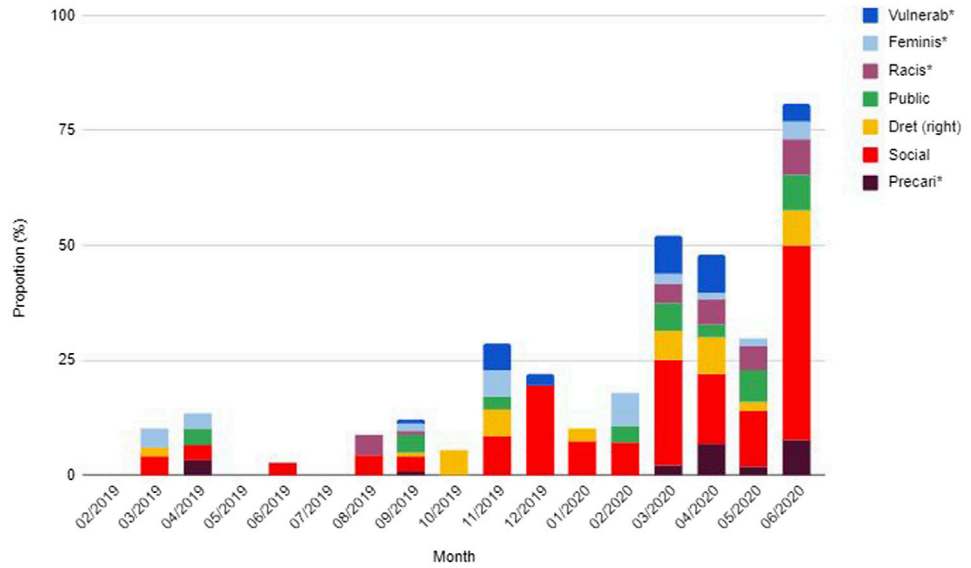

FIGURE 4 | Monthly proportion of tweets including selected keywords relevant to social issues.

instance, we see an important increase in the proportion of tweets that include the keyword "social," oscillating between 0 and 4% during most of 2019, and rising to 20% in December 2019 and 42% in June 2020. This increase might have gone hand in hand with the gradual realization of the connections that exist between global warming and social justice. The notion of 'climate justice' is key in emphasizing this link, as illustrated in **Figure 5** and **Figure 6** below.

Text translation: We will be isolated but never alone. They can confine our bodies, but never our desire. Because we want us alive, free, diverse, visible and organized. Because #ClimateJustice is social justice, it is lesbofeminist justice for a decent life.

Text translation: When we talk about #ClimateJustice we are talking about an intersectional and transversal environmental outlook, that focuses on the effects, consequences and realities that occur in all bodies, territories and lives.

The apparent increase in transversality from March 2020 onwards can certainly be attributed—at least to some extent—to the COVID-19 pandemic and its social and economic consequences, as well as to the need to adapt their tactics and communication strategy to a new and changing context. However, as mentioned previously, the results suggest the acceleration of a diversification process that was already under way and that is likely to continue going into the future.

On the Relationship Between Localization and Transversality

In the results analyzed so far, it is clear that Fridays for Future-Barcelona—despite being part of a global movement—have established a close relationship with other movements and organizations at a local, regional, and national level. In parallel, we saw that they are gradually incorporating other social issues into their discourse, beyond climate change and the environment. In this section, we will look at whether there might be a relationship between these two phenomena.

The codification of the tweets allows one to see how different aspects of the posts are related. In our case, we are particularly interested in analyzing how interactions and proximity with other local/national movements and organizations might foster the incorporation of other issues into the organization's discourse. To do this, we performed a logistic regression analysis (presented in **Table 1**) using the presence of other social issues in their discourse as a dependent variable.

Independent variables include time-related variables, such as the date and the lockdown period, the exceptionality of which might have a particular effect. In this sense, a variable that accounts for the posts that directly mention COVID-19 was included. The model also includes variables related to the purpose of the post (whether it is aimed at calling for action, covering actions, disseminating internal activities, media coverage, or highlighting objectives reached). We also included variables related to the type of discourse that is salient in the post. In particular, they refer to the discursive resources of the global movement such as the idea of emergency, the appeal to younger generations and perceptions of the future. Finally, there are four variables corresponding to different types of actors that the posts mention or refer to: Fridays For Future international; other local groups of Fridays For Future in Spain; other international movements or organizations; and other local or national movements or organizations. All the variables are dummies, except the date which is a continuous variable.

In line with the previous results, the model shows that as time passes, the probability that Fridays For Future-Barcelona's posts incorporate other social issues increases, a trend that is reinforced in the lockdown period. The fact of dealing with a topic related to COVID-19 also favors the incorporation of other social issues into the message. This reflects the organization's support to

FIGURE 5 | Example of a tweet highlighting the connection between climate justice, social justice and gender justice (or "lesbofeminist justice").

FIGURE 6 | Example of a tweet presenting climate justice as an intersectional and transversal environmental outlook.

campaigns calling for social measures to address the economic and social impact of the pandemic. Variables related to the purpose of the posts reveal how posts aimed at convening to and disseminating external (call for actions) or internal (dissemination of internal events) activities negatively affect the likelihood that the post will address social issues. These results might point to the idea that, despite the incorporation of other issues into the organization's discourse, its actions are still fundamentally climate-oriented, and so are their calls for action on social media. The results of the variables on the discursive resources of the movement suggest that the idea of emergency is used primarily to refer to the climate. In fact, the idea of *emergency* in the climate movement has tended to replace the concept of climate *change* to stress the need to take immediate action. Finally, the variables that analyze mentions and references to other organizations or movements suggest that posts that mention or refer to other local groups of Fridays For Future (within Spain) negatively affect the likelihood that the post will address other social issues. On the other hand, posts that mention or refer to other local/national organizations or movements significantly and positively affect the likelihood that the post will address other social issues.

The latter is particularly relevant for the purpose of this article. In trying to refine our interpretation of the effect of mentions and references to local/national organizations or movements on the likelihood of the post addressing other social issues, **Figure 7** below presents the predicted probabilities extracted from the model. The figure also includes the time variable as we are interested in understanding how—over our analytical timeframe—proximity and interactions with local and regional movements have affected their transversality and the incorporation of other issues into their discourse.

A first result shown in the above graph is that, controlling for the other variables, the probability that Fridays for Future-Barcelona's posts incorporate other social issues beyond climate has increased significantly over the period of analysis. It seems clear, then, that the hypothesis of increasing

transversality is confirmed by the data. These results also highlight how posts that mention or refer to other local/national organizations or movements positively affect the likelihood of addressing social issues. In any case, when incorporating the time variable, we observe that this effect occurs mainly in the first half of the analyzed time period. From February to September 2019, the likelihood of incorporating other social issues into their tweets clearly increases when mentioning or referring to other local/national organizations or movements. In contrast, in the second half of the time period, where the probability of transversal discourse increases even more, the effect of mentions or references to other local/national organizations or movements virtually disappears.

These results suggest that, in an initial phase during which the discourse of Fridays For Future-Barcelona was probably still in the process of formation, proximity and interactions with other local/national organizations and movements (facilitated by online social networks) might have influenced and contributed to the incorporation of other issues into their discourse. Subsequently, this transversal discourse seems to become integrated as their own. At this point, the probability of treating social issues further increases, while the effect of mentioning or referring to other local/national organizations or movements disappears. It seems that this transversality is then no longer linked with their interactions with other local/national organizations or movements but becomes an integral part of their discourse and identity.

DISCUSSION AND CONCLUSION

In this article, we were interested in analyzing global movements' "glocal" and transversal dynamics, the relationship between these two, and the influence of the COVID-19 pandemic.

Based on a case study of Fridays For Future-Barcelona, looking at their Twitter discourse and interactions, this article has contributed to shedding light on their local orientation, their increasing transversality, and on the apparent relationship between these two tendencies. Additionally, our findings suggest a significant influence of the COVID-19 pandemic and the confinement measures on the activism of this local group of Fridays For Future.

The advent of ICTs and the deepening of globalization have contributed to the rise of global social movements. Digital media are believed to play a central role in linking young, well-educated activists protesting before international institutions and economic elites (della Porta and Mosca 2005; Smith and Wiest 2012; Castells 2015). Yet, beyond their role in intensifying connections between global structures and shared grievances, our case study shows that Fridays For Future-Barcelona are making a use of social media (more particularly Twitter) that is more oriented towards strengthening networks and connections within their more immediate local and regional context, with an apparent overlap between online and offline networks. As our results suggest, they mostly concentrate their efforts at engaging civil society at local and regional levels, with few signs of extensive transnational organizing and networking. Although Fridays For Future can be considered as an archetype of global movements, built around global concerns and grievances, with a shared global identity and a coordinated action strategy, the local groups—and specifically Fridays For Future-Barcelona—are autonomous and place-based. This supports not only the idea of the local level as being central in social movement dynamics (Groenewald 2000; Brennan et al., 2005), but also of local civil society and awareness-raising as representing the most realistic and promising repertoire of contention in their fight for climate and global justice.

A likely related process identified in this article is one of increasing transversality. Although Fridays For Future-Barcelona started as a climate-centered organization, they swiftly and increasingly incorporated other social, political and economic issues into their discourse.

The advent of a post-industrial society is believed to have contributed to the emergence of non-institutional and issue-based political participation based on post-material values like human rights or the environment (Inglehart 1997; Cammaerts et al., 2016). Our results not only confirm claims of contemporary social movements as having a post-material orientation, but they also—and perhaps more importantly—suggest that they might be gradually unifying their struggles—built upon aspirations for global justice—under an overarching "value umbrella." Some studies have shown the persistence of the individual effect of post-materialist values in times of austerity (Nový et al., 2017; Henn et al., 2018), but it also seems that, in line with our results, social movements with a strong generational component are returning to materialist issues. The notion of cosmopolitanism can help in refining the direction of generational value change by focusing on normative and moral questions of rights and equality. Beyond contemporary activism as having a post-materialist orientation, our results seem more in line with the concept of cosmopolitanism as a moral principle of equal worth of all human beings (Ypi 2012). It might be that instead of emphasizing the material or post-material orientation of different political claims, one ought to consider the centrality of progressivist notions of equal worth and rights, regardless of whether the issue is of a material nature or not. Fridays For Future-Barcelona focus on both material (e.g., access to public services) and post-material (e.g., global warming or freedom of speech) issues, but it seems that the common thread across their activism is the principle of equal worth of all human beings, regardless of nationality, ethnicity, sexual orientation or socio-economic background.

Our results in this article seem to reflect the idea of cosmopolitanism as a learning process through the gradual realization of the connections that exist between different struggles. In an attempt to fill a gap in the scientific literature, this study has contributed to the empirical examination of the relationship between localization and transversality in social movements. We have highlighted the potential effect that close connections with other local movements might have on transversality—or the incorporation of other issues into their own discourse. This effect seemed most important in the first phase after the movement's creation, after which this

TABLE 1 | Logistic regression model of posting on other social issues.

		B		(se)
Constant		342,980	—	(189,293)
Period	Date	0.000	*	(0.000)
	Lockdown	0.872	*	(0.393)
Reference to COVID-19		1,058	**	(0.355)
Purpose of the post	Call for action	−0.654	**	(0.244)
	Coverage of actions	−0.492	—	(0.264)
	Dissemination of internal activities	−1,282	***	(0.302)
	Media coverage	−0.257	—	(0.325)
	Objectives reached	−0.896	—	(0.626)
FFF speech	Emergency speech	−0.687	**	(0.226)
	Generational speech	−0.828	—	(0.485)
	References to the future	0.009	—	(0.260)
Mentions and references to other organizations and social movements	FFF international	−0.386	—	(0.391)
	FFF local	−0.729	*	(0.298)
	International org. or movements	1,057	—	(0.539)
	Local or national org. or movements	1,027	***	(0.271)
N	—	726	—	—
Nagelkerke R2	—	0,417	—	—

*sig < 0.05
**sig < 0.01
***sig < 0.001

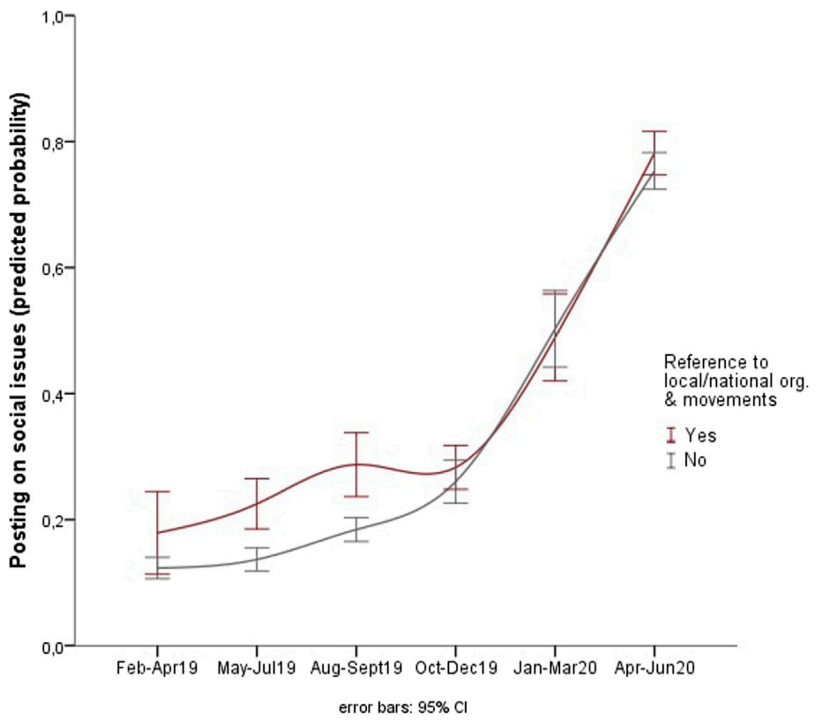

FIGURE 7 | Predicted probability of posting on other social issues by time period and reference to local/national organizations and movements.

transversality seemingly became integrated into their own discourse. While it would be wise to confirm this effect in other contexts and with other movements, it is likely that these local connections fuel a politicization process, opening a window into a diverse set of social, political and economic issues previously seen as unrelated. The Fridays For Future movement has been particularly attractive among young people, many of whom did not have any prior militant experience (Wahlström et al., 2019; de Moor et al., 2020). Following the impressionable years hypothesis, young people are in a period of life that is particularly favorable to the incorporation of political orientations and values which are likely to remain stable later on (Alwin, 1994; Prior, 2010). Thus, from the point of view of individual politicization, it can be expected that a movement formed by young people, at the age of forming their repertoire of political orientations, is likely more prone to the incorporation of new causes and values. But politicization also occurs at the movement level. Cities are fertile grounds for social and political mobilization, precisely because they are spaces characterized by interactions between social phenomena, people and groups, thereby furthering their interconnection (Miller and Nicholls, 2013). The fight for a specific cause facilitates interactions with other movements that—while not sharing the same cause—share a certain framework for social change. That is why identification with one's own group can lead to a politicized collective identity (Simon and Klandermans, 2001). Thus, Fridays For Future-Barcelona's links with other local movements and actors could contribute to a more politicized reading of social reality and, consequently, to the incorporation of other issues into their social media discourse.

These local connections and subsequent politicization process might—in the case of local groups of Fridays For Future—favor exits from the "bubble" of global climate activism, going beyond a strictly issue-based participation to provide perspective and a broader vision of the issue at stake. This apparent tendency of increasing transversality might point to the possibility of building common ground for constructive dialogue and collective learning, as well as active and meaningful political cooperation among different collectives and identities. In this sense, looking at the last decade's mobilizations with a youth component and often highlighting a generational conflict—from the Arab Spring and the Occupy Movement or the Indignados in Spain or Greece to the recent protests in Hong Kong or Chile—we see that they all have in common the will to challenge the whole political, economic and social system, despite being rooted in particular local or national struggles. The case of Fridays For Future-Barcelona also shows how—at a time when Norberto Bobbio (1984) "unfulfilled promises of democracy" are more visible than ever—youth social movements are increasingly aware of the close connections that exist between different causes.

Considering the article's findings, one ought to bear in mind, first, that this is a case study of Fridays For Future-Barcelona and that more research is needed to be able to generalize the findings to other social movements and organizations. Secondly, we should stress the significant impact that the COVID-19 pandemic had on activism and social movements worldwide. The disruptive nature of the pandemic and the subsequent restrictions altered the spectrum of possibilities and brought significant uncertainty. The prominence of social issues related to the economic and social impacts of the pandemic (particularly acute among young people) is likely to have prompted an adaptation strategy by Fridays For Future-Barcelona, willing to keep the movement alive on social media and to stress the connections between the climate crisis and other social issues. This has certainly been influential, most probably by accelerating the process of increasing transversality identified in this article. The COVID-19 pandemic is—like climate change—a global issue with important local consequences. It has further highlighted our global interdependence and the need for strong local networks and solidarity in the face of adversity. It is also a multifaceted and transversal crisis, questioning our relationship with the natural world, challenging our health capacities and testing our resilience across all sectors of the economy.

Looking forward, it can be expected that the processes identified in this research will be further reinforced in a post-COVID context, which will likely be characterized by significant social and economic hardship and a continued questioning of our political and economic systems.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without reservation.

AUTHOR CONTRIBUTIONS

LT and RS-i-M have collaborated in designing and conducting this study. LT has taken a leading role in developing the article and has also codified the content of the tweets. RS-i-M has developed the multivariate statistical analysis and contributed to the theoretical framework and the discussion.

FUNDING

This article is based on data from two research projects on the Fridays For Future movement: YouGECA (Youth Global Engagement for Climate Action) funded by the PlanetaryWellbeing2019 UPF programme, and #4F (Hashtags For Future) funded by the AJOVE2019-AGAUR.

ACKNOWLEDGMENTS

We would like to thank Mariona Ferrer-Fons, Laura Pérez-Altable and Ariadna Fernández-Planells for their contribution to this research as well as Fridays For Future-Barcelona for their openness and goodwill.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

APPENDIX TABLE A1 | SUMMARIZED CODEBOOK.

Content/characteristic of the tweet	Indicators (dichotomous)
Interactions	Fridays For Future international: @mention of reference to international FFF groups (outside of Spain) Fridays For Future local/national: @mention of reference to local/national FFF groups (inside of Spain) International movements: @mention of reference to international movements other than FFF (outside of Spain) Local/national movements: @mention of reference to local/national movements other than FFF (inside of Spain)
Discourse	Climate change: mention or discourse related to the issue of climate change Other issues: mention or discourse related to issues other than climate change (e.g., immigrants' rights, feminism, access to public services, COVID-19)

APPENDIX FIGURE A1 | EXAMPLE OF A TWEET CODED AS I) INTERACTIONS WITH LOCAL/NATIONAL MOVEMENTS AND II) DISCOURSE ON CLIMATE CHANGE.

Translation: Calendar of our colleagues from @BarrisPelClima! The climate emergency must be known across all neighborhoods and we need to fight it together.

frontiers in Political Science

ORIGINAL RESEARCH
published: 18 August 2021
doi: 10.3389/fpos.2021.713340

Young Climate Protesters' Mobilization Availability: Climate Marches and School Strikes Compared

Emily Rainsford[1†] *and Clare Saunders*[2*†]

[1]School of Geography, Politics and Sociology, Newcastle University, Newcastle upon Tyne, United Kingdom, [2]Environment and Sustainability Institute/Department of Politics, University of Exeter, Penryn Campus, Exeter, United Kingdom

Although there is a developing strand of literature on young people's participation in environmental activism, there have been few systematic comparisons of their participation in different forms of environmental activism. This article compares the participation of young people and their older counterparts in climate change marches and Global Climate Strikes (GCSs). The agential and structural factors that draw people into protest participation are, in general terms, well recognized. However, it is also recognized that the factors that lead to particular types of protest on certain issues might not be the same as those that lead to different types of protest on different issues. In this article, we keep the protest issue constant (climate change), and make comparisons across different forms of climate protest (marches and school strikes). We coin the term "mobilization availability", which is a useful way to understand why young people are differentially mobilized into different types of climate change protest. Our notion of mobilization availability invites scholars to consider the importance of the interplay of the supply and demand for protest in understanding who protests and why. We analyse data collected using standardized protest survey methodology (n = 643). In order to account for response rate bias, which is an acute problem when studying young people's protest survey responses, we weighted the data using propensity score adjustments. We find that the youth-oriented supply of protest evoked by GCS mobilized higher numbers of young people into climate protest than did the more adult-dominated climate marches. GCS did this by providing accessible forms of protest, which reduced the degree of structural availability required to encourage young people to protest on the streets, and by emotionally engaging them. Indeed, the young people we surveyed at the GCSs were considerably more angry than their adult counterparts, and also angrier than young people on other climate protests. Our conceptual and empirical innovations make this paper an important contribution to the literature on young people's political participation.

Keywords: young people, political participation, mobilization, global climate strike, climate protest, climate marches, Greta Thunberg

OPEN ACCESS

Edited by:
Matt Henn,
Nottingham Trent University,
United Kingdom

Reviewed by:
Maxine Newlands,
James Cook University, Australia
Cecilia Hilder,
Western Sydney University, Australia

***Correspondence:**
Clare Saunders
c.saunders@exeter.ac.uk

†These authors have contributed equally to this work

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *22 May 2021*
Accepted: *28 July 2021*
Published: *18 August 2021*

Citation:
Rainsford E and Saunders C (2021) Young Climate Protesters' Mobilization Availability: Climate Marches and School Strikes Compared. Front. Polit. Sci. 3:713340. doi: 10.3389/fpos.2021.713340

INTRODUCTION

By August 2018, the Swedish teenage activist Greta Thunberg had become the world's most famous climate change activist celebrity. Her crusade to skip school on Fridays until decision-makers took the issue seriously had gathered significant attention across the world (Doherty and Saunders 2021). It had also motivated a significant global youth movement, known as Fridays for Futures, that has organised well-attended Global Climate Strikes and gained significant media coverage (not all of it positive). By the time of the September 2019 Global Climate Strike (GCS), the movement had mobilized young people to participate in 6,000 protest events in at least 185 countries. Young climate strikers took time off school and college to stress the urgent need for governments to take serious action to mitigate climate change (Wahlström et al., 2019).

Survey research (Wahlström et al., 2019) suggests that over one-third of the participants in these climate strikes were under the age of 19. It is important to note, however, that even the most systematic survey protocols under-estimate the proportion of young people on protests due to survey response bias (Walgrave et al., 2016; Saunders and Shlomo 2021). The problem is particularly acute in surveys of GCS participants in countries like the United Kingdom that, in order to be compliant with research ethics protocols, require parental consent for the survey participation of minors. It is impossible to get consent when parents do not accompany them (Saunders and Doherty 2019).

Even if the proportion of young people in GCS demonstrations is under-estimated by survey research, it is certainly the case that young people have recently been mobilized into climate action like never before. In the United Kingdom, prior to GCS, most climate change protest was heavily adult-dominated (Doherty and Saunders 2021). The recent rise in the participation of young people in climate protest presents us with a conundrum. Young people are generally considered to be more inclined to participate in alternative, informal and everyday political acts than their older counterparts (Marsh et al., 2006; Hart and Henn, 2017; Pickard, 2019), especially on more post-materialist issues like the environment (Inglehart 1977). But if this is the case, why is it that young people have been a relatively small minority of participants in climate action in the United Kingdom until recently?

Pickard (2019) argues that the GCSs "are a perfect example of youth-led DIO [Do it Ourselves] politics, sparked by young "standby citizens" (Amnå and Ekman, 2014) caring deeply about a particular issue and feeling dissallusioned [sic] with elected representatives and institutions" (p.423). But what was it about the GCSs that were more effective in mobilizing young people than previous environmental protests? We explore whether changes in the supply of environmental protest have made young people more available for climate protest. In other words, has the "Greta effect" reduced the barriers for young people to participate in a climate protest? We also explore how young people on adult dominated climate marches and youth-centred GCS protests differ from their older counterparts. Our article is an attempt explore this phenomenon using a synthesized analytical framework and a methodologically robust approach.

Our synthesized analytical framework adapts Klandermans' (2004) model on the supply of, demand for, and mobilization of protest to develop the concept of "mobilization availability". For us, mobilization availability is the extent to which people are available to be mobilized. It is determined by a combination of the supply of protest (in our case, youth-centred versus adult centred protest), the demand for protest (ideological and psychological dispositions), access to mobilization channels (networks and organisations) and other forms of biographical structural availability (being in the right place at the right time, such as school or college). We argue that high levels of structural availability enhance the efficacy of mobilization channels, whereas low levels constrain them. Together, mobilization (whether enhanced or constrained by factors related to structural availability), supply and demand generate mobilization availability. As we illustrate in more depth in the next section of this paper, our analytical framework allows us to merge relevant literatures on youth political participation, the social psychology of protest and drivers for political participation into a coherent framework.

Our methodologically robust approach involves analyzing protest survey data (n = 643) collected at two annual London-based climate change marches (2009 and 2015) and the 2019 Global Climate Strikes in Truro and Manchester. We, henceforth, refer to climate change marches as "old" climate protest, or adult-dominated protest and to the Global Climate Strikes as GCSs (plural) or as "new" or "youth-dominated" climate protest. We have weighted our survey responses to adjust the sample to balance out the high levels of response rate bias that disproportionately exclude young people. We use propensity score matching sample adjustments to weight the data in order to eliminate the under-representation of young people (Saunders and Shlomo 2021).

We proceed with the paper as follows. First, we frame our argument in the context of research on young people's participation in protest. Second, we build our analytical framework, merging literatures on the supply and demand for protest, as well as the structural and agentic factors that are known to predict protest participation. In the building of our analytical framework, we contextualize these theoretical insights in relation to GCSs. This is an important step in the development of our analytical framework because notions of supply and demand of protest have been designed primarily with adult-dominated forms of protest in mind. Therefore, they do not always neatly apply to young people, and especially not to young GCS participants. We therefore suggest some modifications to the dynamics of supply and demand, which have a better fit with the more youth-dominated forms of protest represented by GCSs. Third, we introduce our methodology. After presenting our findings, we illustrate the value of the term "mobilization availability" with our analysis and discuss our broader contribution to the literature.

Framing Our Argument

There is a vast literature suggesting that young people generally prefer less formal and more post-materialistic opportunities for political participation, such as environmental protest (Norris 2002; Sloam 2007; Henn and Foard, 2012; Pickard, 2019). This

is argued to be due to generational changes in values, young people's alienation from and frustration with formal politics and their different understandings of politics (Inglehart, 1977; Henn and Weinstein, 2006; Marsh et al., 2006). However, there is some evidence in Finland suggesting that young people's engagement in protest is not mutually exclusive with a support for better functioning representative democracy (Huttunen, 2021). Inglehart (1977) famously argued that young people are more likely to engage in the environmental movement than older people because of changes in values from materialistic "bread and butter" issues to post-materialistic issues such as the environment. More recently, O'Brien et al. (2018) suggested that young people have always been involved in the environmental movement for the most obvious reason that they are the ones who will bear the brunt of the effects of the climate crisis (O'Brien et al., 2018). However, in Switzerland, Lorenzini et al. (2021) found that there is not a cleavage in pro-environmental attitudes between young and old, in fact over time each generation has become more and more pro-environment.

However, there is limited substantial empirical evidence of high rates of youth protest participation—at least not until recently. Exploring patterns of protest in Western Europe, Grasso (2016) does not find that younger people were more likely to engage in unconventional political repertoires, and especially not in demonstrations. The difference Grasso (2016) found was between baby boomers and other generations. In the United States, Caren et al. (2011) found a similar pattern; there, younger generations did not protest more than older generations and baby boomers were driving increased protest rates. They found little change in *who* participates in street protests across generations. Consequently, they argue that if there was to be a change in the composition of street protesters it is likely to happen suddenly during periods of political unrest. Other evidence suggests that findings on the rates of protest might be conditioned by the types of protest being researched. Klandermans (2016), for example, found that young people attend different demonstrations to older people. One likely reason for this is that they are mobilized in different ways and through different channels.

In our work, we bring Grasso's (2016) and Caren et al.'s (2011) analysis up to date by including protest survey analysis of demonstrations from 2009 until 2019. Moreover, we keep the protest issue constant—climate change—to avoid the "noise" of combining data on different issues to which Klandermans' (2016) work alerts us. We work on the premise of Caren et al. (2011) that GCS did radically change the demand and supply of environmental protest, which facilitated it increasing its mobilization availability for young people[1].

We use Klanderman's (2004) theory of the supply and demand of protest to argue that GCSs represent a substantial change in the supply of protest for young people. In the following sections we more deeply elucidate the concept of mobilization availability by mapping Klandermans' (2004) argument on to the GCS movement. We then move on to discuss the individual drivers for protest participation in terms of structural and agential availability (Saunders et al., 2012). Our research questions are:

- What differences are there in the mobilization availability of young protesters at adult-dominated and youth-dominated protests? and
- Is being young a critical determinant for attending GCS protests, all other things considered?

THE CONCEPT OF MOBILIZATION AVAILABILITY

The Change of Supply in the Environmental Movement

Above, we introduced the argument that young people are at the center of the environmental movement and the debate about whether they attend protests more than older people and other generations. In general, evidence seems to be in the balance. The answer depends not only on protest issues, but also on the organization or network that is mobilizing participants. Earl et al. (2021), for example argue that, oftentimes, social movement organizations do not target young people. If young people participate in the activities of adult-centred social movement organizations on their own accord, they may feel that the adult domination of such spaces are dismissive of their concerns. As a result, young people often set up their own organizations, as a reaction to their alienation from formal politics (Furlong and Cartmel, 2012), from social movement organizations (Earl et al., 2021) or even both. We argue that the GCSs are an example of young people developing their own movement structure, and as such represent a change in supply of environmental protest opportunities for young people today. Other scholars have expressed scepticism that the GCS movement is fully youth led (Dupuis-Déri, 2021; Elsen and Ord, 2021). Regardless, it still represents a shift from an adult-dominated to a youth-dominated supply of environmental protest.

In a first step in building our analytical framework we use Klandermans' (2004) theory of demand and supply of protest participation to analyze the difference in the framing of the GCSs and how this contributed to the increased mobilization of young people to climate protests. In a second step we discuss individual drivers for protest participation, with the aim of addressing the question of the differences between young and old protesters at GCS and other climate change protests.

According to Klandermans' theory of demand and supply of protest, supply of protest participation refers to the opportunities to protest as provided by protest organizers, whether social movement organizations (SMOs) or grassroots activists. Attendance at protest is a result of the interaction between supply and demand and the process of mobilization involves matching the demand and supply. Let us first focus on how GCSs changed the supply of environmental protest before moving on to discuss the demand and mobilization.

Different SMOs and grassroots networks attract different people depending on what kind of protest participation they

[1]Propensity score matching stratifying into quintiles can reduce between 90 per cent (Cochran 1968) and 95 per cent (Rubin, 1979) of the differences between random and non-random samples in quasi-experimental research designs.

offer, how they frame issues, their ideology and what kind of collective identity they present for potential supporters to identify with. These different aspects of the supply (and the demand) of the protest Klandermans (2004) categorizes as instrumental, identity and ideological. For the supply side the instrumentality is about showing the impact of the movement. Although it is often difficult for social movements to illustrate direct or short-term impact, the GCSs quickly gained media attention and Greta Thunberg is often invited to speak in high-level forums from which young people are usually excluded (Doherty and Saunders 2021). This has illustrated to young people the potency of GCSs as a tactic as well as the potential for young people to make a difference, so increasing young people's mobilization availability. Furthermore, the strategy of a school strike made it very visible who was participating and who was not. Klandermans (2004) argues that information about other supporters' behavior is important to illustrate the impact of the issue on others. The more people that participate, the more likely it is that other individuals will participate. As such, the tactic of striking from school is not only rhetorically interesting; Thunberg argued that it was more important for her future to pressure politicians to do something about climate change than to attend school, but the absence of pupils from class will also have been very visible to other pupils.

The visibility of participation and non-participation also plays in with the identity aspect of the supply-side of movements' mobilization efforts. Movements give individuals the opportunity to act on behalf of the collective identity (Saunders 2008). Participating provides a sense of belonging, and non-participation may make non-participants feel like the odd ones out. The form of participation was heavily tailored to school pupils—striking from school was something only they could do, so they were also able to closely identify with the protest repertoire. Furthermore, and perhaps the biggest change in the supply side of GCS compared to the "old" environmental movement is that GCS is led by Greta Thunberg—herself a young person—who spoke (and continues to speak) specifically about the effects of the climate crisis on young people. Indeed, Wahlström et al. (2019) found that nearly 45% of school students at the GCS across the cities they surveyed agreed "quite" or "very much" that Thunberg affected their decision to join the climate strike, and this effect was stronger among young people than adults. It was no longer human beings who were the collective identity, but more specifically it was about young people today and their futures. The collective identity was strengthened. In this way a change in the supply-side of identity also changed the demand-side of identity.

Klandermans (2004) defines ideological aspects of supply in relation to the ways that movements position themselves ideologically to attract certain kinds of people. From this perspective, GCSs and adult-dominated climate protests attract people with similar levels of concern for the environment. Klandermans, however, considers emotions to be embedded within an affective component of the ideology of movement organizations. Movements offer their participants an opportunity to express their emotions. Thunberg has famously expressed her emotions in many speeches, and her emotional expression has been debated and criticized. Her emotional delivery has allowed young supporters to empathize with her, triggering their own emotions.

Supply and demand, then, interact in relation to the instrumental, identity and ideology aspects of protest participation. We have illustrated the youth-oriented nature of the protest supply provided by the GCSs, which we argue made climate protest more attractive to young people. As such we expect there to be more young participants in the GCSs compared to "old" climate protest. But what we really aim to capture using the concept of mobilization availability are the differences in the *people* who have participated in the "old" and "new" climate protests, and as such we need to focus on the individual level. We now move on to discuss in more detail the individual-level characteristics of protesters. How might we expect them to vary across different climate protests and why?

Demand, Availability, and Protest Participation

Based on changes to protest supply brought about by GCSs, we expect to find differences in the types of people who participate in 'old' climate protests compared to GCSs. Following Saunders et al. (2012) we now introduce *agential factors* that shape protest demand—meaning the attitudes, emotions and opinions that make someone more or less likely to engage in protest; as well as *structural and biographical availability,* which refer to the personal circumstances that determine whether people are "available" for protest participation. Combined with supply, these individual level variables make up what we term mobilization availability.

Agential factors for protest participation refer to the attitudes, emotions, and opinions that influence the demand-side (Klandermans 2004) of whether someone is likely to protest or not. The agential factors interact with the availability factors; for example, someone with very strong opinions about climate change might wish to attend a climate demonstration, but factors such as a work shift or parental responsibilities might this limit their ability to participate (Verhulst and Walgrave, 2009). Verhulst and Walgrave (2009) argue that first-time protesters have higher barriers to mobilization than more experienced protesters. This is, they suggest, because there are many thresholds that need to be overcome. To overcome these thresholds, strong grievances, emotions and collective identities are required to mobilize participation. Young people are most likely to comprise the majority of first timers, simply because their younger age will have given them fewer opportunities to participate in protest. Indeed, Wahlström et al. (2019) found a substantial number of protest newcomers at the GCS.

In relation to attitudes, Klandermans (2004) considers grievances or concerns about a certain issue, or set of interrelated issues, as central to mobilization. Such concerns are shared with others (identity-based), they identify a need for change (instrumentality-based) and interact with emotional responses to seek changes to the status quo (ideologically-based). Identity, which links potential participants to others in a movement and others who care about the issue, is thought to

help draw people into protest. Collective identity brings together those who are negatively affected by, or would benefit from, change. In the case of the environmental movement, it is clear that young people would benefit most from stopping the climate crisis for generational reasons. Verhulst and Walgrave (2009) argue that first-timers will have stronger collective identity because they are not aware of the tensions in the movement. The longer an activist remains part of a movement the more they become aware of the tensions and divisions in the movement, and this leads them to identify less with the movement as a whole, but more with a particular faction.

Instrumental drivers are related to the desire of individuals to change things, often stemming from a sense of deprivation or injustice. Most aspects of individuals' demands are similar for GCSs and "older" climate protests: both address the same grievance among (young) people regarding the need for action to stop climate change, they both appeal to people who will suffer because of the climate crisis, and they appeal to the moral obligation to do something about it.

Ideology-based agential factors that motivate protest participation relate to the feeling of something being unjust or something requiring change. Verhulst and Walgrave (2009) argue that the stronger someone feels that something is unjust and the angrier they are about it the more likely they are to cross the threshold to participate in protest. The ideological motivations interact with the instrumental motivations, because people participate if they think that they can achieve or change something by participating. That is, they participate if they consider themselves, their actions or their group to have political efficacy.

We predict that the dynamics between the 'old' climate protests and GCSs will be slightly different, because of the change in supply that GCSs represent. We argue that young people who turned up to adult-dominated climate marches would have required stronger motivation, or agential availability, than their older counterparts because young people were not the mobilization target. In contrast, the GCSs were specifically aimed at young people and therefore it was easier for young people to be mobilized and turn up to them, and as such they need to be less motivated, or agentially available, than their older counterparts at the GCS. In other words, we argue that the mobilization availability of young people was constrained by the adult-dominated framing and nature climate marches, but that young people have more mobilization availability for the GCS protests, that specifically targeted them.

Overall, our analytical framework thus far suggests that mobilization availability is determined heavily by the supply of protest and demand for it (agential factors). We have also shown that supply influences demand (and vice versa). Mobilization availability is further shaped by biographical and structural availability, as we now explore.

Structural and Biographical Availability for Protest Participation

Structural availability refers to the positioning of individuals in networks that make them likely to be mobilized to participate in a protest. We refer to it as being in the right place at the right time. Typical places of mobilization are university campuses (Earl et al., 2021), being members of organizations (Klandermans, 2016) and workplaces (Beyerlin and Hipp, 2006; Saunders et al., 2012). However, Klandermans (2016), when comparing young and old protesters, found that young people have different mobilization networks. They are less likely to be embedded in those formal places for mobilization, and be more likely to be mobilized through informal networks like friends and school. For the GCSs 'school friends' were the main mobilization channel for young people, which was a structural change to the mobilization patterns from other protests and older people at the same protest (Wahlström et al., 2019). Indeed, Dupuis-Déri, (2021) illustrates how pupils encouraged their peers to attend the Friday strikes by holding assembly, banging on lockers or standing on chairs in the lobby.

There is a large literature on biographical availability, a concept that McAdam (1986) coined to refer to the absence of personal constraints that can hinder protest participation. Biographic availability can impact protest willingness and actual protest participation. Beyerlein and Hipp (2006), for example, illustrate that biographical unavailability affects whether someone is willing to participate in protest rather than whether they actually do. However, the main characteristics generally thought to make people unavailable for protest—such as marriage, being in full-time work and having children—mostly do not apply to young people. Moreover, the variable age, often used as an indicator of availability to protest, does not neatly apply when we focus specifically on young people. Thus, we are making a further contribution to the social movement literature by critically exploring and applying the importance of biographical availability in contributing to mobilization availability in relation to young people compared to older people.

Many studies have shown that students are more likely to engage in protest activities, due to the flexible schedule that students have in comparison to people in full-time work (Olcese et al., 2014). The age of compulsory education has steadily been rising in the United Kingdom as young people now have to 'earn or learn' until they are 18. School is thus compulsory and students under the age of 18 can get in to trouble by not being in school. Thus, for students under the age of 18, the cost of protest participation during the school week is very high. As reported by Dupuis-Déri, (2021), some students at the Montreal school strikes were punished by their school. However, as discussed above, the school strikes are distinct because they are making the act of skipping school a key feature of the act of protest.

The account of structural availability needs refining for young people in other ways, too. Young people face different challenges in terms of the accessibility of protest. First, they face greater logistical challenges in getting themselves to large-scale protests that are staged in a capital city or in a city centre than their older counterparts. Organizations staging the demonstration may provide transport to get to the location, but as discussed above, young people are less likely to be members of organizations and thus not only less likely to be targeted for mobilization, but also to be unaware of the collective transport.

The school strikes were different, they were happening more locally, thus it was much easier for young people to make it to the location (Wahlström et al., 2019). Second, there is a lot of protection in place for young people from parents or other adults in their networks, who may block their participation in protest for their safety. There are always risks of protests becoming violent. But there are also lesser risks such as small people getting lost or feeling intimidated in a large crowd of adults. The school strikes were different here again because they were organized and dominated by young people, and the devolved nature of them to the local communities meant that they were sometimes small demonstrations and oftentimes had notable participation of young people. Overall, because of the nature of the GCSs, young people attending them would have fewer structural barriers to participation, which also contributes to their mobilization availability, already enhanced by favourable supply and demand factors. This leads us to our hypotheses:

Hypotheses

H1: *Young people on adult-dominated climate change demonstrations have more structural and agentic availability than their older counterparts.*

We expect young people on adult-dominated climate change demonstrations to have more structural and agentic availability than their older counterparts because they have more barriers to cross to join an adult-dominated protest than older people. They will have participated in these protests despite their generation not being specifically targeted by the mobilization efforts. However, the supply of protest and mobilization strategies for the GCSs were very different. The GCSs had a young person spearheading them (Greta Thunberg) and were especially targeted at young people. Anecdotal evidence as well as existing survey evidence finds that young people are at the centre-stage of the framing and the action. Thus, the framing and strategies of GCSs (to strike from school) are perhaps more appealing to young people. For this reason, we might expect there to be fewer structural and agentic factors drawing them into protest. In other words, we consider that their mobilization availability weakens the need for additional motivational factors. This leads us to our second hypothesis:

H2: *Young people on youth-driven GCS demonstrations have less structural and agentic availability than young people on climate change marches.*

Literature somewhat takes for granted the youth-driven nature of GCS, but does not fully test this systematically. The question of whether being young is the main predictor of attending a GCS rather than a climate march therefore remains untested and unanswered. Given the youth-centric focus of its framing and leadership, we expect being young to be a significant predictor of participation in GCS even when we control for other factors. However, for participation in a climate march that lacks the youth leadership and focus, we do not expect youth to be the main predictor, when other variables are controlled for. Therefore our third hypothesis is:

H3: Being young is the main predictor of participating in a GCS demonstration but this is not the case for a climate change march.

DATA AND METHODOLOGY

Data

The data we analyse was collected using the state-of-the-art protest survey methodology developed by Klandermans et al. (2009) at London-based climate change marches in 2009 (n = 243) and 2015 (n = 280) and the Global Climate Strike (GCS) demonstrations in Manchester and Truro in 2019 (n = 120) This methodology has systematic procedures for collecting data randomly and reducing selection bias. The method uses "pointers" who select who is to be interviewed, while an interviewer conducts the interview. The "pointers" select one demonstrator every "n" rows, depending on the estimated size of the demonstration. The aspiration is to achieve equal distribution of surveys/interviewees throughout the protest. This process helps to reduce selection bias.

Another innovation of the protest survey methodology is that it combines a mail-back questionnaire (which was adapted to leaflets with a QR code and website link to an online survey for the 2019 GCSs) with face-to-face interviews. One in every five of the one-thousand mail-back (or online) surveys has a face-to-face interview accompanying it. Given that response rates for the face-to-face interview are approximately 95% (compared to only 12% for our online GCS survey, and 24 and 28%, respectively, for the 2009 and 2015 mailed-back surveys) this allows us to approximate response rate bias. Our assumption is that those who answer the interview are a more representative sample of those on the demonstration than those who complete the longer mail-back or online survey. We assume this because only a small minority refuse to participate in the face-to-face interview. There are a set factors by now well known to influence response rates to the mail-back or online version of the questionnaire: those who are more politically interested, are better educated and are older generally have a greater propensity to respond, although this varies across depending on the issues at stake and the location of a protest (Walgrave et al., 2016).

Usually, projects based on protest survey methodology report on response rate bias, but do little to correct it. Given that the present study is specifically motivated to explore one of the variables known to be affected by response rate bias (age), we adapted the propensity score adjustment survey weighting process used by Saunders and Schlomo (2021) to adjust the sample to approximate randomization. For this, we combined the face-to-face and mail back/online data separately for each demonstration, and used a logistic regression model to predict which cases are in the face-to-face sample. For this regression model, we used as predictors the small selection of variables that are common across the interview and mail back/online survey (gender, age, when a firm decision was made to attend the demonstration, the number of demonstrations attended, satisfaction with democracy, extent of political interest and highest educational qualification obtained). We then sorted the estimated propensities from this regression model into quintiles.1 Each of the quintiles is then given a design weight as follows:

$$d_i^{*q} = \left[\frac{\sum_{ieq} d_i^{orig}}{n_{ccc}^{q}}\right]$$

where the numerator is the sum of the original d_i^{orig} from face-to-face respondents in strata q and the denominator n_{ccc}^{q} is the number of mail back or online respondents in strata q.

Prior to weighting, the three regression models (one for each of the 2009, 2015, and 2019 data) consistently indicated that, compared to the more random face-to-face sample, young people were significantly less likely to return the mail-back questionnaire or complete the online survey. In our data, other significant predictors of returning a completed mail back or online questionnaire were being: less well educated (2015 and 2019); more politically interested (2015); female (2015); and less active in demonstrations in the past (2019). The weights for the face-to-face data were then applied, but weights for the face-to-face data were maintained at a value of 1. The same regression model on the variables shared across the face-to-face and mail-back/online questionnaires with weights applied results in there being no identifiable statistically significant differences between the face-to-face and mail-back/online weighted samples. We are therefore confident to have approximated a reasonably random sample by applying these stratified propensity score weights.

Analysis Techniques

We have two forms of analysis in this paper. The first is a presentation of frequency data for key indicators of structural and attitudinal/psychological availability to protest. Data are presented for six sub-samples: young people (30 years or younger) and older people (31 years or older) for each of the 2009 and 2015 climate change marches and the 2019 GCSs. The upper age for being young may seem generous, but there is a large debate regarding the age span, characteristics and appropriate denomination of the term "young people" (Pickard, 2019). We have two reasons for selecting this age range. First, a practical reason; due to our compliance with ethical procedures of not surveying young people under the age of 16 without parental consent, we simply have not "caught" that many younger people. The expanded age range combined with our weighting allows us to do more sophisticated analysis. Second, an empirical reason; transitions into adulthood are delayed, prolonged and reversible for the current generation of young people (Roberts, 2007; Heinz 2009). There is research suggesting that young people in their late 20s are still economically reliant on their parents, either by "boomeranging" back to the family home, or by getting help paying rent (Walther, 2006; Swartz and O'Brien, 2009; Rainsford and Wambach, 2021). Therefore, the age when young people reach independent adulthood is increasing, and we reflect this reality in our age range. Of course, the GCSs were targeted at school pupils who will not be aged up to 30 years old. But the key factor here is the life stage of protesters and we wanted to allow our age range to capture all young people who would be living with the consequences of climate change in the future, not just school children. We do fully acknowledge that not everyone under 30 will be the same or have the same experiences (see Pickard, 2019 for a discussion). For both of the climate marches, the proportion of young people was 33 per cent, whereas the proportion of young people at the GCSs was 76 per cent.

Our second form of analysis consists of a 2-stage binary logistic regression model, for which the dependent variable is participation in new forms of youth protest (thus, GCS = 1 and climate marches = 0). In step 1, we included variables measuring structural availability. In step 2, we additionally add agentic predictors. The structural variables included in the model are participating with known others, hearing about the demonstration online, being in part-time work and being a student (each of which have a positive relationship in a univariate model to predict the dependent variable); as well as previous participation in demonstrations, being a member of an organization and being in full-time work (each of which have a negative relationship to the dependent variable in a univariate model).

The agentic and psychological variables included in the regression also have a significant relationship with the dependent variable in univariate models. Those with a significant positive relationship are anger, fear, participating to protest self-interests and participating due to a moral obligation. Those with a significant negative relationship are identification with organizations staging the demonstration and political interest.

Gender and left-right self-placement (the latter is almost statistically significant in a univariate model) are also included in the analysis. For a full list of variables and their measurement, please see the appendix.

RESULTS

Structural Availability

Table 1 presents frequencies for indicators of structural availability across the three different datasets. We can see that young climate protesters are considerably more likely to hear about the demonstrations they attended through online social networks (e.g., Facebook, Twitter and the like) than older people. They are notably more likely to attend with friends. Moreover, they are marginally more likely to attend the demonstration in the company of others that they know, with the highest percentage doing so being among young people at GCSs. On climate marches, the young protesters are less likely to have been protest stalwarts, but on GCSs they are more likely to be so than their older counterparts, even if the GCSs have, on balance, many more inexperienced protesters. Young climate protesters are more likely to be in full-time study than their older counterparts, but this is only marginally so for GCSs where—given the nature of the demonstration, which was to take time off school or college—there were similar proportions of older students. Full-time work is rare among young GCS protesters, but ranges from around one-third to nearly half of all the other groups (by age and climate march). Membership of an environmental organization is lower for young protesters in 2009 and at the 2019 GCS than for older protesters, but higher for young protesters in 2015 than for older protesters. On several indicators, young climate protesters appear to be more structurally available for protest than their older counterparts, but their mobilization does not seem to be straightforwardly related to conventional mobilization channels (i.e., environmental organization membership and previous demonstration participation).

Attitudinal and psychological determinants of protest are remarkably similar across the three protests and the two age groups (**Table 2**). However, young protesters do seem to be more angry (in 2009 and 2019), more worried (in 2009 and 2019), more fearful (2015 and 2019) and to be markedly more frustrated (for all three demonstrations). Anger, frustration and fear are notably

TABLE 1 | Key indicators of structural availability.

	Climate marches				GCS	
	2009 young people <31%	2009 older people%	2015 young people <31%	2015 older people%	2019 young people <31%	2019 older people%
Is female	61	58	55	44	68	66
Protested with others	85	83	82	75	91	81
Heard about demo thru online social media	33	6	74	35	66	68
Asked by friends to attend	33	18	24	14	-	-
Is a member of an environmental organisation	58	64	83	64	27	64
Past participation in demos >5	39	53	44	64	19	17
In full time study	36	5	27	2	31	30
In part time work	9	23	18	14	20	29
In full time work	39	38	46	35	2	30

Note: percentages are presented in columns. Some variables are not present in the GCS dataset. Their absence is marked with a hyphen.

TABLE 2 | Key indicators of attitudinal/psychological disposition to protest.

	Climate marches				GCS	
	2009 young people <31%	2009 older people%	2015 young people <31%	2015 older people%	2019 young people <31%	2019 older people%
Identifies with other participants quite or more	67	85	88	80	78	84
Identifies with orgs staging demo quite or more	63	79	71	79	62	73
Feels very angry	36	29	41	46	78	56
Feels very worried	38	48	66	53	67	49
Feels very fearful	25	32	39	31	51	22
Feels very frustrated	64	58	73	69	79	57
Participated to defend interests (agree +)	55	54	59	56	70	51
Participated to express views (agree)	97	92	95	92	92	92
Participated to pressure politicians (agree +)	94	98	95	98	97	95
Participated to raise awareness (agree +)	94	95	97	98	98	97
Participated to express solidarity (agree +)	94	90	93	92	87	100
Participated for a moral obligation (agree +)	66	82	84	81	88	80
Voting is useless (agree +)	13	6	14	19	—	—
Individual efficacy (agree +)	85	83	85	80	—	—
Group efficacy (agree +)	84	89	89	88	—	—
LRSP (mean)	3.0 (sd 2.3)	3.1 (sd 2.1)	1.7 (sd 1.6)	2.2 (sd 1.7)	2.2 (sd 1.8)	1.8 (sd 1.3)
Political interest (mean 1–5 score)	3.6 (sd 0.6)	3.5 (sd0.6)	3.6 (sd 0.6)	3.6 (sd 0.6)	3.5 (sd 0.7)	3.3 (sd 0.8)
Talks politics (mean 1–4 score)	3.7 (sd 0.8)	3.7 (sd 0.8)	4.1 (sd 0.9)	3.7 (sd 0.8)	4.0 (sd 0.8)	3.9 (sd 0.9)

Note: Percentages are presented in columns. Some variables are not present in the GCS dataset; their absence is marked with a hyphen.

higher for 2019 (GCS) than for the climate marches, which might be an outcome of the framing of GCS, and Greta Thunberg's own, barely concealed, anger, and frustration.

Does Being Young Predict Participation in GCS?

Do we find that being young is an overriding predictor of participation in new youth-led forms of climate activism (i.e., the GCS)? The results of our binary logistic regression are shown in **Table 3**. Step 1, which includes structural availability only, finds that being young and being a student are significant predictors of participation in GCS over participation in climate change marches. This hardly seems surprising given the framing of GCS. Social media is very important for mobilizing people into GCS. Membership of environmental organizations, past participation in demonstrations and working full time are negative predictors: put differently, people who are not members of environmental

TABLE 3 | Binary logistic regression predicting participation in new forms of climate activism.

	Step 1		Step 2	
	B (SD)	Exp(B)	B	Exp(B)
Structural availability				
Young people	0.83 (0.31) **	2.29	0.41 (0.36)	1.50
Gender (male)	0.01 (0.03)	1.01	−0.10 (0.42)	0.99
Attended with company	0.27 (0.39)	1.31	0.20 (0.43)	1.22
Member of environmental organisation	−0.14 (0.18)*	0.66	−0.35 (0.19)	0.70
Heard about the demo through online social media	1.31 (0.30)***	3.71	1.14 (0.33)**	3.14
Past demo participation	−0.36 (0.14)**	0.70	−0.37 (0.15)*	0.69
Is a student	0.80 (0.36)*	2.21	0.75 (0.40)	2.12
Is in part time work	0.49 (0.35)	1.63	0.40 (0.39)	1.50
Is in full time work	−1.14 (0.39)***	0.24	−1.74 (0.45)***	0.18
Constant	-0.91 (0.55)	0.40	—	—
Psychological/attitudinal	—	—	—	—
Identifies with org staging demo	—	—	-0.58 (0.18)**	0.56
Anger	—	—	1.17 (0.24)***	3.05
Fear	—	—	−0.04 (0.18)	0.97
Participated to defend interests	—	—	0.28 (0.15)	1.32
Participated for moral obligation	—	—	0.31 (0.18)	1.37
Political interest	—	—	−0.39 (0.30)	0.68
Left-right self-placement	—	—	−0.11 (0.10)	0.90
Constant	—	—	−3.68 (0.10)	0.90
Nagelkerke R2	0.30		0.52	
N	351		351	

organizations, who are not stalwart protesters and not in full-time work are more likely to participate in GCSs than climate marches.

When we add Step 2, we see a slightly different pattern emerging. With attitudinal and psychological factors included, the importance of being young as a predictor of participation in GCS drops away, as does being a student. The other structural variables remain important (hearing online about the demonstration, not being a stalwart protester and not having full time work). In Step 2, anger and not identifying with the organization staging the demonstration are significant predictors.

DISCUSSION AND CONCLUSION

Our analysis shows some support for each of our hypotheses, even if we are not able to straightforwardly or unequivocally confirm them. This is because of nuances in the mobilization availability of older and young people, which we believe is partially dependent on the supply of protest, its frames and mobilization strategies, and how these factors are intertwined with protest demand. Overall, it seems clear that young people appear to have different sets of structural factors that give them mobilization availability compared to their older counterparts, while agentic factors are less discerning except for emotions.

Our first hypotheses anticipated young people having more structural and agentic availability than their older counterparts on older forms of climate protest (annual marches) because of the difficulties of young people connecting with adult-centric forms of climate protest. Young people on the adult-dominated climate marches were, indeed, more likely to participate with other people and more of them were asked by friends to participate compared to older protest participants, suggestive of a sense of identity. They were also more likely to be in full-time education than their older counterparts. At the 2009 march, they were markedly less likely to be members of environmental organizations, perhaps because they find such adult-focused and -dominated organizations somewhat alienating as we posited when laying out our analytical framework. Agentic factors seem less able to distinguish young and older climate change marchers, although young people were, on aggregate, slightly more likely to be motivated to protest in order to protect their interests. In other words, they had instrumental motivations. Moreover, as we had presupposed, young people were, in some years, more emotive about climate change. Young people were, in general, more frustrated than older people, they were more angry in 2009, and more worried and fearful in 2015 than older climate marchers. They were also, on aggregate, slightly more left-wing than older demonstrators. This indicates the importance of ideological factors in motivating young people to participate in adult-dominated forms of climate protest.

Did we find support for our second hypothesis, which posited that the supply of protest—tailored to young people and led by a young climate celebrity—would reduce the barriers to the participation of young people in protest? We therefore hypothesized that young people on GCSs would not need such high levels of structural and agentic availability as young people on adult-dominated climate change marches. Mobilization availability here is enhanced by the supply of protest perhaps more so than through agentic factors related to identity, instrumentality or ideology. Indeed, the nature of the GCSs themselves reduced some structural barriers: they were localized and the school- or college-based level of mobilization provided natural structural availability while also fostering a contagion effect. We find some evidence to support this hypothesis in relation to structural factors: social media as a mobilizing tool seems less important than it did for young people at climate marches, they had markedly fewer memberships in environmental organizations, were novices and were much less likely to be in work.

However, we also find that young people on GCSs, compared to young people at climate marches, are markedly more emotional about the issues: they are angrier, more worried, more fearful and more frustrated. They are also more likely to participate in order to protect their own interests. To explain this nuance, we turn back to consider the supply of protest and the way in which the GCSs actions were framed. It is entirely plausible that there has been a 'Greta Effect' on mobilizing emotions, which has encouraged GCSers to turn out on the streets. Take, for instance, the tone of Thunberg's 2018 speech to the United Nations Framework Convention on Climate Change, which invites an emotive response:

Until you start focusing on what needs to be done rather than what is politically possible, there is no hope. We can't solve a crisis without treating it as a crisis. We need to keep the fossil fuels in the ground, and we need to focus on equity. And if solutions within the system are so impossible to find, maybe we should change the system itself. We have not come here to beg world leaders to care. You have ignored us in the past and you will ignore us again. We have run out of excuses and we are running out of time. We have come here to let you know that change is coming, whether you like it or not. The real power belongs to the people. Thank you.

Moreover, the notion that the future belongs to young people is one heavily stressed in Fridays for Future, and is even evident in its name. This might explain why young people on GCSs were more likely to claim to have participated for their self-interest than young people on other demonstrations.

Finally, did we find support for our third hypothesis, where we expected that being young is a key determinant of who turns out at GCS compared to a climate march? We found that youth is, indeed, important at predicting GCS participation, but primarily because of its association with anger (78 per cent of those 30 and under compared to 56 per cent of those over 30 were "very angry") (**Table 2**). Young people are angrier about climate change, perhaps as a trait of youthfulness (Olcese et al., 2014), but also as a consequence of being the generation that will feel the brunt of changes to the world's climate.

Overall, our work provides illuminating data on the factors that motivate young people to participate in conventional (marches) and less conventional (school strikes) forms of climate change protest. It also makes a useful contribution to the literature on the drivers for protest more generally. In particular, we illustrate the danger of aggregating data across different issues and across different age groups of protesters. The factors that pull people into a climate protest are very likely different from those that pull people into protest on other issues, just as the factors that lead people in different age groups into protest vary considerably and also over time. To help interpret nuances across demonstration issues and sub-groups of demonstrators, we have coined the useful term "mobilization availability". This term is useful because invites scholars not just to look at the individual-level structural and agentic factors that motivate people into protest, but to view these as interacting with the supply of protest and the mobilization and framing strategies deployed. In this way, it allows us to take into account the context of contestation in a way that cross-national survey data analysis of homogenous groups of protesters cannot.

One downside of our work is the relatively small sample sizes that we have, and our United Kingdom-centric focus. We suggest that existing cross-national survey managers and panels consider adding to their questionnaires new questions about the protest or protest issue in which respondents participated. Doubtless, different findings in extant studies on the drivers for protest participation come from different data, which leads us to suspect that some research findings are an artefact of the sample. This explains why Caren et al.'s (2011) findings differ from Saunders et al.'s (2012). Asking about protest issues or protest events will help nuance the findings from larger-n surveys to make it possible to talk about the *mobilization availability* of subgroups of protesters, which, as we have shown shapes the extent to which structural and agentic factors matter to different subgroups of protesters. It would also be a useful exercise to make comparisons of United Kingdom data with other country cases. Doubtless, the political opportunity structure of different countries also impacts upon young people's mobilization availability.

DATA AVAILABILITY STATEMENT

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: The 2009 climate march data used for this study can be found on the Data Archiving and Networked services website, available at: https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:110989. The GCS data is available on request from the corresponding author.

ETHICS STATEMENT

The research involving human participants was reviewed and approved by the College of Social Sciences and International Studies Research Ethics Committee, University of Exeter. For Global Climate Strike participants under the age of 16, informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

FUNDING

This research was funded by the ESRC (grant references ES/G011621/1, ES/G011621/2) and ESRC 1 + 3 Scholarship, ES/H018491/1) and The British Academy (Quantitative Skills Acquisition Grant, 2014-15 round).

ACKNOWLEDGMENTS

We thank Professor Brian Doherty for allowing us to use data he and his team collected at the Manchester Global Climate Strike. We also thank the team of temporary researchers who helped conduct the protest surveys.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

APPENDIX

Variable codings.

Variable	Questionnaire question	Coding
Structural availability		
Young people	In what year were you born?	30 or younger = 1 31 or older = 0
Gender (male)	Are you …	1 = male 2 = female
Attended with company	Did you participate in the demonstration alone, or with people you personally know?	1 = with people personally known 0 = alone
Member of environmental organization	If you have been involved in any of the following types of organizations in the past 12 months, please indicate whether you are a passive member or an active member? If you are a member of several organizations of the same type, tick the highest or most 'active' category.	0 = not a member 1 = passive member/donor 2 = active member
Heard about the demo through online social media	How did you find out about the demonstration? (on-line social networks)	0 = no 1 = yes
Past demo participation	How many times have you, in the past, taken part in a demonstration?	1 = never 2 = 0–5 times 3 = 6–10 times 4 = 10–20 times 5 = 21 + times
Is a student	What is your employment situation? I study full-time	0 = no 1 = yes
Is in part time work	What is your employment situation? I work part-time	0 = no 1 = yes
Is in full time work	What is your employment situation? I work full-time	0 = no 1 = yes
Identifies with org staging demo	To what extent do you identify with any organization staging the demonstration?	1 = not at all 2 = not very much 3 = somewhat 4 = quite 5 = very much
Anger	Thinking about climate change makes me feel … Angry	1 = not at all 2 = not very much 3 = somewhat 4 = quite 5 = very much
Fear	Thinking about climate change makes me feel … Fearful	1 = not at all 2 = not very much 3 = somewhat 4 = quite 5 = very much
Participated to defend interests	Please indicate to what extent you agree or disagree with the following statements? I participated in the demonstration in order to … Defend my interests	1 = strongly disagree 2 = disagree 3 = neither 4 = agree 5 = strongly agree
Participated for moral obligation	Please indicate to what extent you agree or disagree with the following statements? I participated in the demonstration in order to … Because I felt morally obliged to do so.	1 = strongly disagree 2 = disagree 3 = neither 4 = agree 5 = strongly agree
Political interest	How interested are you in politics?	1 = not at all 2 = not very 3 = quite 4 = very
Left-right self-placement	In politics people sometimes talk of "left" and "right". Where would you place yourself on this scale, where 0 means the left and 10 means the right?	Scale from 0 (left) to 10 (right)

frontiers in Political Science

ORIGINAL RESEARCH
published: 10 September 2021
doi: 10.3389/fpos.2021.662687

Motivators of Participation and Non-Participation in Youth Environmental Protests

*Hannah R. Feldman**

Australian National Centre for the Public Awareness of Science, Australian National University, Canberra, ACT, Australia

This paper is an exploratory study investigating motivators of teenagers to both attend and not attend a climate change related protest event. Using open-ended surveys and focus groups, 16–19-year-old Australian students were asked about their motivators to attend and abstain from *School Strike 4 Climate* events. Through qualitative analysis and thematic coding, results show key motivators to attend a *Strike* include climate change and acts of political participation that provide youth with a public voice. Protest is positioned as a key part of teen political repertoires. Reasons for non-attendance included prioritizing schoolwork and low efficacy in protest or participatory action. However, low efficacy in climate change mitigation, or an outright rejection of climate science, was not evident in this sample. Overall, reasons for attendance and non-attendance at a *Strike* event were not direct mirror images of the other, and implications for inclusion of non-participants in further studies is discussed in this light.

Keywords: youth, climate strike, fridays for future, school strike for climate, Australia, youth activism, protest mobilization, protest motivation

OPEN ACCESS

Edited by:
Sarah E. Pickard,
Université de la Sorbonne Nouvelle Paris III, France

Reviewed by:
Carla Malafaia,
University of Porto, Portugal
Joost De Moor,
Stockholm University, Sweden

***Correspondence:**
Hannah R. Feldman
Hannah.feldman@anu.edu.au

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *01 February 2021*
Accepted: *05 May 2021*
Published: *10 September 2021*

Citation:
Feldman HR (2021) Motivators of Participation and Non-Participation in Youth Environmental Protests. Front. Polit. Sci. 3:662687. doi: 10.3389/fpos.2021.662687

INTRODUCTION AND LITERATURE

Introduction and Contribution

This paper explores young people's motivations to attend or not attend an environmental activism event. Through surveys and focus groups with 15–19-year-old Australian students, this research provides an exploratory introduction to how teenagers discuss their decisions to not participate in a School *Strike four Climate* event, as well as contributing further examples on their motivations to participate. This research engages with teenagers directly, qualitatively analyzing open ended questions where young people report reasons for both attending and not attending a *Strike*. The findings form the basis for exploratory work into the motivators of *Strike* participation and abstention in late-teens, a chronically under-researched age group in political studies, and contribute to the broader picture of youth environmental activism with students who both attend or not attend *School Strike* events.

Social Movements and the School Strike

The *School Strike 4 Climate* (otherwise known as *Fridays for Future*, *Climate Strike* or *Skolstrejk för Klimatet*) is a growing movement of young people leaving school—going on strike—to protest government inaction on climate change. Started by then-16-year-old Greta Thunberg, the movement has swelled to millions of participants across 125 countries, and continues to operate even under crippling COVID-19 pandemic conditions. But research on the motivations of these young people to participate in a *Strike* is scarce.

To begin our exploration of these *Strikes*, we look first to extensive literature on factors that motivate people to attend collective action events. Klandermans and Oegema (1987) contribute the model of "Mobilization Potential" (p. 519), exploring elements that must align for protest participation: people must hear about the event, sympathize with both the aims and format of the event, be motivated to attend, and also be enabled to attend (van Stekelenburg and Klandermans, 2013).

Further, van Zomeren et al. (2008) contribute a comprehensive model for exploring the effects of social identity in collective action. The Social Identity Model of Collective Action (SIMCA) is an integrated model of three key socio-psychological predictors for collective action: injustice, efficacy and identity (van Zomeren et al., 2008). This model has been used by scholars to delve deeper into motivators of young *School Strike* attendees. For example, Brügger et al. (2020) integrate the SIMCA to explore *Strike* motivations of over 4,000 Swiss youth aged 14–25. Their study found that social identity (the extent to which participants associate with other *Strikers*) as well as students risk perception of climate change were key factors in predicting engagement with the *School Strike* movement.

In exploration of the *School Strike*, a range of these factors from mobilization potential to social identity may be useful in not only investigating how young people come to attend or discuss protest events, but also how they may fall *out* of the participation pool, highlighting factors that could contribute to their non-attendance.

Youth Attendance at a *Strike* Event

While it may be difficult to assess young people's level of climate change engagement (Partridge, 2008), they have been found on numerous occasions to be knowledgeable about climate (Lee et al., 2020), concerned (Bentley et al., 2004), and emotional about (Ojala, 2012) the realities of climate change. The *Strikes* have been shown to connect deeply with young people's climate anxieties (McKnight, 2020), reflecting young people's negative and pessimistic experiences with climate change (Han and Ahn, 2020).

However, it has become a common trope that young people are 'politically disengaged' from civic life (Harris, et al., 2010). Despite this misconception, young people are instead well known to be politically active in ways that deviate from classical views of 'political engagement' (Norris, 2003; Pickard, 2019). While 'political behaviors' in the past have been centered around engagement with formal structures of government such as knowledge of polity processes, or participating in political campaigning (Delli and Michael, 2000), young people today are much more likely to be issues-focused in their political engagement (Pickard and Bessant, 2018). This means that political behaviors to young people may instead constitute a repertoire of signing petitions, consumer politics such as boycotting brands, and protesting.

Via the *School Strike* movement, young people are using political action to voice their concern for their futures and the environment (McKnight, 2020), which pushes back against the picture of a passive youth citizen, despite politics often being 'done to' young people rather than actively including them (Fyfe, 2009; Andersson, 2015). These *Strikes* distinctly focus on governmental entities or the "State" (de Moor et al., 2020a, p. 4) as important actors in mitigation of climate change, which appears at odds with prior research investigating youth locus of control in environmental care. As an example, Fielding and Head (2012) found that, among Australians aged 18–24 years, a view that 'governments are responsible for protecting the environment' related significantly to lower levels of pro-environmental behavior. A similar (but not significant) relationship was apparent for 12–17-year-old's (Fielding and Head, 2012). This poses an interesting contrast for researchers of the *School Strike*. While the refocus to the state does not equate to faith in political institutions to solve the climate crisis (de Moor et al., 2020a) there exists an opportunity here to build on existing findings where youth are imploring governments to take greater responsibility for environmental management.

Research with participants of this fast growing movement, however, can be challenging, and few studies have been able to engage directly with young people to explore how and why the *School Strike* movement has become what we see today. Sources such as editorials, speeches, interviews and other public domain material from youth *Strike* participants have been used to explore narratives in *School Strike* discourse, particularly that of influential Greta Thunberg (Han and Ahn, 2020). Similarly, for example, letters written by United States students to the office of the President demanding climate action have also been used to explore the movement (Zummo et al., 2020). Broadly, three key themes emerged from the writings: solution-oriented discourse, which included positive affirmations of community and government level climate mitigations; climate politics discourse, including advocacy for policy-based solutions and anti-capitalist themes; and discourse of doom, and the impacts of climate change on humans and animals (Zummo et al., 2020).

Large scale surveys of climate strike participants (Wahlström et al., 2019; de Moor et al., 2020b) provide the most comprehensive investigations to date on young *Strike* participants and their protest motivations. Specifically relevant to this study, Collin et al. (2020) contribute to de Moor et al. (2020b) by surveying participants at the Sydney, Australia, *School Strike* in September 2019. Participants were invited to select (from a number of pre-set responses) what their motivations for participation were, where the most likely reported reason to attend was to pressure political institutions on climate change action (Collin et al., 2020). This was followed by expressions of solidarity with the movement, and social factors such as someone asking them to join were reported least likely. 10–15-year-old attendees in this study were asked to describe in their own words their reasons for attending (Collin et al., 2020): In addition to reporting sentiments of pressuring governments, they also worry about their futures, and this is consistent with other research in this area that has examined narratives of anxiety in the way young people discuss the *Climate Strike* (McKnight, 2020).

Further exploring young citizens motivations of *School Strike* participation can help us to better understand how these intersections of climate change and political action converge for young citizens.

Youth Non-Attendance at a *Strike* Event

Much *School Strike* research to date has understandably centered on the motivators for student participation. However, non-participation at an event does not necessarily signify a non-engaged or apathetic student. Active non-participation in political activity (such as abstaining, or boycotting an event) is a distinct response from apathy or forced non-participation (Harris et al., 2010), and understanding this behavior is key to understanding the broader socio-cultural context surrounding the *School Strike* movement.

Reasons for non-participation can in some cases be directly linked to reasons for participation. For example, Klandermans and Van Stekelenburg, (2014) posit that non-participation can be the result of falling out of a protest mobilization potential pool. That is, despite sympathizing with a movement, some people may simply not be motivated to engage further, may not hear about an event, or simply be unable to attend (Klandermans and Van Stekelenburg, 2014).

Efficacy (or a lack thereof) can also be key to non-participation (van Stekelenburg and Klandermans, 2013), and this can include the perceived effectiveness of the protest event itself. Perceived effectiveness here refers to a wide range of outcomes, from capacity to influence political process through to achievement of specific demands or goals of a protest group (Hornsey et al., 2006). Hornsey at al. (2006) further propose that perceived effectiveness of a movement may also incorporate broader societal or individual goals, including recruitment of more participants to a cause, influencing third parties (outside of the protestors and their oppositional group), and also to use the collective action as an avenue for expressing one's personal values and feelings on an issue.

Often, understanding of non-participation is inferred via research of protest attendees and their motivations to participate, rather than direct exploration of non-participation as an active choice. Stuart et al. (2018) present an exception to this participant-focused bias, surveying 112 Australians (mean age 32) that were sympathetic to a cause, but did not participate in collective action. In this study, the authors looked into "negative protester stereotypes, social incentives, identity performances, and autonomy needs, and the ways in which they inform social identity development and participative efficacy" (Stuart et al., 2018, p. 260). They found that "motivated inaction" (Stuart et al., 2018, p. 245) stemmed most commonly from: a misalignment between support for a cause but little support for methods of activism (such as protesting); rejection of being socially associated with extreme activists; concern about loss of autonomy and individual impact on individual efforts when becoming part of a larger group. These active reasons highlight that non-participation is not necessarily as simple as being the 'opposite' of participation (Klandermans and Van Stekelenburg, 2014), and other factors such as engagement with social norms (how likely your social environment is to enable or discourage participation) can also play a role in decisions to not participate in collective action (Klandermans and Van Stekelenburg, 2014).

Aside from internal drivers of non-participation, barriers or reluctance to engage with activism such as the *School Strike* may be reflective of the adult power in young people's lives, including the political, educational and familial structures within which young people operate. Youth are often dismissed as inexperienced in adult-driven political systems, therefore unable to reliably engage with its structures (Bessant, 2020). Young people participating in the *School Strike* movement are no different, heavily criticized on their inexperience with climate policy (Feldman, 2020) and therefore their ability to engage with issues brought about by the movement. It is no wonder, therefore, that young people are often pessimistic about their ability to make change in political systems, and can have low confidence in specific political repertoires such as protest events (Manning and Ryan, 2004).

In general, Australian students see themselves as politically engaged, but have repeatedly reported low political self-efficacy (Collin, 2008). Since political efficacy can act as a strong predictor of civic action (Solhaug, 2006), exclusion from adult-dominated spaces may be contributing to their disengagement from movements such as the *School Strike*. One example of this exclusion is a lack of youth representation in government, which may lead to distrust and ultimately disengagement from the system (Manning and Edwards, 2014). Manning and Ryan (2004) conducted an Australian study of 13–25-year-olds, through 755 surveys and a number of focus groups, reporting low efficacy in certain forms of political participation, including protesting. When asked what may increase this efficacy, young people reported that meaningful consultation with adults (through youth advisory councils and similar) would be a promising pathway to more meaningful and impactful engagement with polity (Manning and Ryan, 2004), suggesting that current access points for young people are lacking in impact. Given that political engagement and experience is still seen as a top-down transfer of knowledge from adults to youth (Andersson, 2015; Feldman, 2020), this exclusion from climate politics may be pushing young people away from engaging with the *School Strike*.

Other adult influences may include those of parents and families, as parents play a considerable role in the socialization of young people (Dalton, 1982). Practical barriers such as transport to an event or not hearing of an event may also play into non-participation (van Stekelenburg and Klandermans, 2013) and this may especially be the case where teenagers rely strongly on parents to help them with transportation. Finally, school communities are also administered by adults in positions of power. Young people may also be disengaging in favor of other priorities, such as work or school life (Harris et al., 2010), and these too may be a reflection of other structural pressures on their lives.

While large numbers of global students have been turning out for *School Strike* events, studies focusing on participants may miss the critical barriers or decision making that results in non-participation, an equally crucial part of the *School Strike* or broader youth activism narrative. As outlined by this literature, while there are similarities in reasons for both attendance and non-attendance, one is not a direct reflection of the other (see also Klandermans and Van Stekelenburg, 2014). This research contributes the first exploratory research into why

TABLE 1 | Prompts given in each stage of data collection.

Prompt	Data collection tool
Have you attended a Climate Strike event?	Pilot survey, full survey, focus groups
What was your main reason for attending/not attending a Climate Strike event?	Pilot survey, full survey
Why do you think people attend/not attend a Climate Strike event? Your own reasons or reasons of others.	Focus groups
Much media has stated that students attend School Strike events in order to get a day off school. Could you reflect on this statement, and tell me what you think about it?	Focus groups

young Australians may deliberately not be participating in a *School Strike* event.

METHODS

Study Context and Theoretical Approach

The data presented here is part of a broader, exploratory mixed methods study comprising a fully-online survey, and series of online and offline focus groups, to explore motivators that determine participation and abstention from *School Strike* events. As a theoretical basis, the study used an explanatory sequential design method (Ivankova et al., 2006) by first deploying a quantitative survey and then delving deeper into emerging themes via a series of focus groups. Here, we qualitatively explore a sub-section of each of these methods, specifically open-ended questions from the survey and focus groups to the effect of "*Why did you participate (or not participate) in a School Strike event?*" (**Table 1**).

The primary target group for this study was Australian pre-voters. Young people have been described in literature in a variety of ways, but categories such as 'young adult' or 'child' are not "natural objects or categories" (Bessant, 2020, p. 225). These various descriptions have included: pragmatic approaches, related to the organisation of a persons' schooling or welfare (Mizen, 2004; as cited in Collin, 2015); developmental stages (Nilan et al., 2007); or simply an age group, such as between age 14 and 25 (see, for example, Collin, 2008). Manning and Edwards (2014) note that young people occupy a grey area between child and adult, and the attendees of the *School Strike* movement certainly fall into this area. Therefore, this study focuses on the 'pre-voting citizen', 'pre-voter' or "pre-citizen" (Harris et al., 2007, p. 19) as a way of capturing late-teens that are approaching the age in which they become democratic citizens in the country of the study, Australia. This narrows the pool of participants to roughly 16–19-year-old's, without linking them directly to a developmental or education level boundaries that can be exclusionary in studies concerning youth political participation.

Survey Methods

As the responses explored here are part of a broader study exploring factors that influence participation in the *School Strike* movement, the survey was first run as a pilot with undergraduate university students in February of 2020. The primary purpose of the pilot study was to ensure clarity in the survey instrument, as this stage can help to refine both content and procedures of the broader study (Yin, 2003). Target participants at this stage were undergraduate students of the author's university, Australian National University, as geographic proximity and access can play a large role in selection of the pilot case (Yin, 2003). For ethical considerations, all pilot participants were over the age of 18 (the age of consent in Australia), with the majority in either their first or second year of university studies. Participants were recruited via first year lectures, as well as online calls-for-participants on an unofficial student Facebook group.

Following the pilot, larger studies in this area have had success engaging participants via schools (see, for example, Brügger et al., 2020; Harker-Schuch et al., 2020). For this study, several jurisdictions were approached to access public schools for survey and focus group participation, with application processes spanning from mid-2019 to early-2020. However, by early-2020, the COVID-19 pandemic saw schools across the world either closing or under excessive outside pressures. It was then deemed ethically inappropriate to continue engaging schools and Education Departments to participate in the study, and recruitment was shifted fully online.

Calls for participants were placed on Twitter and Facebook, targeting demographics specific to the study through purposive sampling (see Flick, 2018). As purposive sampling targets groups or individuals with sufficient knowledge of the topic (Etikan et al., 2016), it was deemed appropriate to target teenagers and non-voters through a number Facebook groups and pages where knowledge of the *School Strike* movement was likely. These targeted groups and pages included: undergraduate university student groups; climate change and *School Strike* groups; a range of political groups, such as those aligned with left/progressive, centrist, and right wing political stances; and parenting or home schooling groups, with a request for parents to pass on the survey to their high-school aged teenagers. These demographics were chosen as having the closest alignment with young people who have heard of the *School Strike* movement, and made decisions to attend or not attend an event. Due to the purposeful nature of this sampling, the data presented is likely to exclude those that are not politically or environmentally engaged in some manner. This reflects a similar approach to other studies that have focused on participation and non-participation among sympathizers of a cause, rather than a random general population sample (see Stuart et al., 2018).

The survey opened with the following questions:

1. Have you heard about the *School Strike 4 Climate*?
2. Have you attended a *School Strike 4 Climate* event? (If yes, how many)

TABLE 2 | Difference in demographics information collected at pilot and full-scale stages of survey deployment.

Pilot survey demographics	Full-scale survey demographics
School/University year (current):	School/University year (current):
–	• Year 10
• Year 11	• Year 11
• Year 12	• Year 12
• University 1st year	• University 1st year
• University 2nd year	• University 2nd year
• Other	• Other
Age:	Age:
• Under 15	• Under 16
• 15	• 16
• 16	• 17
• 17	• 18
• 18	• 19
• 19	• 20
• Over 19	• Over 20
–	I have voted in an Australian Federal election before
–	• Yes
–	• No
–	Post code:
–	Open response
–	I currently attend school/university
–	• Yes
–	• No

3. What was your main reason for attending/not attending a *School Strike 4 Climate* event?

The key to these questions is the deliberately open nature of question three (3). Open questions have a number of benefits over closed responses, such as avoiding closed question alternatives influencing the respondent's description of their thoughts (Schuman and Presser, 1979). They can also form a basis for further targeted lines of questioning by capturing a full range of possible responses (Singer and Couper, 2017). Given this research is exploratory, these results may in future serve to form the basis for more closed survey responses, but in this instance the open format was more appropriate than closed.

These questions remained unchanged between the pilot study and full scale survey, and hence data from pilot responses to these questions are also included in the analysis here. **Table 2** shows the only differences between the data sets used here, where the full-scale study included a broader range of demographics information.

Focus Group Methods

Six focus groups took place in total for this research, two as part of the pilot study, plus two online and two in person (at a senior high school) as part of the full-scale study. Significant changes were made to the overall instrument after the pilot. Hence, the data here is only from full deployment of the instrument, and the pilot data has been excluded.

Distribution of the non-pilot survey included an option for respondents to indicate interest in participating in a follow up focus group. All respondents that left a contact email address were contacted with sign up information for focus groups, however none attended a focus group. Despite this, two focus group participants disclosed that they also participated in the survey portion of this research, though they were not recruited to focus groups through the survey itself.

All participants that attended an online focus group were recruited directly through social media or were referred by someone in their network. This study also used purposive sampling (Flick, 2018) to recruit participants. Similar to the survey, teenagers of school age were specifically targeted to participate in the study.

To this end, schools were approached to participate in the study, as this stage of the research occurred after schools had returned to on-campus teaching in the Australian Capital Territory, Australia. Hence, two focus groups took place at a non-government secondary school in Canberra, Australia. The school was one of several cold-called institutions, and the author had no prior affiliation with the school. Students from across multiple year levels indicated that they knew one another, but were not in the one social circle.

Across all focus groups, participants were categorized as part of a "primary selection" (Morse, 1998, p. 73, as cited in Flick, 2018) process. That is, each participant was knowledgeable about the topics, able to articulate their thoughts and reflections, and had time and willingness to participate in the study (Morse, 1998, as cited in Flick, 2018). Therefore all participants were integrated into the final analysis.

Overall, focus groups ran for between 60 and 90 min, and were audio and video recorded. Transcriptions of focus groups were created by a combination of manual transcription and through use of Otter.AI, an artificial intelligence and machine learning software for automatically transcribing audio (About Otter, 2021). Participants were able to choose their own pseudonyms for the discussions, and these are reflected in the transcripts.

Questions examined here are sub-sections of the full focus group discussions, focusing only on conversation generated by the specific prompts in **Table 1**.

In addition to asking participants to reflect on their own motivators for attending a *Strike* event, participants were also asked to reflect on why others may be attending. This style of projective questioning, or "Most People Projective Questions" (Ostapczuk and Musch, 2011, p. 399), is used in cases where participants may be hesitant to share their own feelings on a topic, where those feelings might be perceived as undesirable by others (Ostapczuk and Musch, 2011). Given that the target age group of 16–19-year-old's can be influenced by peers in their behaviors and beliefs (see, for example, Gaviria and Raphael, 2001) and environmental behaviors (Duarte et al., 2017), this style of questioning allows participants the freedom to explore responses to questions without the vulnerability of sharing their own inner feelings. This style of projection questioning also ensured that those who had not attended a *Strike* (or vice versa) were given a place to contribute their context without having personal experience.

Despite these measures, students participating in on-campus focus groups were nominated by teaching staff to participate, and these students were largely associated with the campus environment collective. Therefore, there may be present an element of social desirability bias (see Krumpal, 2013) in the way in which students responded to focus group questions, particularly with respect to reasons for non-participation. The full range of on-campus perspectives on *School Strike* participation and non-participation may also be limited by the selected students, as environment collective members are likely to be already engaged in pro-environmental behaviors and may be over representing this viewpoint. Similarly, five of the online focus group participants disclosed some measure of close involvement with *School Strike 4 Climate* events, also suggesting an over representation of environmentally engaged participants in online focus groups.

Data Refinement

In total, 107 responses were recorded for the pilot survey. Of these, 66 responses were excluded from the analysis, resulting in an analyzed pilot sample of 41 responses. These exclusions included any respondents that: were incomplete (n = 28); did not specify an age or university level (n = 8); specified an age over 19 years, but did not specify first or second year of university (n = 29); were under the age of 18 (n = 1). Respondents that specified they were over 19 years of age but still in first (n = 2) or second year of university (n = 9) were included in the analysis, as was one respondent that specified second year university but no age (n = 1). These inclusions were on the basis that both teenagers at school and young adults at university are both within the category of "emerging adult" (Furlong, 2017, p.36), and the common experience of early university years situates them at the same point in social development and career trajectory (for more on milestones in emerging adulthood, see Furlong, 2017). All other respondents that specified age 18 or 19 were included (n = 29).

In the full survey deployment, 248 survey responses were gathered. Of these, any surveys with less than 10% completion were immediately excluded (n = 77), as not enough information was gathered from these respondents to determine their demographics. Any respondents that did not agree to the conditions and terms of the study were also excluded (n = 2). Voting in Australia is compulsory for those 18 years and over at the time of an election. Therefore, respondents that declared they had voted in a federal Australian election were also excluded (n = 32), as the study focused primarily on the category of pre-voting teenagers, or those that had not formally engaged with civic activity such as compulsory voting. Any respondents that were under the age of 16 (n = 4) were also excluded from the analysis due to ethical considerations of consent, as were those that did not specify an age *and* indicated they had not yet voted (n = 2), given that there is no way of knowing if these respondents were over 16-years-old.

Overall, analysis was done with 16–19 + year olds that had not voted in an Australian federal election, with the exception of some pilot respondents (n = 11) whom specified early university education level, but who's voting history is unknown, as previously mentioned. Of the total 354 recorded responses, 172 were included for analysis, and the full description of these responses can be found in **Table 3**.

Focus group data were limited to sections of transcripts specifically focusing on responses to the following prompts:

- *Why do you think that people go to a School Strike for Climate event?*
- *Why do you think people do not go to a School Strike for Climate event?*
- *It has been reported via various media that students only attend in order to get a day off school. Could you reflect on that comment? What do you think of this?*

Students in the pilot study were predominantly from the Australian National University in Canberra, thus despite their geographic information not being collected, they have been coded as Australian Capital Territory (where the campus is located) students. Similarly, the pilot study respondents were not asked if they had previously participated in an electoral voting process, and are all counted as 'unknown' in this case. Focus group participants were also not asked about their participation in voting, though as the age of voting in Australia is 18 and the focus groups took place more than 12 months after the most recent election, any participants aged 18 and under were assumed not to have voted in an election, and were coded as such.

Analysis Method

Following methods outlined by Chun et al. (2019), this research used a grounded theory approach, where after purposive sampling and early thematic exploration during the pilot study phase, key themes were coded and categorized. Initial coding followed an 'open code' approach, generating multiple provisional themes as they emerged from the data (Charmaz, 2006), and grouping them under key themes, which were generated in relation to key literature surrounding protest motivation including social themes, efficacy, or practical barriers to attendance at a *Strike*. Sub-categories were generated under these themes and remained unchanged once

TABLE 3 | Full overview of study respondents by demographic information, voting status, and whether they have attended a School Strike.

Characteristic	Number (percent), pilot survey *n* = 41	Number (percent), full survey *n* = 131	Number (percent), focus group participants *n* = 21	Number (percent), full sample *n* = 193
Have attended a Climate Strike event				
Yes	21 (51.2)	63 (48.1)	11 (52.4)	95 (49.2)
No	20 (48.8)	59 (45)	10 (47.6)	89 (46.1)
Have not heard of SS4C	0 (0)	9 (6.9)	0 (0)	9 (4.7)
Gender				
Female	29 (70.7)	89 (67.9)	14 (66.7)	132 (68.4)
Male	10 (24.4)	28 (21.4)	2 (9.5)	40 (20.7)
Gender diverse	1 (2.4)	5 (3.8)	0 (0)	6 (3.1)
Not disclosed	1 (2.4)	9 (6.9)	5 (23.8)	15 (7.8)
Age				
Under 16	0 (0)	0 (0)	3 (14.3)	3 (1.6)
16	0 (0)	35 (26.7)	4 (19)	39 (20.2)
17	0 (0)	35 (26.7)	6 (28.6)	41 (21.2)
18	8 (19.5)	47 (35.9)	7 (33.3)	62 (32.1)
19	21 (51.2)	7 (5.3)	1 (4.8)	29 (15)
Over 19	11 (26.8)	5 (3.8)	0 (0)	16 (8.3)
Unknown	1 (2.4)	2 (1.5)	0 (0)	3 (1.6)
Current school year				
High school year 9	0 (0)	0 (0)	1 (4.8)	1 (0.5)
High school year 10	0 (0)	16 (12.2)	2 (9.5)	18 (9.3)
High school year 11	0 (0)	24 (18.3)	8 (38.1)	32 (16.6)
High school year 12	0 (0)	28 (21.4)	8 (38.1)	36 (18.7)
University year 1	21 (51.2)	49 (37.4)	2 (9.5)	72 (37.3)
University year 2	20 (48.8)	1 (0.8)	0 (0)	21 (10.9)
Not in school/uni	0 (0)	6 (4.6)	0 (0)	6 (3.1)
Unknown	0 (0)	7 (5.3)	0 (0)	7 (3.6)
Have participated in election voting				
Yes	0 (0)	0 (0)	0 (0)	0 (0)
No	0 (0)	131 (100)	20 (95.2)	151 (78.2)
Unknown	41 (100)	0 (0)	1 (4.8)	42 (21.8)
State/Territory				
ACT	40 (97.6)	37 (28.2)	14 (66.7)	91 (47.2)
NSW	0 (0)	35 (26.7)	1 (4.8)	36 (18.7)
QLD	0 (0)	8 (6.1)	0 (0)	8 (4.1)
SA	0 (0)	7 (5.3)	0 (0)	7 (3.6)
TAS	0 (0)	3 (2.3)	3 (14.3)	6 (3.1)
VIC	0 (0)	26 (19.8)	3 (14.3)	29 (15)
WA	0 (0)	10 (7.6)	0 (0)	10 (5.2)
Unknown	1 (2.4)	5 (3.8)	0 (0)	6 (3.1)

TABLE 4 | Examples of two responses that were co-coded to multiple themes.

Data sample	Emergent code co-occurrences
"I wasn't really involved in any groups that were planning to strike so I didn't know about it until it happened. Also no one from my school really did it".	• No knowledge of event • Social: Peer influence
"My thought process was just like, oh, I don't really know if it's allowed, like, are we allowed to go? Am I going to have to have an absence (recorded) ? Or can I, like explain it? Because, you know, you can only have a certain number of (unexplained) absences in college. So it's like, am I going to have an absence, how many do I already have? And then I was like, well, I have schoolwork, anyway, you know, and then I'm like, one person not going isn't going to impact it. It all just stacks up.	• Social: School administration • Unavailable: School commitment • Low efficacy: Individual

saturation in codes became apparent (no new codes introduced to explain data) (Birks and Mills, 2015). This method was applied to all short answer responses from collected surveys as well as focus group transcripts, and codes remained unchanged between data types.

Some statements were co-coded to two or more themes. Two examples of code co-occurrences can be seen in **Table 4**, where a survey response and focus group passage (each discussing protest non-attendance) are coded to several themes each.

RESULTS

Introduction

Overall, 41 respondents were analyzed from the pilot survey, 131 from the full distribution of the survey, and 21 participants from four focus groups (**Table 3**). Across the samples, there was an overrepresentation of female respondents, totaling close to 70% of the full sample. Around equal numbers of respondents were in

TABLE 5 | Key themes that emerged as motivators to attend a protest, by code and data type.

Theme	Pilot occurrences *n* = 21 (percent sample)	Survey occurrences *n* = 63 (percent sample)	Focus group occurrences (unique sources)
Climate change	8 (38.1)	23 (36.5)	9 (7)
Political pressure	5 (23.8)	20 (31.7)	4 (4)
Movement support	5 (23.8)	14 (22.2)	6 (7)
Concern for future	2 (9.5)	15 (23.8)	7 (5)
Youth voice	2 (9.5)	5 (7.9)	13 (11)
Social	1 (4.8)	5 (7.9)	9 (5)
Personal responsibility	0 (0)	6 (9.5)	0 (0)
Emotional (e.g. anger, frustration, excitement)	0 (0)	2 (3.2)	6 (5)
Greta thunberg	0 (0)	1 (1.6)	0 (0)
Other "greater good" sentiment	2 (9.5)	5 (7.9)	0 (0)

high school or early year university, and most common age as 18 years old. All respondents were either known to have not voted in an election (which is compulsory in Australia over the age of 18), or their electoral participation was unknown. Approximately half of the sample had attended at least one *School Strike* event (49.2%), while the remainder had not (46.1%) or had not heard of the *School Strike* movement (4.7%).

Motivation to Attend

In survey responses, the most common reason for attending a protest event was related to climate change, and nearly half of all respondents mentioned climate in some form. Key themes that emerged under the *climate change* code included references to global responsibility, climate justice, concern for the environment, and other general mentions of climate change. The frequency of these responses, along with all other recorded motivators to attend a protest, can be seen in **Table 5**.

Mentions of climate change took many forms, from generic responses of "*promote climate change action*" (anon, 18, university first year), "*climate matters!*" (anon, over 19, university second year) and "*passion for the environment*" (anon, 17, year 11) to the more in-depth:

- *"Improve awareness of the importance of climate action amongst young people"* (anon, 17, year 11)
- *"Belief that Australia needs to do drastically more to tackle climate change and that it is the biggest threat to our planet and our lives at the moment and into the future."* (anon, 17, university first year)
- *"Show my support for action on climate change in a tangible way and be a role model for younger students at school through my environment group."* (anon, 19, university first year)

Young people are generally knowledgeable about climate change (Lee et al., 2020), and given the high level of engagement with pro-environmental behavior of this age group (Bentley et al., 2004), this is an unsurprising result (for more on protesting as a form of pro-environmental behaviour, see Dono et al., 2010). These responses had considerable overlap with *concerns for futures* theme code, with participants expressing concern for both their own futures and the futures of others.

This echoes long-standing research showing emotional associations with and concerns for climate futures of young people (for example, see Connell et al., 1999), and some respondents had strongly emotional engagements with the conception of fighting for their futures. Some were a simple "I was anxious about the climate" (anon, 18, year 12), others were more in-depth:

- "*I am sick of the govt not listening to what we want, we are Australian citizens too and their decisions impact my life, the lives of those around me and the future of Australia.*" (anon, 17)
- "*I am scared I won't have a future.*" (anon, 17, year 11)
- "*Catastrophic future effects climate change will have on the human race, will be much worse if it's ignored. Which is what is happening with the Liberal [conservative Australian] government.*" (anon, 18, university first year)

Emotional responses also often had clear targets of frustrations, in the form of adult power structures. As in Holmberg and Alvinius (2019), the global youth *Climate Strikes* have shifted youth rebellion from distinct actors (such as parents or teachers, people in their local area) to abstract actors (such as against "the establishment, against (in)decisions, against companies", p. 88). Note the abstract actors in these two responses from school focus groups in the present study, such as the ambiguous "*you*" or "*they*", "*federal government*", and "*Sky News*":

> **Jess (18, year 12)**: I feel like... I don't know... We were so highly educated about environmental issues from a young age and then it kind of just ... I don't know, gets filtered out of us a bit. But it's good to just be like "you taught us all this stuff, and it's so clear that if we keep treating the environment the way we are it's going to die" essentially, so like... Why? Why is nothing being done? Why are we being so heavily educated but then it seems like nothing is actually being done beyond that?
>
> (then, *later in the discussion*)
>
> **Michael (18, year 12):** To add to that, like, the government is saying that all kids should stay in school but in school we're learning about all the environmental problems and we're taught to do

something, create change, but when we actually try, we're pushed back and (they're saying) "no, go back to school". So what's the point in telling us that we need to fix these environmental problems but then tell us "no, you can't do it"

Jess (18, year 12): Yeah, it's like they teach you to try to change the world but then when you try to, they limit you. Like it's a very paradoxical type situation.

Moderator: When you're both are talking about "they"—who are you thinking about? Who is "them"?

Dani (18, year 12): Everyone else.

(all laugh)

Jess (18, year 12): Teachers, politics, even every-

Dani (18, year 12): Adults.

(all agree)

Dani: People in power.

. . .

Adam (17, year 12): I think there's a lot of people today, especially young people who do want to make a difference, like Greta Thunberg, but a lot of young people feel like they're not being listened to. Especially by the federal government at the moment. You know, if you turn on Sky News, when Greta Thunberg was really big, there was a lot of attacks on her and I think young people are deeply frustrated at the moment of the lack of-of inaction on climate change perceived threat. And if people could stand up and wave arms about it, you get a bit of publicity. And it gets the word going about in, you know, people's living rooms. And I think that's really powerful. Like I think that's why people want to go down to the protest. Not just to meet people but actually, you know, promote a conversation and promote change, I think.

Despite these heavy emphases on environmental engagement and futures, the *Strikes* are also a political act in Generation Z's civic repertoire. Political pressure was a key motivator mentioned across both survey groups, and this mirrors results seen from Collin et al. (2020), who also surveyed Australian *Strike* participants. Examples included:

- "*Protesting against the government's inaction on climate change and urging them to do better*" (anon, 17, year 12)
- "*I want government action on climate change and this was the main way I saw as making that happen.*" (anon, 18, university first year)
- "*I disagree with the current climate policy and want to contribute to a political change to stop the climate crisis*" (anon, over 19)

Finally, as movement support is a key predictor of mobilization potential (Klandermans and Oegema, 1987; van Stekelenburg and Klandermans, 2013), there was also a notable number of generic and specific statements of movement support, such as "*To raise awareness and hopefully help to gain momentum in the movement to create a legislative change!*" (anon, 16, year 11).

In focus groups, key themes emerged in parallel and similar forms to those of surveys. However, the most striking emergent theme was around pathways for providing a youth voice through the protest movement, indicating strong political efficacy for those that attended protests. Hermione, 18-year-old university first year student in Canberra, said this of the power of the movement:

> **Hermione**: I just thought, for me, I had always been taught about climate change and I have always cared a lot about it but it was just so much more than just the science and facts of climate change. It's also about me as a youth, I felt like I had no say in anything. Not just climate change, but anything. And I-you know, adults are always saying 'youth are so apathetic and they don't care' and it's like it's because you don't listen to us! You don't care! And so yeah, for me it was not just about climate change but actually about you know, regaining my democratic rights and actually being able to like make my voice heard for literally the first time in my life. Like, obviously I was 16 at that point, never voted, so yeah was ... It was so much more than climate change for me, it was like democracy as a whole and all of the social justice and environmental stuff that comes with that.

Other participants shared similar political frustrations, and using the protest movement as a tool to express themselves as young democratic citizens was a common theme. Lauren, 17-year-old, year 11 Canberra student:

> **Lauren**: I guess, going with a bit of a cliché. I'm only 17, like I can't vote. And yet it's like... I'm going to inherit the problem. And I feel like that's where a lot of the frustration stems from. That's what a lot of the arguments are based off, is that idea that we can't do anything. Well ... except for protest, there isn't very much that we can do as young people, and yet we're going to be the ones who have to deal with it.

Some students reflected on how the protest has enabled them to make change, citing then-Prime Minister of Australia, Scott Morrison's acknowledgement of the protest as a sign that political figures were paying attention to youth voices. Michael, 18, year 12, Canberra:

> **Michael**: We're giving them their jobs. ... If we didn't vote for them, they wouldn't have a job in the government, so... It's a democracy. Our country is a democracy. It's based on people's voices. If they're not heard, then it's not a democracy anymore.
>
> **Moderator**: Did it give you a voice?
>
> **Michael**: Well yeah. Because (Scott Morrison) said 'go back to school' to all the kids.

TABLE 6 | Key themes that emerged for non-attendees of a protest event, by code and data type.

Theme	Pilot occurrences n = 20 (percent sample)	Survey occurrences n = 59 (percent sample)	Focus group occurrences (unique sources)
Unavailable	12 (60)	34 (57.6)	6 (8)
School commitment	2 (10)	22 (37.3)	5 (7)
Work commitment	4 (20)	1 (1.7)	1 (1)
Other/Unspecified	6 (30)	10 (16.9)	0 (0)
Disagree with the event	6 (30)	5 (8.5)	0 (0)
Low efficacy	3 (15)	3 (5.1)	8 (5)
Participative	0 (0)	1 (1.7)	4 (4)
Protest	3 (15)	2 (3.4)	4 (3)
Social factors	0 (0)	6 (10.2)	17 (11)
School administration	—	1 (1.7)	8 (5)
Community consequences	—	0 (0)	2 (2)
Parents	—	2 (3.4)	5 (5)
Peer (pressure to not attend or lack or support to attend)	—	3 (5.1)	2 (2)
No/minimal knowledge of event	0 (0)	7 (11.9)	3 (5)
Accessibility	2 (10)	1 (1.7)	1 (1)
Apathetic	2 (10)	4 (6.8)	1 (1)
Mention of climate change	4 (20)	0 (0)	0 (0)
No local event	0 (0)	2 (3.4)	0 (0)
Safety concerns	0 (0)	1 (1.7)	5 (5)
Transport	0 (0)	1 (1.7)	0 (0)

In general, these findings are consistent with previous studies that have explored an environmentally and politically engaged youth, and contributes nuance around how young people view protest movements such as the *School Strike 4 Climate* as a tool in their arsenal for expressing their views on climate change.

Motivation to Abstain

Overall, participants that had not attended a protest event were most likely to have been unavailable, in disagreement with the protest events, or influenced in some way by social factors such as school administrators, parents, or peers. In general, there was far more variation between sample groups in reasons for non-attendance than reasons for attendance and all occurrences and codes for non-attendance are outlined in **Table 6**.

The most commonly reported reason for students not attending a protest was that they were unavailable, either with school, work, or another unspecified reason. Unspecified reasons reported in the surveys included general statements such as "*I was busy*", "*I didn't have time*" or "*it clashed with other commitments*". Overwhelmingly, however, most respondents indicated that they were prioritizing schoolwork over attendance at a protest event. In fact, some respondents in focus groups indicated that school is not only preferable, but that the personal consequences of leaving outweighs desire to attend a protest:

> **Dani (18, year 12)**: I just didn't go because I wanted to do my schoolwork. I do want to learn. Like I do come to school because I do want to learn and like I mean, a lot of times they're like "they just want a day off school". But to be honest, I think a lot of my friends that I talked to you just didn't go because they were like I have work to do today. I need to be in class. I don't understand this concept like... I would love to go, but I do actually want to be at school.
>
> **Jess (18, year 12)**: It punishes you by going because you then have to catch up on this maths class, this maths class, this chem class, this chem class, this chem class. It obviously depends if you're, like, academically motivated, I guess. But like a lot of kids are, and so by going, it's kind of like being inconvenient to yourself.
>
> **Sophie (16, year 11)**: September is like one of the busiest school months. And that's when the national one is, so by going you're kind of digging yourself a hole. So you kinda want to be there but... There's going to be not just actual punishment consequences, but you just falling behind. Yeah, if you're going, you want to be there.

This theme was consistent across survey and focus group responses. In contrast, a visible difference between groups was the way in which participants spoke about *social factors* influencing non-attendance. From this theme emerged several subthemes, and while no pilot study respondents mentioned these at all, nearly 20% of all full survey respondents mentioned at least one. These subthemes (plus examples) were:

- School administration: "*very strict high school attendance policies*" (anon, 18, university first year)
- Parents: "*because my parents aren't comfortable with me attending strikes that have the possibility that it would get out of hand*" (anon, 17, year 12)
- Peers (pressure to not attend or lack or support to attend): "*Nobody to go with*" (anon, 18, not in school), and "*no one from my school really did it*" (anon, 17, university first year)

Focus groups had in depth discussions about the extent to which each of these factors influenced participation. School community in particular was spoken of with suspicion, where

students implied that school administrators had deliberately made attempts to circumvent protest attendance by either scheduling events on the same day, threatening consequences, or blocking information getting to students:

> **Asha (16, year 11)**: they scheduled a practice [exam] on that day, I'm not sure if that was intentional or not. I kind of get the feeling that it was.
>
> **Lara (16, year 11)**: [A neighboring school] scheduled their [school dance] nearby and they said if they go [to the protest] they can't go to the [school dance]. This is last year, I think.... So, I think not many girls went.
>
> ...
>
> **Lara**: I think that unless you go looking for the information, you're rarely gonna find it, like you might see a poster in [the CBD]. And that's kind of it. I think that information is just not communicated to everybody consistently.
>
> (all agree)
>
> **Jill (17, year 11)**: It's not very advertised.
>
> **Asha**: Yeah. And if it is, like we were saying, the posters get taken down [at school, by the administration].
>
> (**others** agree)
>
> **Asha**: Yeah. Like, people are trying to get rid of it. Stop the information from getting to people.

In another example of focus group discussion on social factors, students spoke of parental influence, though rarely did students mention an opposition to climate action as reasoning for parental hesitation:

> **Maya (16, year 11)**: I did want to go. My parents-my mom, specifically, wasn't too impressed about me skipping a day of school, I guess. Just like more that idea. And especially I guess for people our age, because I couldn't drive, and I live a fair way (away from the protest) as well. So like just trying to organize my way (to the protest) would be a bit difficult. That's probably the main factor.
>
> **Jenny (17, year 11)**: Oh, yeah. My mom would not-. Honestly, I wanted to go but I just knew it wasn't a thing. I just couldn't really ask because I already knew the answer. It was like just an assumption. Like, well, that's just not something I would be allowed to go to. And especially since we had a test on. I would just not be, you know, it would not really be an option for me. But definitely in the future. Definitely.

Many of these responses speak directly to adult structures of governance in young people's lives. Research has shown that communities of support or opposition of protest participation can influence non-participation (see, for example, Hensby, 2017), and it is possible that this extends to adult structures in which young people are deciding to participate or not.

Some participants directly addressed a feeling of low political power when it came to *School Strike* demonstrations, which may contribute to non-attendance. This was particularly evident when focus groups were asked to reflect on the popular notion that some attendees may be simply participating to skip school. Predominantly, discussion of this idea garnered two major responses: that it was *patronizing* to insinuate students had no other reasons to attend the protests, and that if there are students that use the *Strike* as an excuse to leave school, these students *do not attend a Strike event*. Adam (17, year 12, Canberra) highlighted that political power was low among teenagers, and that this was being weaponized against protestors in a patronizing way:

> **Adam**: I found (the response) from the government, particularly the Prime Minister going 'Oooh you know those kids should go back to school because that's where they belong', you know... I found that a bit disingenuous. And kind of a bit arrogant. Coming from the Prime Minister going 'Oooh they can't vote (yet) so', you know, 'we don't have to listen to them'"

This lack of political efficacy relates to many efficacious reasons why respondents had not participated in a protest event. Efficacy in this instance was split into two broad categories:

1. Protest efficacy: the belief that as a group, protests can achieve their desired outcomes;
2. Participative efficacy: that one's individual contributions will make a difference to the group or collective of activists (van Zomeren et al., 2013).

A lack of protest efficacy was evident across both survey and focus group responses, from general statements such as "*I feel like it wouldn't do much for actually changing policy*" and "*Don't think they work*" through to more in depth examples:

- "*The net payoff for me attending the strike will be significantly lower than anything else I could be doing with my time, in large because I don't believe it will effect (sic) government policy or the rate of climate change*" (anon, 19, university second year)
- "*They were for sure, aware of (climate change) and concerned about it. But the strike format, they were just like, well, politicians are just not going to pay any attention. It's not a vote. They're not gonna win voters by supporting it. Most likely. They're conservative politicians. They're just gonna keep being conservative.*" (Tad, 18, year 12)

Participative efficacy, on the other hand, was slightly less prevalent in surveys, as compared to focus groups. For example, Grace, 17-year-old year 12 student in Canberra, said this of her reasoning to not attend:

> **Grace**: Personally, I didn't go because like, I feel like it wouldn't make a difference if I went or not. And I could make more difference, like working hard in school and

> trying to like get a job where I can influence them more directly. Yeah, like. I felt like I wouldn't be heard if I went.

Finally, while a lack of efficacy seemed an issue for many respondents, 16-year-old year 11 student Maya, remained hopeful about the impacts that protests can have, despite not having been to one herself:

> **Maya**: I think specifically, if you look at like other issues in the past, I think protests are really powerful way to show the government-Specifically for school kids who I feel like a lot of the time, we feel like we're controlled with every single part of our lives. So to show that we have this, like, passion, and we will go out of our way to prove that we want to fight for what's right, it shows that maybe they should actually start to take into account our views on the system.

This small example highlights that a lack of political efficacy is not necessarily an underlying factor in all respondents that chose not to participate in a *Strike*.

Finally, *event disagreement* was also a prominent motivator for non-participation. While efficacy refers to the outcomes of engagement with collective action, this code is distinct in that it refers more broadly to "sympathizers" (Oegema and Klandermans, 1994, p. 703) who agree with a cause and its merits, but not with the avenue through which it has been pursued. Categories that emerged under this code mirror two of three described by Stuart et al. (2018): *disagreement on methods*, and *reluctance* to associate with the protesting group. It's worth noting here that the third of Stuart et al. (2018) factors of non-participation is a *loss of autonomy* in a group/crowd setting. In the present study, this has instead been captured by the *participative efficacy* code.

On *disagreement of methods*, the pilot sample (predominantly early university students from a Canberra university) frequently mention centering education over protesting:

- "*Don't see the point, I study environmental science but think all our problems are better solved practically with actual science. Of course it's important to speak out about such issues but I don't think it makes a huge difference apart from landing on (sic) the media as policies don't really change as a result and even the people striking are just as ignorant to their immediate impacts on the environment*" (anon, 18, university first year)
- "*I prefer to educate myself so that I can be more useful when stopping climate change—if I continue well with uni I can be more effective than just another face in the crowd. So I won't skip classes just to protest*" * (anon, 19, university first year)
- "*Busy day and large strikes aren't my thing, I research in renewables so I don't have the 'I'm not doing enough for climate change' guilt*" (anon, 19, university second year)

*Did not attend a protest, but did not give a reason why. This statement was made in open response at the end of the survey asking for any further comments.

For those that were *reluctant* to associate with other protestors, the focus was instead on the risks of using protest as a form of expression:

- "*Concern about how the strike could make too significant a proportion of voters turn away from caring about climate action.*" (anon, 18, university first year)
- "*Don't believe in the form of activism it promotes and the groups that are associated with it*" (anon, 18, university first year)

Again, these responses are distinct from those exhibiting low efficacy, as they don't comment directly on the effectiveness of protesting on a group or individual level. Instead these responses speak to being outside a mobilization potential that agrees with both social movement goals and format (Klandermans and Oegema, 1987).

Respondents that disagreed with protest methods, listed above, were also three of four responses (across non-attendees) that specifically mentioned the environment, and each statement was co-coded as such. The final mention of environment was one 19-year-old student in first year university who stated "*Ineffective, climate change is overhyped*" as their reason for non-attendance. While youth 'belief' in climate change is beyond the scope of the present study, this has been explored extensively elsewhere (for example, see Stevenson et al., 2014). It is interesting to note that while political efficacy may be low among respondents, low climate efficacy (the ability to influence climate change) was not an evident theme.

Broadly speaking, reasons for non-attendance were complex and multi-layered. One student, Dani, an 18-year-old year 12 student in Canberra, summed up this complexity, stating this of her reasons for not going to a protest:

> **Dani**: My thought process was just like, oh, I don't really know if it's allowed, like, are we allowed to go? Am I going to have to have an absence (recorded)? Or can I, like explain it? Because, you know, you can only have a certain number of (unexplained) absences in (senior high school). So it's like, am I going to have an absence, how many do I already have? And then I was like, well, I have schoolwork, anyway, you know, and then I'm like, one person not going isn't going to impact it. It all just stacks up.

DISCUSSION

This research explored motivators of teenagers to either attend or not attend a *School Strike* protest event, finding non-participation is motivated by a distinct set of factors separate to those that motivate participation. In general, young people attending *Strikes* are motivated by a concern for the climate, and see protesting as a key part of their political repertoire. Non-participants were not necessarily found to be the 'opposite' of attendees: predominantly, non-attendees were simply unavailable or prioritizing studies in favor of attending a *Strike*. Various levels and types of low efficacy

(participative and protest) were also found to be key motivators to *not* attend a *Strike*, as were social factors such as pressure from adults or peers, though the latter were more prominent in school-based focus groups than in surveys.

For many respondents, there was not a singular clear-cut reason for attendance or non-attendance, and the way in which young people explore issues of environmental activism can be complex, intertwining many different competing priorities. We see this especially when students speak of government action and their desire for stronger action on climate change: pro-environmental positions are closely linked to political acts. While this is to be expected from the *School Strike* movement, it highlights how young people's political engagement is strongly tied to issues rather than political structures (Norris, 2003; Pickard, 2019), and enacted through new opportunities of participation through "issues-based networks" (Collin and Mccormack, 2019, p. 497). In the case of many respondents here, participation is not an 'either-or' proposition between an environmental or political motivator.

This research found that non-participants did not mirror participants with a direct lack of political or environmental engagement, despite non-participation often being inferred directly from participant studies. Non-participants in this study very rarely exhibited active hostility toward the movement, climate change, or engagement with politics more broadly. In opposition to the popular idea that young people use the *Strike* as an excuse to leave school (Barraclough, 2019; RNZ, 2021), respondents in this study highlight that staying at school or prioritizing school work is a key factor in not attending a *Strike*. This is consistent with work of Harris et al. (2010), who's study on Australian youth political engagement showed students top personal concerns were "getting a good job" (p. 17) and "doing well in studies" (p. 17).

Placing a high importance on schoolwork may also be indicative of structural constraints that exist for young people, as imposed by adults. Especially in focus groups, respondents were cognizant of the influence that school administrators and parents had over their ability to go to a protest. Namely, there was a concern that students would face consequences by attending a *Strike*, from both school administrators and family. Parents can play an important role in a young person's engagement with climate change, as they are seen as a trusted source of information (Corner et al., 2015), contributor of social norms around pro-environmental behavior (Busch et al., 2019), and can influence a young person's climate change risk perception level (Mead et al., 2012). While the specific contributions of parents on participants willingness to engage are beyond the scope of the present study, what we see here is a much more practical demonstration of parental influence. Parents may have a direct influence on the mobilization potential (Klandermans and Oegema, 1987) of young people seeking to engage in environmental activism by removing student ability to attend an event despite intention and motivation to do so.

Participants of a *Strike* also referred to adult influences in several instances, especially as targets of the resistance movement. These included abstract actors such as governments, news providers and more broadly 'adults'. It is clear from the framing of these comments that adults are seen as a blanket "out group" (Fielding and Hornsey, 2016, p. 2), and the results presented here support research showing a shift in youth resistance from distinct individuals to broad and complex abstract groups (Holmberg and Alvinius, 2019).

Respondents also frequently highlighted a lack of agency in political process, which, while not an overwhelmingly prominent response, did arise as a reason for non-attendance. For those wishing to engage, lack of youth voice to parliament may lead to disengagement from the system (Manning and Edwards, 2014). However, rhetorically speaking, political figures use dismissive language in order to belittle the agency of young people attending the *Strikes* (Feldman, 2020), such as implying young people are only attending a *Strike* to skip school. But this rhetorical engagement can also be seen as a positive, as reflected in comments from 18-year-old Michael, who used political acknowledgement of the *Strike* as a sign of movement impact. Conversely, there may be adverse consequences for young people constantly exposed to negative stereotyping from adults, incorrect or otherwise. Several focus group respondents noted that they had heard young people were attending *Strikes* to 'skip school' and assumed this motivation to be true of their peers. The risk here is that repeatedly being stereotyped may have a backfire effect and begin to influence young people of this age group, resulting in a self-belief of the negative stereotype (Bessant, 2020). Noting how young people speak of their agency, and respond to broader rhetoric, in adult government structures is important to consider in the broader conversation on youth political engagement.

However, structural barriers are not the only mechanisms for disengagement, and psychological processes can also play a role in a decision to step back from political acts such as protest (Stuart et al., 2018). In some cases, non-participants in this study showed a rejection of the methods or people engaged with the *School Strike* movement. There was a concern among rejecters of the movement that association with activists can turn other voters away from the cause, or that activists were a group to be in opposition with. However, there was no rejection of climate change action, other than one response out of all samples. This tension between being a sympathizer of a cause (Klandermans and Oegema, 1987) and not wanting to participate in the collective action due to the methods or identities of the activists strongly supports previous research in this area (see Stuart et al., 2018). Interestingly, this rejection of methods or other protest actors was evident in the survey sample, but not in the focus groups. This may point to a certain level of desirability bias (Krumpal, 2013) in the focus groups, where participants could be influenced by normative attitudes in the group that would suggest that, overall, the protest movement is a positive form of collective action.

Distinct from event agreement or disagreement, efficacious people tend to be drawn to normative actions such as protesting (Tausch et al., 2011). This may be why efficacy was an implicit underlying factor in many responses from participants who had attended *Strike* events. In the Tausch et al. (2011) study, however, non-efficacious people were associated with non-normative or extreme forms of activism. By contrast, a lack of efficacy in the present study was more visibly explicit in those that had decided

not to attend a protest. Though we cannot know whether these respondents are engaging in other forms of extreme activism, we can investigate their levels of efficacy in both an individual and group sense. Efficacy was coded specifically in non-attendee responses via protest efficacy—whether these specific actions have an effect on policy—and participative efficacy—whether individual contributions will make a difference to the group action. These two codes in combination highlighted a notable absence of low political efficacy, or the sense that one's individual actions can't influence political process (Campbell et al., 1954; as cited in van Stekelenburg and Klandermans, 2013). Overall, the combination of event rejection and efficacy codes almost directly mirrored the work of Stuart et al. (2018), who found that *disagreement on methods*, *reluctance* to associate with the protesting group and a *loss of autonomy* in a group/crowd setting were key reasons where people decided not to participate in collective action. The present study takes this theory specifically into the realm of youth activism, finding it applicable to sympathizers much younger than those who participated in the original Stuart et al. (2018) study, which had a mean age of 32.5 years (SD = 13).

The general consensus in the present sample that climate mitigation is a positive (or, at least, not outwardly negative) cause links strongly with the underlying finding that participants exhibited a *concern for their future* as a reason to participate in a *Strike*. This echoes the Harris et al. (2010) study mentioned previous, where "Environmental issues" (p. 18) were also a top concern for youth futures, as well as more recent studies of School *Strike* participants (such as Collin et al., 2020). On the theme of environmental efficacy—the ability to influence climate change in the future (see Ojala, 2012)—there was a notable absence of low environmental efficacy across responses. No respondents that mentioned climate change, whether participants at a *Strike* or not, were doubtful about whether they could influence the future of climate change in and of itself. This presents a hopeful view of youth climate futures, and research has found that hope can have a direct influence on young people's engagement with the environment (Ojala, 2012). However, some studies have found ambivalence toward 'negative' future scenarios, as efforts made to stave off climate change may be met with ridicule, or ignored completely (Threadgold, 2012). The present research highlights another piece of this complex interplay between hope and pessimism that youth activists will influence decision makers on climate change policy.

In this study, a range of differing themes emerged between the surveyed sample and those in focus groups, especially when investigating reasons why participants did not attend a protest. This may be due to the subtle shift in wording between the two scenarios, as the use of Most People Projective Questions (Ostapczuk and Musch, 2011) is expected to elicit different responses to direct questioning. Alternatively, the setting of peer discussion (school, or online) may be encouraging a focus on a shared social identity between students. All participants in focus groups indicated in some way support for the *School Strike* movement overall, such as alignment with the *School Strike* values, belief that the climate is at risk, and to some level personal support will enhance climate outcomes (for more on public support for environmental movements, see Stern et al., 1999). Participants may hence be demonstrating a set of subjective norms (Ajzen, 2011), and given that social norms can influence decision making with regards to climate change (Busch et al., 2019), this may explain why the focus of the group discussions was more skewed to social factors influencing *Strike* non-participation.

Though not the objective or intent, this study is perhaps limited by the inability to generalize more broadly to Australian students outside of this sample, as it is firmly exploratory and qualitative in nature. However, it does give an important introductory perspective on how young Australians may be engaging with environmental activism, especially in the area of non-participation. A second limitation is similar to the work of Collin et al. (2020) who state that securing appropriate surveys and consent for minors contributes to unrepresentative samples, excluding hard-to-reach groups. With the present research, sampling limitations online and in schools proved to be a major challenge in recruiting participants. In addition, the sample this study engaged may have been disproportionately environmentally motivated. Future studies may wish to further utilize Most People Projection Questioning (Ostapczuk and Musch, 2011) to explore broader social norms around barriers to protest engagement, and employ random population sampling in order to widen the research on youth activism beyond this bias. Finally, further analysis is required to ascertain the representation of regional and remote students as part of the sample. As an especially challenging group for recruitment, future research should aim to ensure a broad representation from these non-urban students.

This study forms a foundational basis to continue investigating how young people engage with, or don't engage with, environmental activism in Australia. Results here strengthen the notion that non-participation is a distinct action in and of itself, as opposed to a simple mirroring of motivators to participate in activism. Further research should continue to highlight non-participants as an integral part of understanding youth, politics, and environmental action, especially in the *School Strike 4 Climate* case.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Australian National University Human Research Ethics Committee. Written informed consent from the participants' legal guardian/next of kin was required and obtained for under age focus group participants, and not required to participate in the survey portion of this study. This is in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

HF is sole contributor to this manuscript (includes study design, data collection, analysis, and manuscript preparation).

FUNDING

Author receives support via an Australian Government Research Training Program (RTP) Scholarship.

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Conflict of Interest: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Political Science

ORIGINAL RESEARCH
published: 13 September 2021
doi: 10.3389/fpos.2021.696105

Youth Attitudes and Participation in Climate Protest: An International Cities Comparison Frontiers in Political Science Special Issue: Youth Activism in Environmental Politics

Kate Prendergast[1,2†], *Bronwyn Hayward*[1,2*†], *Midori Aoyagi*[1,3], *Kate Burningham*[1], *M Mehedi Hasan*[1,2], *Tim Jackson*[1], *Vimlendu Jha*[4], *Larissa Kuroki*[5], *Anastasia Loukianov*[1], *Helio Mattar*[1,5], *Ingrid Schudel*[1,6], *Sue Venn*[1] *and Aya Yoshida*[1,3]

[1]*Centre for the Understanding of Sustainable Prosperity, University of Surrey, Guilford, United Kingdom,* [2]*Department of Political Science and International Relations, University of Canterbury, Christchurch, New Zealand,* [3]*National Institute for Environmental Studies, Tsukuba, Japan,* [4]*Swechha, New Delhi, India,* [5]*Akatu Institute for Conscious Consumption, São Paulo, Brazil,* [6]*Rhodes University, Makhanda, South Africa*

OPEN ACCESS

Edited by:
Sarah E Pickard,
Université de la Sorbonne Nouvelle Paris III, France

Reviewed by:
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Université de Genève, Switzerland
Katrin Uba,
Uppsala University, Sweden

***Correspondence:**
Bronwyn Hayward
bronwyn.hayward@canterbury.ac.nz

†These authors have contributed equally to this work and share first authorship

Specialty section:
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

Received: *16 April 2021*
Accepted: *25 August 2021*
Published: *13 September 2021*

Citation:
Prendergast K, Hayward B, Aoyagi M, Burningham K, Hasan MM, Jackson T, Jha V, Kuroki L, Loukianov A, Mattar H, Schudel I, Venn S and Yoshida A (2021) Youth Attitudes and Participation in Climate Protest: An International Cities Comparison Frontiers in Political Science Special Issue: Youth Activism in Environmental Politics. Front. Polit. Sci. 3:696105. doi: 10.3389/fpos.2021.696105

This article examines youth participation the school climate strikes of 2018 and 2019 (also known as #Fridays4Future), through an exploratory study conducted in seven diverse cities. Despite the international nature of the climate strikes, we know little about the factors that influenced youth participation in these protests beyond the global North. This matters because youth of the global South are disproportionately impacted by climate change and there is growing concern that the climate movement is dominated by narratives that marginalize the voices and priorities of Indigenous communities and people of color. In this context, the exploratory research reported here aimed to compare the attitudes of climate protesters (n = 314) and their non-protester peers (n = 1,217), in diverse city samples drawn from a wider study of children and youth aged 12–24 years, living in Christchurch (New Zealand); Dhaka (Bangladesh); Lambeth, London (United Kingdom); Makhanda (South Africa); New Delhi (India); São Paulo (Brazil); and Yokohama (Japan). Using cross-sectional data (N = 1,531) and binary logistic regression models, researchers examined three common explanations for youth participation in protest: availability (biographical and structural), political engagement (reported individual and collective efficacy of strikers and non-strikers), and self-reported biospheric values amongst participants. Results indicate that even in diverse city samples, structural availability (civic skills and organizational membership) predicted strike participation across city samples, but not political engagement (self-efficacy and collective efficacy). Youth who reported that 'living in harmony with nature and animals' was important for their wellbeing, were also more likely to strike than their peers. Descriptive statistics indicated that the majority (85 percent) of all protestors in this study agreed climate change was a serious issue and a startling 65 percent said that they think about climate change "all the time". Reported rates of youth climate protest participation varied across city samples as did the extent to which participants reported having friends take part or expecting climate change to have a

personal impact. While the study is exploratory, it points to the need for more extensive research to understand the diversity of youth participation in 'global climate strikes'.

Keywords: climate change$_1$, youth$_2$, school strikes$_3$, cities, environmental citizenship$_5$

INTRODUCTION

Between 2018 and 2019, millions of young people worldwide joined strikes for climate action (also known as #Fridays4Future). These youth climate protests are distinctive both for the very young age of the activists (de Moor et al., 2020), and for the way this historically large, youth movement was mobilized globally, in urban areas. What young people who live in cities do, think, and say about the climate crisis, matters a great deal. By 2030, almost 60 percent of the world's population will live in cities and of that, 60 percent of those living in urban communities will be under the age of 18 years (Nissen et al., 2020). Cities also account for on average between 60 and 80 percent of global energy consumption, and estimates suggest up to 70 per cent of anthropocentric greenhouse gas emissions are linked to urban consumption of fossil fuels for energy supply and transportation (UN Habitat, 2016).

Yet despite the scale of these urban, youth-led, climate protests, we know little about the factors influencing youth participation, beyond a European, North American, and Australasian context. This lack of global research in diverse cities is concerning, especially at a time when young people from the global South and Indigenous communities are expressing dissent about the "racist" and "colonial" structures underpinning an often "white-dominated" climate movement (Grosse and Mark, 2020; MacKenzie, 2021; Ritchie, 2021). Increasing concern has been expressed that climate strike narratives have been dominated by "mainly white, middle-class and privileged" youth (Pickard et al., 2020, p.273). Media and discourse analysis suggests for example that the authority and claims of young African climate activists are regularly undermined in news reporting (Rafaely and Barnes, 2020), and that international climate conferences regularly advance generic (Euro-centric) "youth" concerns in ways that obfuscate climate risks faced by Indigenous youth, or young people of color, and those representing minority communities including disabled (Bullon-Cassis, 2021).

Studies that have interrogated broad factors that influence youth engagement in political protest suggest that availability (both biographical and structural), political engagement and biospheric values have significant influence on youth participation in protests in general, although most studies of the influence of these factors have been undertaken in the global North (Martyn and Dimitra, 2019). Given the lack of youth climate-protest studies in diverse cultural contexts, and concern about the lack of North-South collaborations in political engagement research more generally (Tam and Milfont, 2020), this exploratory study focused initially on two questions in a research partnership across seven world cities. First, does availability (biographical and structural), political efficacy, and support for biospheric values, influence participation in climate protest across a diverse urban sample? Second, are there differences across cities in young climate protesters reasons for striking or their sense of agency?

The study reported here was conducted between November 2019 and December 2020 by a research network of local teams examining the lifestyles of children and youth aged 12–24 years (n = 1,531), living in the mega cities of Dhaka (Bangladesh), São Paulo (Brazil) and New Delhi (India); the medium sized city of Christchurch (New Zealand), a city rebuilding after major earthquakes; Makhanda (South Africa) a small town facing high youth unemployment and deprivation exacerbated by the legacy of apartheid; Lambeth (London, United Kingdom) a diverse, densely populated London borough; and Yokohama (Japan) a planned "eco-city" (Burningham et al., 2020). Drawing on empirical data collected in these diverse contexts enables an initial examination of aspects of commonality, and some contrasting experiences among young climate protesters and peers.

The terms "youth" and "children", are contested and socially constructed, with age definitions and categories varying across domestic, international and even disciplinary contexts (Pickard, 2019; Canosa and Graham, 2020). The age group for this study was 12–24 years. This broad age range captures diverse stages of youth development. This range was selected to reflect the upper limit of the United Nations definition of youth (15–24 years) and the lower limit of 12–14 year olds as a significant, but under researched period of child development and civic participation (Hayward, 2012; Hess and Torney, 2017; Karlsson, 2018; Holmberg and Alvinius, 2020; Hayward, 2021).

BACKGROUND

Youth Activism and Climate Change in Cross-Cultural Contexts

Literature about the impacts of climate change suggests a variety of factors influence how young people experience climate change, and their vulnerability to climate risks, including geographic location, social norms, policies of exclusion, and histories of marginalization (Adger et al., 2014; Benevolenza and DeRigne, 2019). Diverse geographical and cultural factors are also likely to influence how young activists perceive and participate in the climate strike movement itself, both within and between cities (Hassan et al., 2018; Tam and Milfont, 2020; Walker, 2020; Walker, 2021). Here we briefly consider the emerging literature on cultural differences in engagement with climate activism, particularly in relation to the local contexts of the seven cities that were the research sites of this study.

The broad topic of youth political participation has been subject to much research (Nie et al., 1974; Dalton, 2008; Jennings et al., 2009; Malafaia et al., 2021). These studies have

highlighted the complex and nuanced way age intersects with cleavages of caste, class, gender, income, education, ethnicity and religious identification, voting habits and trust in institutions (Hazary,1988; Henn and Foard, 2014). However, generational differences also persist in research (Norris and Inglehart, 2019; van der Brug and Rekker, 2021). Generational analysis of participation in recent global movements includes feminist, civil rights, peace movements, and social and economic justice struggles like Occupy, or Black Lives Matter (Honwana, 2019; Lam-Knott and Cheng, 2020). There is renewed interest in understanding whether the experience of being socialized politically during a time of "successive and overlapping crises" (pandemics, rising economic in equality, and environmental crises for example) is impacting the values of new generations of youth and how they participate in, and view, politics (Pickard and Bessant, 2017; Pickard et al., 2020).

Understanding youth participation in climate strikes can also be placed in a wider tradition of research into transnational youth political activism (Barth et al., 2021), and interest in the way local material conditions and cultural identity influence participation within, as well as across, nation states (Rossi, 2009; Baumgarten, 2014; Honwana, 2019). From this perspective universalized approaches to the study of political participation such as analysis of political behavior, attitudes, and belief can be placed alongside the analysis of everyday priorities, and localized experiences of social norms of participation, structural, and interpersonal power relationships (Norris, 2009; Nolas et al., 2017; Haugestad et al., 2021).

Research also indicates that both local values and worldviews influence cross-cultural differences in climate change awareness and engagement (Poortinga et al., 2019). For example, Indigenous traditions, and scholarship from the global South, highlight the way diverse values about human and non-human relationships and wellbeing influence how communities approach problems like climate change (Hayward and Roy, 2019; Bouman et al., 2020). Understanding the diversity of community values about climate change can help inform fairer, more effective, local solutions in climate planning (Graham et al., 2014; Adger et al., 2017). Emerging evidence also suggests there are cultural differences in the way young people engage in climate protest and environmental activism more generally. In a systematic review of 51 international studies, Lee et al. (2020) argued that young people in global North countries tended to express lower levels of belief, concern, and willingness to act on climate change than young people in countries of the global South. The authors posited that this reduced engagement might be due to young people in global North countries viewing climate change as a "distant and global problem". In an alternative explanation, the authors propose that a country's "democratic-autocratic or individual-collective indices" might also explain cross-cultural differences in climate change engagement. In collective societies for example, young people might consider "the greater good" and be more willing to act on climate change than those from individualistic nations (Xiang et al., 2019; Lee et al., 2020).

Direct exposure to the impacts of climate change may also influence young people's engagement with climate protest and environmental activism more generally (Strazdins and Skeat, 2011; Lee et al., 2020). In the cities included within the current study, there is significant variation in the extent to which each city has experienced the impact of climate change. India for example, is amongst the counties most vulnerable to climate change (Eckstein et al., 2019), with young people in New Delhi frequently exposed to extreme weather events including severe heatwaves and flooding. This exposure is evident in the main study site, where children in an informal settlement formed over 50 years ago around a city drain, now have to regularly move housing arrangements to escape monsoon rains. Similarly, Dhaka is a city at extreme risk from climate change (Araos et al., 2017). Regular incidents of flooding, water logging, and heatwaves occur in Dhaka; a city that is now also home to many of Bangladesh's internal "climate migrants" (Etzold et al., 2016). In São Paulo, Brazil and Makhanda, South Africa, water scarcity in a changing climate is a significant and ongoing concern, which has been exacerbated by poor governance (Hamer et al., 2018; Millington, 2018). In Lambeth, London, United Kingdom, young residents are at risk from serious surface water flooding impacting schools, sewers and roads and there is risk of severe urban heat compounding air pollution incidents (Lambeth Council, 2021). In Christchurch, New Zealand, the local city council has declared a "climate emergency" and residents have been affected by wildfires and surface flooding, impacting housing and human security (NIWA, 2020). In the city of Yokohama, Japan, the local authority has adopted a climate net-zero target for 2030 and the surrounding Kanton region has been hit by a series of natural disasters, such as blackouts caused by strong winds, severe damage to buildings and crops, and flooding of buildings due to heavy rain (City of Yokohama, 2018). Taken together, these observations highlight that climate change is an issue for each city in the study, although the impacts of a changing climate are experienced differently.

Media accounts of youth climate strikes and historic experiences of youth protests in each city also set the context for understanding how young people experienced climate strikes across the world. Reports of the 2019 protests describe "thousands" "staging a demonstration" in Dhaka (The Daily Star, 2019), where there has been a history of youth-led political protest, most recently around transport services in the city (Hasan, 2021). In Christchurch, reports of youth "converging" in the central city also noted that the climate protests in that city were likely to be proportionately some of the largest in New Zealand (Booker, 2019). In London, "over 100,000 people" joined climate protests, with "several hundred protesters" blocking Lambeth Bridge (Taylor and Watts, 2019). In New Delhi, 2,000 people "marched" and "about 300 people sat through the protest outside the Ministry of Environment, Forest and Climate Change" (Parakala, 2019); and "more than two thousand amassed in downtown São Paulo" (Spring and Queiroz, 2019). Fewer students turned out for the 2019 climate protests in Japan (Takahashi, 2019), where the government has consistently discouraged youth protests as "antisocial behavior" (Mesimaka, 2019). There are scant details of the school climate strikes in Makhanda, South Africa beyond reports of a protest by single, elite, girl's school, despite a strong history of youth protest on other social justice and civil rights issues in the community (Gon, 2019).

However, as noted earlier there is also growing concern that the wider climate movement has marginalized the priorities of many diverse communities, including Indigenous communities and people of color (Grosse and Mark, 2020; Mackenzie, 2021). In 2019, the image of young Ugandan activist Vanessa Nakate was removed from a photo with other European climate activists, which was likened to "a metaphorical crop-out from the narrative of climate science in general" (Evelyn, 2019). More recently, New Zealand's Auckland Strike4Climate chapter disbanded after acknowledging that strike movement had "avoided, ignored, and tokenised black, indigenous and people of colour voices and demands" (MacKenzie, 2021). The marginalization of Indigenous communities and people of color is also perpetuated in the scholarly literature, which up to now has almost exclusively focused on the experiences and perspectives of young climate strikers of the global North (Walker, 2020).

The scale and geographic breadth of the climate strike movement is unprecedented, but there are growing calls to understand the motivations and conditions that enabled youth participation in the strikes across far more diverse cultural contexts (Thew et al., 2020). Given research of the climate strike movement is in its infancy, scholars might initially apply existing theory about "who protests" across a broader geographic scope, inclusive of the global South. While such research is little more than a starting point for understanding cross-cultural participation in environmental activism, findings are useful for highlighting elements of continuity and contrast in existing scholarship.

Young People, Environmental Politics and Activism: Who Protests and Why?

Young people's participation in environmental politics and activism is not new. Yet systematic reviews of the literature suggests youth participation in protest movements has been surprisingly under-researched in political science (Martiskainen et al., 2020; Weiss, 2020; Barrie, 2021). Existing studies suggest an individual's propensity to participate in protest is influenced by; "availability", both biographical and structural, and experiences of political engagement, (for example see Schussman and Soule, 2005; Opp, 2009; de Moor and Verhaegen, 2020), and that participation may vary within and between cultural contexts as issues of gender, region, age and institutional power intersect to influence youth activists in complex ways (Martyn and Dimitra, 2019).

Biographical availability, is defined as "the absence of personal constraints that may increase the costs and risks of movement participation" (McAdam, 1986). While providing institutional opportunities to participate is important (Cornwall, 2017), as noted elsewhere in this volume, the absence of constraints is thought to influence the ease with which young people are able to join strikes (Lorenzini et al., 2021). Interest in understanding biographical availability to protest is growing, especially within cross-cultural contexts (Walker, 2020). Personal constraints that may restrict young people's availability to engage in protest activities include education, money, religious socialization, gender norms and time (Martyn and Dimitra, 2019). Recent reports support the notion that climate strikers are likely to be well-resourced young people; with findings suggesting that European strikers were wealthier youth, whose parents had high levels of educational attainment (de Moor et al., 2020; Wahlström et al., 2020). However, little is known about the biographical availability of young climate strikers in wider contexts. Walker points for example, to the tensions between a global protest movement premised on "striking from school" and local values which may consider education to be "a priority and a luxury" (Walker, 2020).

Literature on *structural availability* highlights the presence of "interpersonal networks which facilitate recruitment" (Schussman and Soule, 2005). Schussman and Soule (2005) suggest networks are important because "individuals rarely participate in social movement activities (such as protest) unless they are asked to do so'" (p.1086) and Walgrave and Wouters (2021) suggest social networks also play a role in validating participation. Existing research emphasizes the significance of organizational membership and civic skills for both developing networks and mobilizing activism (Horowitz, 2021). In addition, organizational membership may facilitate recruitment into protests because there is already a connection across some ideological dimensions, or in the way an issue is framed (De Vydt and Ketelaars, 2021). Closely related to organizational membership are civic skills that are often developed in organizations through for example, participation in arranging meetings and public speaking (Schussman and Soule, 2005). This literature suggests that young climate strikers are likely to belong to organizations and have high levels of civic participation. However, as Wray-Lake (2019) notes more research is needed in diverse cultural contexts to understand the, "variability in experiences, access to opportunities, and reactions to historic events shape youth's political developmental pathways" (p.127).

Researchers also have a longstanding interest in the links between *political engagement* and protest participation. Political engagement is commonly measured in terms of political interest, knowledge and efficacy, with efficacy perceptions forming a key facet of this scholarship (Schussman and Soule, 2005; Levy and Akiva, 2019). Young people's self-efficacy, defined as a sense that they can individually make a difference, has a strong connection with actions taken to address climate change (Corner et al., 2015). Highlighting the significance of self-efficacy in climate research, Corner et al. explain, "young people do not necessarily see what they can do in response to climate change, and when perceived self-efficacy is limited, personal engagement with climate change is likely to be lower" (p.530). However, emerging research interrogating the relationship between self-efficacy and engagement in protest is disputed. A study comparing German climate strikers and a wider sample of youth revealed no significant differences in perceived self-efficacy between the two groups (Wallis and Loy, 2021). The authors speculated that non-protesting youth who felt self-efficacious might prefer to engage in individual climate actions, such as eating less meat, rather than attend protests. By contrast, the same study found collective efficacy, or an individual's belief in the group's capabilities to achieve desired outcomes, was higher among protesters. Other studies such as Bouman et al. (2020) suggest

a strong sense of personal responsibility and *biospheric values* (caring about nature and the environment) predicts climate activism, while other research has found that *collective efficacy* (valuing social action) predicts intentions to engage or support climate activism (van Zomeren et al., 2010; Besta et al., 2017).

The debate about youth engagement with climate protests is set against tension in the literature about youth political action between analysis which suggests young people are increasingly disengaged or apathetic (Russell et al., 2002) and researchers who argue that young citizens are turning to new forms of political participation (Norris, 2002; Flanagan, 2013) and returning to traditional electoral politics when they think voting can affect change on issues they care about (Hart and Henn, 2017; Pickard and Bessant, 2017; Sloam and Henn, 2019). Certainly, the sheer scale of turnout of students for school climate strike protests globally has challenged the deficit assumptions implicit in some youth political research (Fisher, 2019). Given participation in social movements at a young age can also have enduring effects on the political and personal lives of activists (Fisher, 2015; Thew et al., 2020; Nissen et al., 2021a), closer examination of the factors influencing young people's engagement with climate strike protest are warranted. To this end, we turn now to our cross-sectional, exploratory study, which analyses the impact of availability (biographical and structural), political engagement, and biospheric values on protest participation in a diverse urban sample.

METHODS AND DATA

Study Context

This research draws data from the CYCLES (Children and Youth in Cities—Lifestyle Evaluation and Sustainability) International Survey, which young people (aged 12–24 years) completed in the seven cities listed above between November 2019 and December 2020. The survey is part of a larger mixed-methods study, CYCLES funded by the United Kingdom Economic and Social Research Council. CYCLES explores the conditions that both enable and constrain young people, to live sustainable and fulfilling lives (Nissen et al., 2017; Burningham et al., 2020).

Participants

In each of the seven cities, local researchers aimed to recruit a demographically diverse sample of 300 young people, aged 12–24 years, who resided in their city, in line with United Nations and World Health age ranges. The target sample size was determined partly by financial constraints, and partly to obtain a reasonable precision of estimates. For local ethics reasons only those aged 13 years and over were recruited in São Paulo; and in Lambeth, only those aged 16 or older were recruited due to the difficulty of obtaining parental consent from young participants during COVID-19. There were no further exclusion criteria. In Lambeth, São Paulo, and Yokohama, young people were recruited through commercial research panels or agencies to reflect participant quotas of gender, age, and area of residence in line with the official local demographic estimates and representative of the metropolitan area. In addition, Yokohama researchers recruited junior high school students using a pre-screening questionnaire to obtain caregiver consent for younger students and to enable these students to answer questions with a parent present.

TABLE 1 | CYCLES fieldwork timeline.

City	Fieldwork
São Paulo	Nov-19 to Jan-20
New Delhi	Nov-19 to Mar-20
Dhaka	Dec-19 to Jan-20
Yokohama	Mar-20
Makhanda	Apr-20 to Dec-20
Christchurch	Apr-20 to Dec-20
Lambeth	May-20 to Dec-20

In Christchurch, Dhaka, Makhanda, and New Delhi, researchers recruited young people through diverse settings including schools, universities, clubs, and organizations using a recruitment strategy that aimed to reflect as far as possible the diversity of each city's ethnic and income profile. Researchers in Christchurch for example, recruited young people through the city's university and through low-, mid-, and high-income schools located across the city's four quadrants. The Christchurch study was also shared on social media and advertised at community libraries located within each of the quadrants. Researchers in Dhaka recruited young people through a university and schools located within Dhaka North City Corporation. The final Dhaka sample comprised young people living in wards located in low-income (32.5%; Ward 1), mid-income (35.0%; Wards 2–16) and high-income (32.5%; Wards 33–34) areas (Hasan, 2021). In Makhanda, young people were recruited from organizations where youth across socio-economic groups could be accessed including local schools, youth organizations, a local university, and a local vocational training college. Schools from different areas in Makhanda were approached to ensure variation across socio-economic groups. Finally, New Delhi researchers recruited young people living in low-income areas primarily through non-governmental organizations and they recruited high-income young people through private schools.

Protocol

Local researchers co-created the survey between 2018 and 2019, obtained relevant ethics approval and then led the fieldwork in their respective countries between November 2019 and December 2020 (**Table 1**), with the length of fieldwork reflecting the challenges of surveying young people during COVID-19. The survey instrument comprised 89 items asking young people about their demographics, wellbeing, satisfaction with their city, civic participation, and a range of questions about the sustainability of lifestyles from levels of community participation, to regular eating habits. The survey was translated into local languages and research teams had the opportunity to pilot key concepts across language and cultural differences in focus groups discussions and activities conducted with a smaller panel of students in each city prior to the survey (Burningham et al., 2020). In all cities, young people completed the survey online

where possible. Due to challenges with internet connections, researchers also distributed hardcopy surveys in Dhaka, Makhanda, and New Delhi. Young people provided their consent prior to beginning the survey, and where necessary, parental consent was obtained. The survey followed the Ethics for Research Involving Children (ERIC) guidelines (Graham et al., 2013), and research teams sought ethics approval from relevant local institutions.[1]

Variables

Here we describe the variables relevant to the current study about participation in climate protests (also refer to **Supplementary Appendix S1**, which lists the study variables, corresponding question wording, and response options).

Socio-demographic variables used in the current study included age and gender. Gender response options included "gender diverse" and "prefer not to answer" categories. However, responses to these categories were treated as missing data as the resulting sub-samples were too small (gender diverse, $n = 9$; prefer not to answer, $n = 10$) for meaningful analysis. For this reason, gender was dummy coded as 0 = male and 1 = female. Age was treated as a continuous variable, ranging from 12 to 24 years.

Biographical availability variables included education and economic security. Due to the challenge that most young survey respondents had not completed their highest level of studies at the time of the survey (75 percent, $n = 1{,}130$), we used a proxy measure of level of engagement in education that asked: "how often do you usually spend time taking classes" (Children's Worlds Project, 2013). Responses were recorded on a four-point Likert scale (1 = Rarely or never; 4 = Every day or almost every day). We also used a subjective measure of economic security due to the challenge of collecting household-income from very young people: "how often do you worry about how much money their family has" (Children's Worlds Project, 2013). Responses were again recorded on a four-point Likert scale (1 = Never; 4 = always).

To assess *structural availability* we used three variables. Civic skills were assessed using the survey item "I am involved in planning or decisions for the community" (five-point Likert scale response options: 1 = strongly disagree; 5 = strongly agree) (United Nations Environment Programme, 2011). Organizational membership was assessed by asking, "In the last 12-months, have you been involved with any organisations, clubs, or groups within your city" (Response options: 0 = no; 1 = yes) (United Nations Environment Programme, 2011). The final variable assessed young people's social networks using the survey item, "Compared to other people of your age, how often would you say you take part in social activities (e.g., meeting friends, going to events)" (European Social Survey, 2012). Responses were recorded on a five-point Likert scale (1 = much less than most; 5 = much more than most).

Political engagement variables in this study included collective efficacy and self-efficacy. Young people's sense of collective efficacy was assessed using the survey item: "together people in my neighbourhood can influence what happens in my city" (United Nations Environment Programme, 2011), while perceived self-efficacy was assessed using the survey item: "I believe I can make a difference in my city" (United Nations Environment Programme, 2011). Responses to both questions were recorded on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).

To assess the importance of *biospheric values* the survey asked respondents to select five items from a possible randomized list of 17 factors that they considered most important for a "good life" including "living in harmony with nature and animals". This survey question was adapted from Bonn and Tafarodi (2013), with the final list of 17 items developed from CYCLES focus group discussions (Bursningham et al., 2020) and in consultation with researchers across the seven cities (see **Supplementary Appendix S1** for the 17 items). In the current study, we used responses from item 14 ("living in harmony with nature and animals") to create the biospheric values variable (0 = biospheric values not important; 1 = biospheric value important).

The survey assessed *climate protest participation* by questioning whether young people had participated in a "climate protest" or "school climate strike" in the past 12-months. Responses were used to create a binary dependent variable comprising non-protester (did not protest) and protestor (protested once or twice; three or four times; nearly every month; and nearly every week). For ethical reasons young people in Yokohama were not asked to disclose their involvement in protests due to state framing of protests at the time as an "anti-social activity" (Chiavacci and Obinger, 2018). Results from Japan are therefore reported separately.

Finally, the survey used twelve survey items adapted from Chiw and Ling (2019) to assess young protesters *motivations to strike and sense of agency* in six cities (Yokohama excluded). Items assessing protest motivations asked strikers whether they thought climate change was a serious problem, how often they thought about climate change, and how concerned they were about the impact of climate change on their future, the environment, and animals. Protesters were also asked if they were motivated to join climate strikes, "because my friends were". Items assessing agency, probed protesters sense that they could make a difference to climate change individually and collectively. Protesters were also asked whether they felt that others take their opinions on climate change seriously, whether their opinions on climate change matter, the extent to which they can freely express their thoughts on climate change, and the extent to which they considered themselves "environmentally friendly". Responses were recorded on a five point Likert scale (1 = strongly agree; 5 = strongly disagree). In Yokohama, the survey asked all respondents about their climate attitudes and agency using an adapted version of the questions described above (see **Supplementary Appendix S1** for question wording).

[1]Alongside the application of UNICEF's ERIC principles in development of the study, the University of Surrey's Ethics Committee for Human Research approved the ESRC funded research in Lambeth, Dhaka, Sao Paulo, and New Delhi; The University of Canterbury's Human Ethics Committee approved the UC research in Christchurch and Dhaka; and Rhodes University Ethical Standards Committee approved the research in Makhanda.

Data Analysis

All data analyses were undertaken using SPSS (IBM SPSS Statistics for Windows, Version 25. Armonk, NY: IBM Corp.). The alpha was set at $p < 0.05$ to determine statistical significance and missing data were excluded pairwise. Before beginning analysis, we examined variable distributions, missing values, and problematic outliers. Descriptive analysis used t-tests and ANOVAs to determine statistical significance where parametric assumptions were met, and chi-square and Kruskal-Wallis H tests were used where these assumptions were violated. Multivariate analysis used binary logistic regression, with protesting treated as the binary dependent variable (0 = did not protest; 1 = protested). Six logit models were run. Model One assessed the impact of socio-demographic variables on protest participation (variables entered: age, gender, and city). Model Two assessed the impact of biographical availability on protesting (variables entered: age, gender, city, education, and economic security). In Model Three, the impact of structural availability on protest participation was examined (variables entered: age, gender, city, civic skills, organizational membership, and social networks). Model Four assessed the impact of political engagement on protesting (variables entered: age, gender, city, collective efficacy and self-efficacy). Model Five (biospheric values) examined the impact of biospheric variables on protest participation (variables entered: age, gender, city, biospheric values). The final model (Model Six) comprised all independent variables. Initial examination of the climate strike motivations and agency data showed negatively skewed responses and low counts in some categories. For this reason and due to the exploratory nature of the study, we report only descriptive statistics. Significant differences across cities were determined using Kruskal-Wallis H tests adjusted for post-hoc Bonferroni corrections.

Study Limitations

A challenge of international comparative research is balancing the need for methods to be "appropriate, ethical and feasible" in each city whilst also achieving sufficient consistency (Burningham et al., 2020). In the current study, there was some flexibility in each city's approach to the survey to ensure we achieved this balance. For example, as noted above the survey in Yokohama did not ask young people to disclose their participation in protests and in Lambeth only those aged 16 or older were recruited, due to the difficulty of obtaining parental consent from young participants during COVID-19. Similarly, for local ethics reasons, only those aged 13 years and over were recruited in São Paulo. In this exploratory study, participant samples were not statistically representative of young people in each city. However, extensive efforts were made by local research teams to have diverse samples reflecting a range of views in each community. Finally, the challenge of measuring concepts across cultures meant that some survey questions differed from those used in other survey-based studies about political participation, which may have resulted in possible question-wording effects. Given few studies exist comparing youth climate protestors and non-protestors across nations; this exploratory study contributes a first step to an important wider research agenda that examines youth participation in a global political movement, in unique, cultural contexts (Brügger et al., 2020).

RESULTS

In total, 2,014 young people completed the survey across seven cities. There were 1,531 responses to the question "in the last 12-months have you taken part in a climate protest or school climate strike" (Yokohama excluded). Young people across the six cities who did not respond to this question (8%, $n = 130$) were excluded from further analysis. We report responses from Yokohama separately ($n = 353$) as we did not ask young people about their participation in climate protests for ethical reasons noted above.

Descriptive Analysis of Study Variables

Descriptive analysis showed that there were significant between city differences across each of the study variables (**Table 2**). Female participation in the survey varied significantly across the cities ($p < 0.001$), with females comprising 42% of the young people surveyed in New Delhi and 73% of participants in the Christchurch sample. The mean age of survey participants also varied across city samples. New Delhi respondents reported a mean age of 16.0 years (*SD* 4.0) and Lambeth a mean age of 20.8 years (*SD* 2.9). The mean age across the whole sample was 18.5 years (*SD* 3.8).

The mean score for economic security across the sample was 2.3 (*SD* 1.0), suggesting that young people in all cities are relatively insecure. In Christchurch, young people reported lower levels of insecurity (2.0, *SD* 0.8) than in São Paulo (3.1, *SD* 0.8). Across the whole sample, 49% of young people were members of an organization. Rates of organizational membership ranged significantly across cities, with 75% of the Christchurch sample and just 25% of the Dhaka sample reporting that they belonged to an organization. High mean scores across the sample were reported for self-efficacy (3.5, *SD* 1.2) and collective efficacy (3.4, *SD* 1.1). Mean self-efficacy and collective efficacy scores were highest in Makhanda and lowest in Christchurch. Across the sample, just 13% of respondents indicated that biospheric values were important. The proportion of young people who reported valuing "living in harmony with animals and nature" varied significantly across cities ($p < 0.001$), ranging from 8% in Lambeth to 23% in New Delhi.

Turning to examine the dependent variable, **Table 2** shows that 21% (n = 314) of all respondents had taken part in a climate protest. The proportion of young people who reported protesting was significantly different across cities ($p < 0.001$), ranging from 12% in Dhaka to 34% in Christchurch.

Descriptive Analysis of Protesters and Non-protesters

Table 3 presents descriptive statistics comparing protesters and non-protesters across the independent variables. A *t*-test revealed no significant age differences between protesters

TABLE 2 | Descriptive analysis of independent variables.

	Christchurch	Dhaka	Lambeth	Makhanda	New Delhi	São Paulo	Total six cities	*P*
N	257	294	200	390	192	198	1,531	
Age								
N	257	294	200	390	192	198	1,531	
Mean (SD)	19.1 (3.2)	18.1 (3.9)	20.8 (2.9)	18.1 (3.9)	16.0 (4.0)	19.3 (3.2)	18.5 (3.8)	***
Gender								
Male (*n, %*)	67 (27%)	155 (53%)	82 (42%)	176 (46%)	107 (58%)	93 (47%)	680 (45%)	
Female (*n, %*)	185 (73%)	139 (47%)	114 (58%)	208 (54%)	79 (42%)	105 (53%)	830 (55%)	***
Economic security								
N	250	279	191	355	168	190	1,433	
Mean (SD)	2.0 (0.8)	2.1 (1.0)	2.4 (0.9)	2.4 (1.0)	2.2 (0.9)	3.1 (0.8)	2.3 (1.0)	***
Education								
N	256	293	200	367	183	198	1,497	
Mean (SD)	2.1 (1.1)	1.7 (1.0)	1.9 (1.1)	2.8 (1.2)	2.6 (1.2)	1.9 (1.1)	2.2 (1.2)	***
Civic skills								
N	253	270	198	365	166	193	1,445	
Mean (SD)	2.0 (0.9)	2.4 (1.2)	2.0 (1.0)	2.6 (1.2)	2.8 (1.1)	2.3 (1.2)	2.4 (1.1)	***
Organizational membership								
No (*n, %*)	69 (29%)	210 (75%)	101 (53%)	172 (47%)	66 (38%)	114 (62%)	732 (51%)	
Yes (*n, %*)	172 (71%)	72 (25%)	90 (47%)	192 (53%)	108 (62%)	71 (38%)	705 (49%)	***
Social networks								
N	257	294	200	388	189	198	1,526	
Mean (SD)	2.7 (0.9)	2.9 (1.1)	2.8 (1.1)	2.8 (1.2)	3.0 (1.1)	2.6 (1.3)	2.8 (1.1)	***
Self-efficacy								
N	249	273	195	347	161	190	1,415	
Mean (SD)	3.0 (1.2)	3.9 (0.9)	3.1 (1.1)	4.0 (1.1)	3.6 (1.0)	3.1 (1.2)	3.5 (1.2)	***
Collective efficacy								
N	242	269	193	351	166	192	1,413	
Mean (SD)	3.1 (1.0)	3.5 (1.0)	3.2 (1.1)	3.7 (1.0)	3.3 (1.1)	3.1 (1.3)	3.4 (1.1)	***
Biospheric values								
No (*n, %*)	225 (87%)	264 (90%)	184 (92%)	345 (88%)	147 (77%)	165 (83%)	1,330 (87%)	
Yes (*n, %*)	32 (13%)	30 (10%)	16 (8%)	45 (12%)	45 (23%)	33 (17%)	201 (13%)	***
Protest participation								
No (*n, %*)	169 (66%)	259 (88%)	162 (81%)	325 (83%)	138 (72%)	164 (83%)	1,217 (79%)	
Yes (*n, %*)	88 (34%)	35 (12%)	38 (19%)	65 (17%)	54 (28%)	34 (17%)	314 (21%)	***

Chi square tests or ANOVAs were used to determine statistically significant differences across cities. Two-tailed significance levels.

*p< *0.05.*

**p< *0.005.*

***p< *0.001.*

TABLE 3 | Descriptive comparison of protesters and non-protesters across independent variables.

	Non-protester	Protester	*P*
Age			
Mean (SD)	18.5 (3.9)	18.5 (3.6)	
Gender			
Male	46%	42%	
Female	54%	58%	
Economic security			
Mean (SD)	2.3 (1.0)	2.3 (1.0)	
Education			
Mean (SD)	2.2 (1.2)	2.4 (1.2)	**
Civic skills			
Mean (SD)	2.3 (1.1)	2.6 (1.2)	***
Organizational membership			
No	56%	31%	
Yes	44%	69%	***
Social networks			
Mean (SD)	2.7 (1.1)	3.0 (1.1)	***
Self-efficacy			
Mean (SD)	3.5 (1.2)	3.6 (1.1)	
Collective efficacy			
Mean (SD)	3.3 (1.1)	3.4 (1.1)	
Biospheric values			
No	88%	81%	
Yes	12%	19%	***

Chi square tests or t-tests were used to determine statistically significant differences between protesters and non-protesters. Two-tailed significance levels.
*p< *0.05.*
**p< *0.005.*
***p< *0.001.*

and non-protesters, and a chi-square test similarly showed that gender did not vary significantly between the two groups. In comparing protesters and non-protesters across the biographical variables, t-tests revealed that protesters reported a significantly higher mean score for engagement in education (t = -3.23, $p = 0.001$) while reported scores for economic security did not differ significantly. Looking at the structural availability variables, significant differences between protesters and non-protesters were observed for civic planning (t = -4.58, $p < 0.001$) and organizational membership ($x^2(1) = 55.25$, $p < 0.001$) but not for social networks. T-tests revealed no significant differences between protesters and non-protesters reported scores for political engagement (self-efficacy nor collective efficacy). Finally, in comparing biospheric values, a chi-square test showed that significantly more protesters (19%) than non-protesters (12%) reported that 'living in harmony with nature and animals' was a factor important for their sense of wellbeing ($x^2(1) = 10.48$, $p = 0.001$).

Multivariate Analysis of Protest Participation

Binary logistic regression examined the effects of socio-demographics, availability (biographical and structural), political engagement, and biospheric values on protest participation. **Table 4** presents the odds ratios and 95% confidence intervals (95% CI) for each model. Regression coefficients and standard errors are reported separately in **Supplementary Table S1**. Looking at the *socio-demographic* variables, Model One and Model Six (full model) suggest that gender nor age are associated with strike participation. These models do however show that protest participation varied across cities. In both models, young people in all cities (excluding New Delhi) were significantly less likely to take part in protests compared with young people in Christchurch. Model Six shows that in Dhaka, young people were almost four times less likely (*OR* 0.22, 95% CI 0.12–0.39) to protest than young Christchurch residents.

In turning to examine *biographical availability,* Model Two suggests increased engagement with education is associated with an increased likelihood of protest participation (*OR* 1.21, 95% CI 1.08–1.37). This association is however negated in the full model (Model Six) suggesting that in the current study biographical availability did not influence young people's propensity to protest after adjusting for all other variables. By contrast, our results indicated that *structural availability* was a significant predictor of protest participation. Model Three revealed that civic skills, organizational membership, and social networks were all significantly and positively associated with an increased likelihood of protest participation. In the full model (Model Six), the association between social networks and protesting was negated but the significant effects for the two other structural variables remained. These results suggest that civic skills and being a member of an organization increases the likelihood of a young person participating in climate protests.

Political engagement appears to have little effect on protest participation in this study. While Model Four suggested that self-efficacy was significantly and positively associated with protesting, this effect did not remain in the full model (Model Six). By contrast, both Model Five and Model Six (full model) revealed that *biospheric values* were significantly associated with protest participation. In summary, the full model suggested that the young people were more likely to join a climate protest if they lived in Christchurch, were members of an organization, reported higher scores for civic skills, and agreed biospheric values were important for their wellbeing.

Descriptive Analysis of Young Protesters Motivations to Strike and Sense of Agency: A Cross-City Comparison

Turning now to examine young protesters motivations to strike and their sense of agency, **Figure 1** shows the distribution of strikers' responses. Young strikers across all cities said they were motivated to strike because they were concerned about the effects of climate change on "animals" (87%), the "environment" (86%), and "my future" (83%). Most climate strikers across all cities also agreed that climate change is a serious problem (85%), while 33% of climate strikers across all cities said they took part in a climate protest "because my friends were". Most climate strikers (84%) thought that "acting with other people" could make a difference to climate change. By contrast, a somewhat smaller percentage (63%) of respondents agreed

TABLE 4 | Logistic regression models showing odds ratios and 95% confidence intervals.

	Model 1: Demographics *OR* (*95% CI*)	**Model 2: Biographical *OR* (*95% CI*)**	**Model 3: Structural *OR* (*95% CI*)**	**Model 4: Political *OR* (*95% CI*)**	**Model 5: Biospheric *OR* (*95% CI*)**	**Model 6: Full model *OR* (*95% CI*)**
Age	1.01 (0.97–1.05)	1.01 (0.97–1.05)	1.01 (0.97–1.05)	1.00 (0.97–1.04)	1.01 (0.97–1.04)	1.00 (0.95–1.04)
Gender (male = Reference)	1.06 (0.81–1.38)	1.05 (0.79–1.39)	1.09 (0.82–1.46)	0.99 (0.74–1.30)	1.08 (0.83–1.41)	0.99 (0.72–1.36)
Christchurch	Reference	Reference	Reference	Reference	Reference	Reference
Dhaka	0.27 (0.17–0.42)***	0.28 (0.17–0.44)***	0.28 (0.17–0.47)***	0.21 (0.13–0.34)***	0.27 (0.18–0.43)***	0.22 (0.12–0.39)***
Lambeth	0.47 (0.30–0.74)**	0.49 (0.31–0.78)**	0.55 (0.34–0.87)*	0.48 (0.30–0.75)**	0.48 [0.31–0.76]**	0.56 (0.34–0.91)*
Makhanda	0.39 (0.27–0.58)***	0.30 (0.20–0.45)***	0.33 (0.22–0.50)***	0.32 (0.21–0.49)***	0.39 (0.27–0.58)***	0.22 (0.13–0.37)***
New Delhi	0.82 (0.53–1.26)	0.75 (0.47–1.2)]	0.63 (0.38–1.05)	0.85 (0.53–1.36)	0.77 (0.49–1.19)	0.62 (0.35–1.08)
São Paulo	0.41 (0.26–0.65)***	0.39 (0.24–0.64)***	0.43 (0.26–0.71)**	0.41 (0.25–0.65)***	0.40 (0.25–0.63)***	0.38 (0.22–0.67)**
Economic security		1.08 (0.93–1.26)				1.04 (0.88–1.24)
Education		1.21 (1.08–1.37)**				1.09 (0.94–1.25)
Civic skills			1.32 (1.16–1.50)***			1.22 (1.05–1.43)*
Organizational membership (no = Reference)			2.10 (1.55–2.86)***			1.86 (1.32–2.61)***
Social networks			1.15 (1.01–1.32)*			1.13 (0.98–1.32)
Self-efficacy				1.15 (1.00–1.32)*		1.08 (0.92–1.26)
Collective efficacy				1.12 (0.97–1.29)		1.06 (0.90–1.24)
Biospheric values (no = Reference)					1.73 (1.22–2.44)**	1.62 (1.08–2.43)*
Constant	0.42	0.23	0.10	0.23	0.40	0.91
N	1,510	1,384	1,344	1,315	1,510	1,128
-2 Log likelihood	1,475.895	1,329.12	1,249.446	1,298.617	1,466.737	1,052.983
Cox & Snell r^2	0.034	0.046	0.080	0.047	0.040	0.095
Nagelkerke r^2	0.053	0.072	0.126	0.073	0.062	0.147

Protest participation is the binary dependent variable dummy coded as 0 = non-protester; 1 = protester.
Two-tailed significance levels.
*p< *0.05.*
**p< *0.005.*
***p< *0.001.*
Variables entered: ***Model 1:*** *age, gender, city;* ***Model 2:*** *age, gender, city, economic security, education;* ***Model 3:*** *age, gender, city, civic skills, organizational membership, social networks:* ***Model 4:*** *age, gender, city, self-efficacy, collective efficacy;* ***Model 5:*** *age, gender, city, biospheric values;* ***Model 6:*** *all variables.*

taking actions as individuals could make a difference. Half of the climate protesters agreed that other people take their opinions on climate change seriously.

Kruskal-Wallis H tests compared climate protesters motivations to strike across cities and their sense of agency. **Figures 2**, **3** present the results and significance levels of these tests. The figures also show the median scores reported in each city and significance levels for post-hoc pairwise comparisons with Christchurch (reference city). **Supplementary Table S2** provides mean ranks and results for post-hoc pairwise comparisons across all cities.

From **Figure 2** we see that the reasons why young protesters took part in climate strikes varied across cities. Post-hoc tests adjusted for Bonferroni corrections showed that in comparison to Christchurch, young people in Dhaka, Makhanda, New Delhi, and São Paulo reported significantly lower scores when asked whether they felt climate change was a serious problem (**Figure 2A**). In comparing the same four cities with Christchurch, young people also reported significantly lower median scores in response to the statements: "I am concerned about how climate change will affect my future" (**Figure 2C**) and "I am concerned about the effects of climate change on animals" (**Figure 2D**). By contrast, young people in Dhaka, Makhanda, and São Paulo reported significantly higher median scores (Md = 4) than young people in Christchurch (Md = 3) for the statement: 'because my friends were taking part'. No significant differences between Christchurch and Lambeth were observed across the six variables (see **Supplementary Table S2**).

In comparing young striker's agency across cities, **Figure 3** shows there were no significant differences in young people's beliefs that they were environmentally friendly (**Figure 3A**), that their opinions on climate change mattered (**Figure 3D**), or that other people took their opinions on climate change seriously (**Figure 3E**). By contrast, post-hoc tests adjusted for Bonferroni corrections showed that in comparison to Christchurch, young people in Dhaka, Makhanda, and São Paulo reported significantly higher median scores for the statement: "I feel my individual actions are making a difference". For the statement, "I think acting with other people can make a difference to climate change" young people reported a significantly higher median score in Christchurch than in

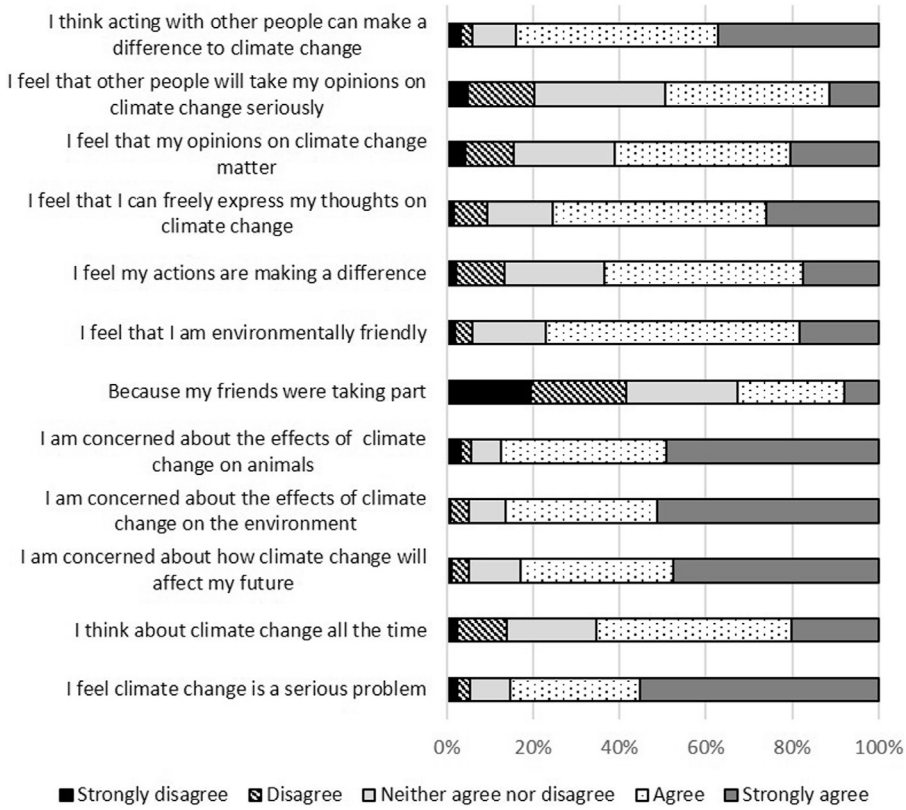

FIGURE 1 | Response distribution of young people's reported motivations to strike and their sense of agency (*N* = 314).

New Delhi. Again, no significant differences between Christchurch and Lambeth were observed across the six variables (see **Supplementary Table S2**).

DISCUSSION

The global, youth-led climate strikes of 2018 and 2019 were unprecedented in their global impact, prompting research into the motivations and conditions that have sustained the movement in a variety of contexts. Contributing to this scholarship, the exploratory study reported here examined common explanations for youth participation in climate protests in seven diverse cities, including availability (biographical and structural), political engagement (individual and collective efficacy), and self-reported biospheric values. Notable for the inclusion of strike participants across a broader geographic scope, inclusive of the global South, the study results suggest that structural availability (civic skills and organizational membership) predicts strike participation, but not political engagement (self-efficacy and collective efficacy). Youth who reported that 'living in harmony with nature and animals' was important for their wellbeing, were also more likely to strike than their peers.

In comparing findings from the current study with other research examining the climate protests, we observe elements of contrast and continuity. Contrasting previous in-protest surveys, which suggested that young strike participants were wealthier individuals (de Moor et al., 2020; Wahlström et al., 2020), we found no significant relationship between economic security and strike participation. Both protesters and non-protesters reporting relatively high levels of economic insecurity may in part explain our results. This finding resonates with research by Bowman (2019; 2020) and Pickard and Bessant (2017) about youth political participation in the context of a "precarious generation" motivated by a sense of "situated injustice", and concerns they are "deprived of a decent future" and the feeling they have been "betrayed by governments" (p.100).

Resonating with previous research (see for example Schussman and Soule, 2005; Walgrave and Wouters, 2021), we found that structural availability influences protest participation. To date, analysis of the school strike movement has suggested that young people are often recruited by friends or in classroom contexts (Wahlström et al., 2020). Similarly, the descriptive results reported here indicate that around a third of climate protesters reported participating "because their friends were". Walgrave and Wouters (2021) research indicates that "networks matter" because they increase the chance of recruitment to protest. Protesting with friends can however also be a fun social activity (Martiskainen et al., 2020). Martiskainen et al. (2020) suggest that linking climate concerns with positive experiences might be a useful strategy for coping with dominant "doom-and-gloom" climate narratives. More research, using measures that are standardized and relevant across cultures, is needed to understand the mobilization impact of social networks and structural availability on youth participation in global protests.

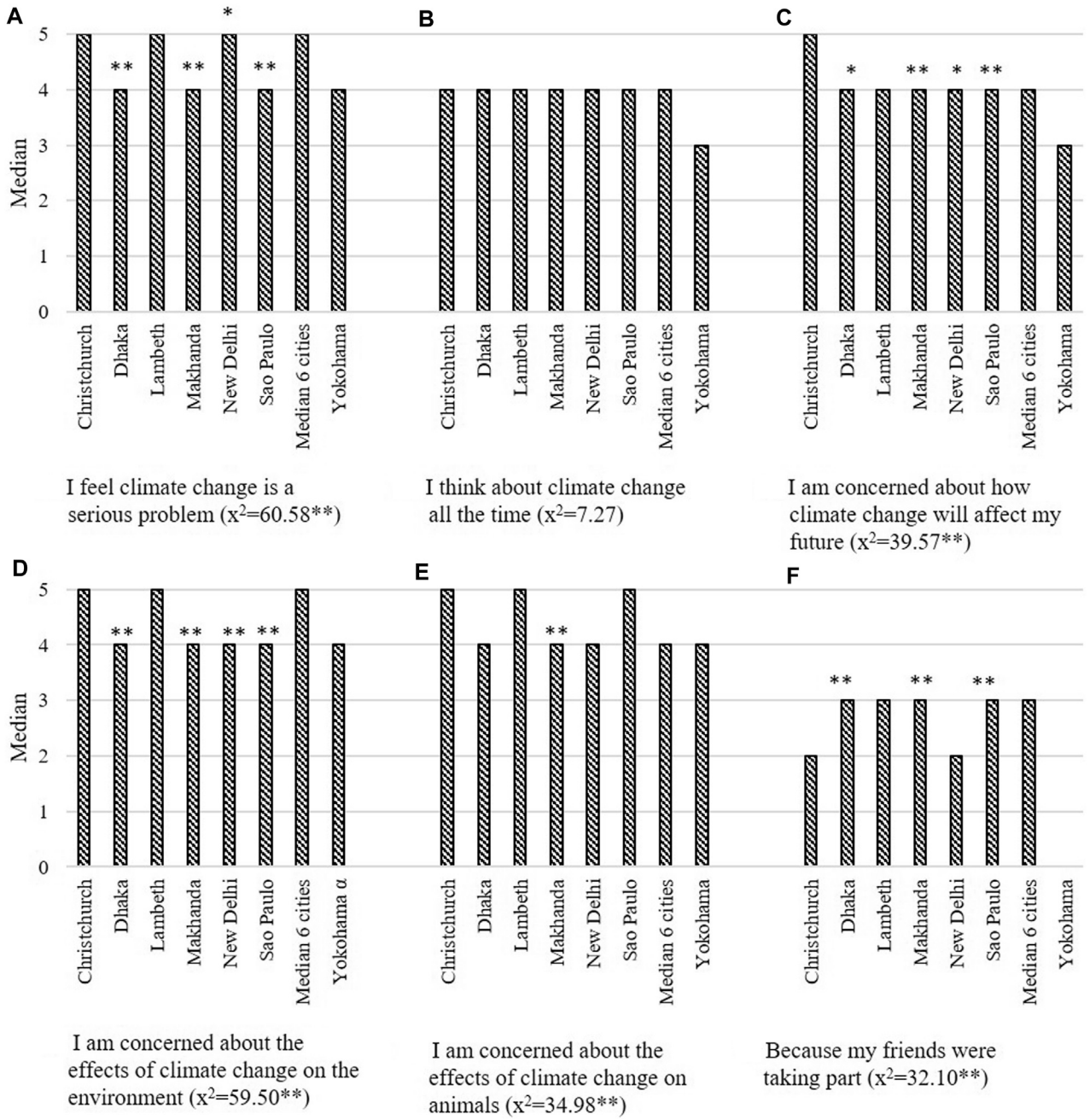

FIGURE 2 | Comparing young protesters reported motivations for taking part in a climate protest across cities. Kruskal-Wallis tests with pairwise comparisons adjusted for the Bonferroni correction for multiple tests. Two-tailed significance levels are reported for pairwise comparisons with Christchurch as the reference $^{*}p < 0.05$, $^{**}p < 0.05$.

Research examining whether young climate protesters have higher perceptions of efficacy than their peers is inconclusive, with a recent study showing that collective efficacy, but not self-efficacy, was associated with protest participation (Wallis and Loy, 2021). It was however somewhat surprising to find that neither self-efficacy nor collective efficacy were associated with protest participation in the current research. The reason may be due to both protesters and non-protesters reporting relatively high mean scores across measures of perceived self-efficacy and collective efficacy. However, protestors who viewed biospheric values (caring about nature and the environment) as significant for their wellbeing were more likely to engage in protest across in this exploratory study. This finding broadly supports other research that shows that biospheric values are positively associated with climate mitigation behaviors (Bouman et al., 2020). In addition, the

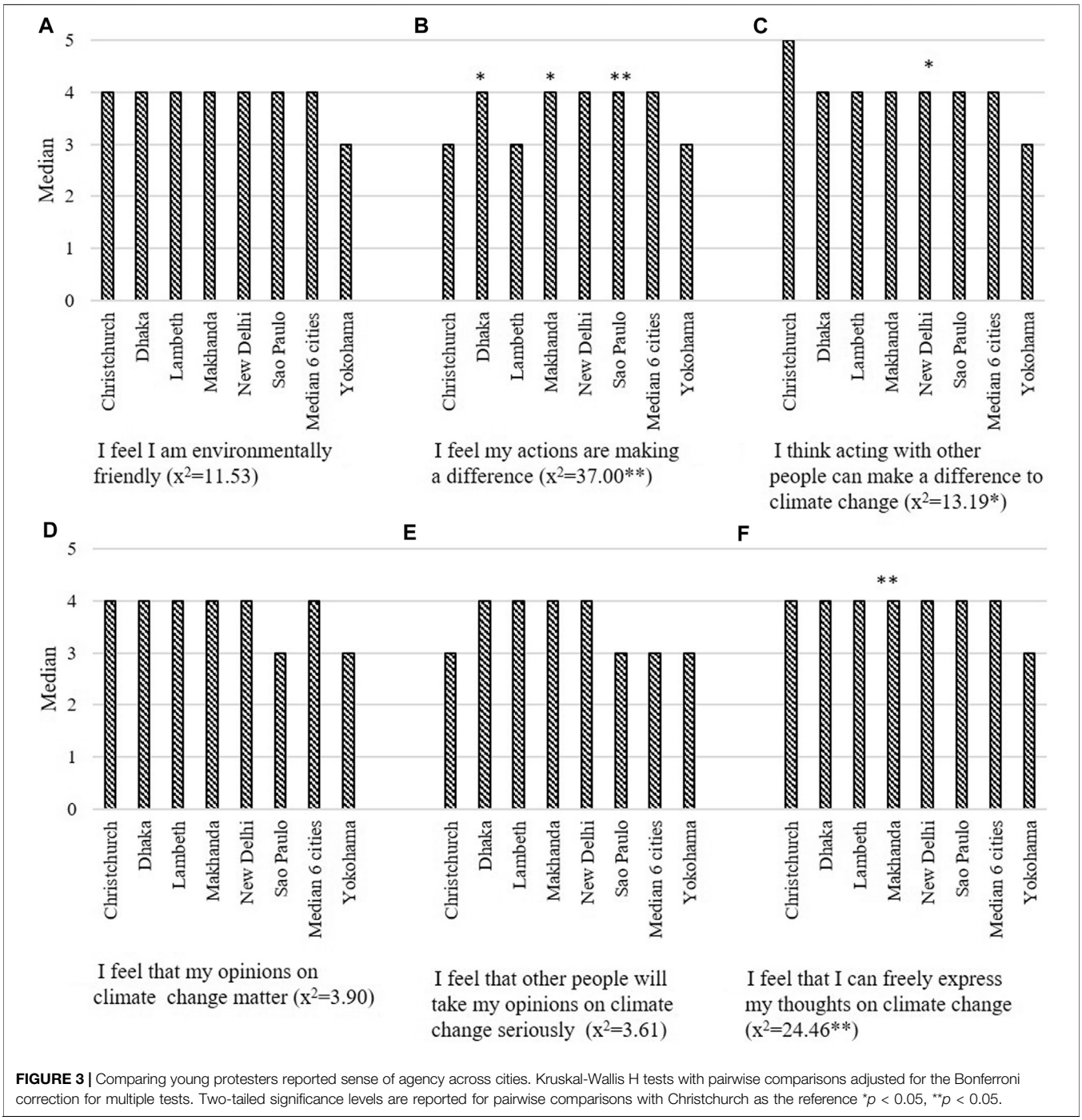

FIGURE 3 | Comparing young protesters reported sense of agency across cities. Kruskal-Wallis H tests with pairwise comparisons adjusted for the Bonferroni correction for multiple tests. Two-tailed significance levels are reported for pairwise comparisons with Christchurch as the reference $^*p < 0.05$, $^{**}p < 0.05$.

finding that more protesters than non-protesters identified that living harmoniously with nature and animals was important for their wellbeing adds weight to Bowman (2019; 2020) argument that there is more "going on" in youth protests than is frequently identified in "adult-centric" political analysis. Bowman (2020) suggests for example, that analysis of the motivations for climate strikes have too often failed to recognize the complex way young protestors may be expressing forms of "subaltern" or marginalized political identities including in this case a possible concern to reduce climate change that is connected to care for non-human nature (Bouman et al., 2020; Bowman, 2020).

In considering the motivations for engaging in climate protests, some research suggests significant clusters of young protestors turn out because of spontaneous novelty seeking behavior with peers, or opportunism (Martiskainen et al., 2020). Arguments that caution against attributing adult political aspirations to youthful political action are not new (Miles, 2015). However, descriptive findings within the current study challenges the critics who claim that for many youth, participation in climate protests was merely frivolous, or

driven by pressure from friends to "join in". While we acknowledge young people may have a variety of significant, non-instrumental, even joyful reasons for joining protests (Bowman, 2020), our study results suggest a high level of issue-oriented, everyday climate concern amongst strikers. In particular, the findings point to very high levels of climate anxiety with protesters worrying about their own futures, the environment, and animals. A surprisingly large proportion (65 percent) of protesters reported thinking about climate change 'all the time'. This also supports the arguments of others (Bouman et al., 2020; Martiskainen et al., 2020) that a strong sense of worry and personal responsibility for climate change, and strong biospheric values may motivate protest engagement.

Given the reality and severity of climate change, some researchers have argued that participating in climate protests may be heightening this sense of eco-anxiety among young people (Hickman, 2020). However many scholars argue that eco-anxiety, including emotions of anxiety, frustration, grief, and guilt, is normal (Verplanken and Roy, 2013; Ojala, 2018; Prendergast, 2021). At times, these emotions can be challenging for young people to navigate and without adequate support can lead to apathy, defeatism, or denial (Verplanken and Roy, 2013; Ojala, 2018; Thomas et al., 2019; Prendergast, 2021). In this context, research also suggests that taking action with others through protest can be powerful ways of supporting young citizens particularly when the experience nurtures a sense of generational solidarity (O'Brien et al., 2018; Thomas et al., 2019; Bowman, 2020). Further research in large samples and across diverse cultural contexts should not only interrogate young people's motivations for climate protest, but also ways to sustain the wellbeing of young climate protesters.

Despite the current study's modest sample sizes, a notable contribution of this exploratory research includes our cross-culture collaborations and the study's emerging comparative insights. Comparing findings across cities suggested a four-fold difference between the city with the highest proportion of strikers (Christchurch, New Zealand) and the city with the lowest proportion of strikers (Dhaka, Bangladesh). There was also significant across city variation across cities in response to the questions probing the reasons why protesters strike. In Christchurch, more youth strikers felt climate change was a serious problem than young protestors in Makhanda, Dhaka, New Delhi, and São Paulo which is surprising given these cities are amongst the most exposed in a changing climate (Araos et al., 2017; Hamer et al., 2018; Millington, 2018; Eckstein et al., 2019).

The variation in protest participation across cities may be attributed to a number of factors, which need more research in larger samples. Local researchers suggested that while young people may see the climate crisis as a serious problem, they may frame their experiences in ways that differ from dominant, international climate narratives or they face other urgent, pressing local concerns that have occupied their focus. Across the cities, there were significant barriers to political protest, which young people experienced including social norms, government policy, and gender inequities. For example, in some cities, national governments actively discouraged youth protest. State attitudes to protest can have a chilling effect on youth willingness to engage in public protest as well as exacerbate dissent (Pickard, 2019). Dhaka city for example has had a long tradition of student political protest, so low participation in climate strikes may in part reflect other pressing issues and the very recent experience of brutal state retribution against thousands of youth who took part in large-scale student protests about unsafe public transport in 2018, shortly before the climate protests (Human Rights Watch, 2018). In Yokohama, the Japanese state has positioned protest as an anti-social activity, and discouraged engagement in dissenting behaviors (Chiavacci and Obinger, 2018). By contrast in Christchurch, it has been suggested that the ongoing youth mobilization of a city wide "student volunteer army" following earthquakes in 2010 and 2011, has increased civic organization skills, networks, and norms of engagement in ways that may have helped enable higher turnout for climate strikes (Hayward, 2021; Nissen et al., 2021b). The impact of prevailing political conditions are important issues for future research, and qualitative studies in particular would be useful for providing nuanced insights into how local contexts influence young people's propensity to engage with climate protest.

CONCLUSION

The current study has responded to the need for more research to understand the diversity of youth participation in the global climate strikes. In applying existing theory and examining young people's propensity to strike in seven diverse cities, inclusive of the global South, the study makes a notable contribution to the literature. There is however much scope for future research to unravel the complexities of young people's participation in global climate protests. Such research should be inclusive of ethnic minorities, people of color, and Indigenous communities. In addition, future research should pay further attention to the cultural and local contexts that shape young people's motivations for participating in climate strikes. The research reported here suggests that while young people may report similar motivations for engaging in climate action, local contexts also play a role in shaping the manifestations of youth agency, perceptions of the efficacy of climate action and their pressing environmental concerns. We hope future research will engage in meaningful ways with young people from a wider diversity of cities to better understand what brings young people across the world to strike together, and the conditions that serve to sustain their engagement with the global crisis of climate change.

DATA AVAILABILITY STATEMENT

The datasets analyzed for this study will be offered to the United Kingdom Data Archive upon completion of the research.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Surrey Ethics Committee; University of Canterbury Human Ethics Committee; Rhodes University Human Ethics Research Ethics Committee. Written informed

consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

FUNDING

This research was funded by the United Kingdom Economic and Social Research Council grant to the Centre for the Understanding of Sustainable Prosperity ES/M010163/1, and by the GCRF fund to the University of Surrey, 88200 08.

ACKNOWLEDGMENTS

Special thanks to the research assistants in each city: Ashim Bery; Vrinda Bajaj; Imrana Jahan Erina; Farhana Islam; Fenanda Iwasaka; Mandilive Matiwane; and Lona Musiyiwa. Also to Prof Alex Tan for statistical advice, to Yurika Arai and Carolina Nery for translation, and to all our research participants.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2021.696105/full#supplementary-material

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Conflict of Interest The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers | Frontiers in Political Science

TYPE Review
PUBLISHED 04 August 2022
DOI 10.3389/fpos.2022.940876

OPEN ACCESS

EDITED BY
Matt Henn,
Nottingham Trent University,
United Kingdom

REVIEWED BY
Eve Mayes,
Deakin University, Australia
Lorien Jasny,
University of Exeter, United Kingdom
Lisa Carson,
The University of Melbourne, Australia

*CORRESPONDENCE
Benjamin Bowman
b.bowman@mmu.ac.uk

SPECIALTY SECTION
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

RECEIVED 10 May 2022
ACCEPTED 07 July 2022
PUBLISHED 04 August 2022

CITATION
Neas S, Ward A and Bowman B (2022) Young people's climate activism: A review of the literature.
Front. Polit. Sci. 4:940876.
doi: 10.3389/fpos.2022.940876

Young people's climate activism: A review of the literature

Sally Neas[1], Ann Ward[2] and Benjamin Bowman[3,4]*

[1]Department of Human Ecology, University of California, Davis, Davis, CA, United States, [2]Department of Sociology, Brandeis University, Waltham, MA, United States, [3]Department of Sociology, Manchester Metropolitan University, Manchester, United Kingdom, [4]Manchester Center for Youth Studies, Faculty of Arts and Humanities, Manchester Metropolitan University, Manchester, United Kingdom

The year 2018 was a watershed year for young people's climate activism. In this review article, we explore the methodological trends and key themes across contemporary academic literature on young people's climate activism. In the academic literature, following an initial wave of survey-based research of young people and textual analysis of secondary data like media reportage, the field is experiencing a second wave of qualitative research and a resurgence of emphasis on youth voice in research. Accordingly, we identify the strengths of the existing literature in its exploration of key themes including the composition, practices and outcomes of young people's climate activism, and the ways young people understand and act on climate change. We identify several gaps in the literature that arise from a disproportionate focus on research topics, and especially a disproportionate focus on activism in the global North and in wealthy and White communities, a focus on mass mobilizations, and an intensive interest in the individual activist Greta Thunberg. Our analysis leads to recommendations for future research based on three conceptual challenges. We argue that future research must respond to these challenges: first, the limited and constraining social constructions of "youth" as a category; second, the practical challenges of working with young people, not least in relationships of consent; and third, the need to respond to adultism in research practices and to develop youth-centered approaches to the activism of young people. This review article intends to contribute to a step change in theory and methods for the study of young people's climate activism.

KEYWORDS

young people, climate change, social movements, activism, environmentalism

Introduction

Youth-led and youth-centered climate activism has gained momentum and visibility over the past few years. This activism has played a central role in bringing about a "watershed moment" in the politics of climate change (Pickard et al., 2020). The "historical roots, tensions and complexities" in young climate activism remain vitally important, and "the thickest of these roots is environmental justice, a theoretical approach with a long history", especially in the activism of people of color and Indigenous communities (Walker and Bowman, 2022).

This has yielded an emerging body of literature pertaining to young people's climate activism. The vast majority of this literature focuses on activism starting in 2018 and since

then. This seems to be connected to the actions of young climate activist Greta Thunberg, who sparked the global Fridays For Future movement. This movement encouraged young people to engage in organized school strikes and walkouts (henceforth referred to as the climate strikes) for climate action. In turn, much of this literature is focused on these mobilizations. However, participation in such events constitutes only one activity in a wider web of youth climate activism.

While we agree that the year 2018 reflects a watershed moment in academic literature and global climate politics, and that the school strike movement is important, this is problematic. For instance, one could argue that the pivotal year might be 2016, and that the watershed moment was opposition to the Dakota Access Pipeline at Standing Rock. This movement was started by young people, and "spread like wildfire across Turtle Island and the world, moving millions to rise up, speak out and take action" (Estes and Dhillon, 2019, 1). The focus on 2018 in the literature also leads to a focus on Greta Thunberg's strike action and work with international organizations like the UN, and not, for example, Kathy Jetnil-Kijiner's comparable activism in earlier years (Jetnil-Kijiner, 2014). We are reviewing academic literature, and we agree that academic literature tends to focus on 2018 and beyond. Nevertheless, we recognize that young activism itself is much more heterogeneous in its nature, more expansive in its vision, and has deeper roots than 2018. We discuss the gaps in existing literature later in this article.

This review focuses on recent work to make an important contribution to a burgeoning field of international scholarship on young people's climate activism. The current surge of academic interest in young people's climate activism is inspired by a youth-led, youth-centered approach among activists. We outline recent methodological trends in studying young people's climate activism, detail some of the challenges that arise when studying young people, and review the existing literature and its major themes. Using our review, we indicate significant gaps in this growing literature, which are: a focus on mostly activism by mostly White youth in the global North, which is separated from other literature on activism in the global South and in marginalized communities in the global North; an overemphasis on mass mobilizations; and, stemming from her public visibility in the years around 2018, a hyperfocus on Greta Thunberg. We discuss these themes and challenges and conclude by identifying future opportunities for this vital, international field of research.

Methods for conducting literature review

To account for the various ways scholars have been studying young climate activists, we conducted a literature review. We were interested in gaining a broad understanding of the way people studied young climate activists *and* what they were saying about them, so we used the keyword terms "youth climate strikes," "Fridays For Future," and "youth climate activism". We first decided to exclude any paper that was not published in a peer reviewed journal. There were no geographical limitations on our search but we only included papers written or translated in English. We recognize the limitations of this approach, but in our search, we came across less than 5 articles that had to be excluded for this reason. We then focused on articles that detailed young climate activism from 2018 and on. Despite the previously acknowledged complexities of considering 2018 a watershed moment for youth climate activism, we decided on 2018 because it was the year that the climate strikes began. Additionally, after doing a percursury literature review, we recognized that 2018 was the year that publications on young climate activism began to increase. We excluded papers that lacked empirical data or that used empirical data, but it did not pertain to young people engaged in climate activism. We defined climate activism broadly, largely relying on what the researcher considered to be activism, but excluded activism that was not specific to climate change. Using these exclusion categories, we did a close read of 51 articles that discussed young climate activism after 2018.

We then coded these 51 articles, first by the methods that the authors employed, and then by the articles main themes. In coding for methodological approaches, we used the codes "qualitative," "quantitative," "case study," "mixed methods," "text analysis," and "other" which included articles that were primarily literature reviews or more theoretical in nature. This coding informed how we organized the following section describing the methods used for studying young climate activists. In coding for themes, we used the codes "composition of the movement," "reasons for mobilizing," "outcomes of activism," "how young people define and act on climate change," and "perceptions of youth activism." If an article addressed one or more of these components, it was coded accordingly. We used this information to organize the key themes of the literature we reviewed on young climate activists.

Methods for studying young people's climate activism

The following section explores the various methodologies being used to study young people's climate activism. Of the 51 papers we identified, nearly all of them are research conducted by adults *on* young people [with notable exceptions such as Luna and Mearman (2020), Mucha et al. (2020) and Navne and Skovdal (2021); discussed further below]. Instead, we advocate for an epistemological shift that recognizes young people's claims to knowledge, expertise and research itself: in other words, more research *in partnership with* young people. We agree with Cutter-Mackenzie and Rousell (2019) who call for the recognition of young people's "political agency, creativity and theoretical acumen as legitimate researchers" in the study of climate change (2018, 90). Of course, there

are significant challenges in partnering with young people on knowledge co-production, including ethical issues, adultism, and the pressure for "fast research" in the neoliberal academy. We detail these challenges further below. Nevertheless, this shift in methodological approach would have important effects on how adult researchers analyze young people's climate strikes. Before clarifying *why* this shift matters, it is first important to unpack the ways scholars have been studying the young people's climate strikes. While scholars have taken a variety of methodological approaches, very few build in opportunities for collaboration with the young people whom they are studying. This is likely connected to both adultism, by which adults hold power over young people, as well as the practical challenges of conducting participatory work with young people. We highlight these issues further below.

Protest and online surveys

One of the more common approaches to documenting the climate strikes, especially on a large scale, is through surveying young climate activists at the climate strikes, or afterward, online. This data provides us with an important baseline understanding of who participated in these strikes. For example, Gaborit (2020) surveyed 1,800 young climate strikers in France, using an approach developed by Quantité Critique. With this methodology, a large number of trained researchers administer questionnaires randomly at these protest events. Wahlström et al. (2019) and Zamponi et al. (2022), used a similar methodology in cities across Europe. Called "Caught in the act of protest: contextualizing contestation" or CCC, these scholars use a "pointer" who systematically directs researchers to select participants for surveys and interviews (Walgrave et al., 2016). This data serves as a starting point for scholars who wish to take a more fine-grained approach to studying young people's climate strikes.

In addition to quantifying the demographics of these strikes, other scholars have collected quantitative data to parse out motivations and environmental knowledge of the strikers. In an attempt to unpack what drives "pro-environmental activism" of young people, Wallis and Loy (2021) distributed an online survey to 125 young people at a FFF protest in a German city and an additional 418 young people between 13–26 through an online portal. Similarly, to develop a theoretically driven understanding of young peoples' motivations to participate in young people's climate strikes, Brügger et al. (2020) conducted a cross-sectional online survey that included both strikers and non-strikers. With 4057 survey responses, they argue that motivation is tied to activists feeling as if they are engaging with other like-minded individuals.

One can find an interesting example of collaborative quantitative data collective in Mucha et al. (2020) on resilience and digital protests during COVID 19. Working *with* members of the Fridays For Future movement, these scholars co-designed and implemented a survey that sought to unpack the effects of the COVID-19 pandemic on the movement's communication, organization, and mobilization. This kind of collaborative work, where scholars work with those who they study to co-create knowledge, should be encouraged across methodological boundaries. It also allows for a more accurate understanding of the activism itself, as it takes these young people's voices, perspectives, and expertise seriously.

Text analysis

One of the most common ways that scholars have attempted to make sense of the young people's climate strikes is through text analysis. As an emergent body of research, text analysis proved useful in producing research relatively quickly, as the data was readily available. Also, text analysis provided available data sources when COVID-19 restrictions limited other data collection methods. Nevertheless, there are epistemological limitations of text analysis, namely that it tends to exclude young people by using adult-centered concepts to analyze mostly adult-oriented texts, producing research outputs that are mostly for the perusal of adults. The text analysis in this literature focuses on one of three sources: speeches given by Greta Thunberg, news coverage of the strikes, or social media posts from climate activists.

Several studies have examined the young people's climate movement by analyzing the speeches of prominent young climate activist Greta Thunberg. For example, using thematic analysis, Holmberg and Alvinius (2020) analyzed five of Greta's speeches and two important climate-related international documents to examine the foci of children's resistance. While it is a response piece, Evensen (2019) also draws on Thunberg's speeches to critique the rhetorical approaches of the Fridays For Future movement. Using Thunberg's speeches as a proxy for the messaging of the Fridays For Future movement, the author suggests that young climate activists as a whole need to move beyond the rhetoric of "trust the science" toward more normative, ethical reasonings for tackling the climate crisis.

Studies drawing from newspaper articles are often focused on the way media *frames* the young climate strikers. For example, von Zabern and Tulloch (2021) employed rhetorical analysis of media coverage of Fridays For Future from three German news outlets. They found seven different kinds of frames used by these news outlets and that the coverage often reproduces existing power structures through marginalizing and depoliticizing the political agenda of protests. Similarly, Bergmann and Ossewaarde (2020) analyze German newspapers using critical discourse analysis of one left-wing and one right-wing newspaper in Germany. The authors found that both newspapers primarily use ageist language to delegitimize young climate activists.

The final approach to textual analysis uses more diverse materials, including newspaper articles, tweets, social media postings, interviews, and other online materials. For example, Huttunen and Albrecht (2021) analyzed news and social media about Fridays For Future in Finland. Similarly, Kenis (2021) analyzes the way the School Strikes in Belgium are framed on websites, social media, television, newspapers, and magazines. Framing their work as a digital ethnography, Wielk and Standlee (2021) used the Twitter feeds of seven prominent climate activists to parse out how young climate activists use social media to create and direct movement communities. A clear limitation of the study, mentioned by the authors in the conclusion, is that this study only represents the perspectives, experiences, and tactics of seven (mostly White, mostly American) young climate activists. Dealing with a similar challenge, Han and Ahn (2020) analyzed various speeches, interviews, declarations, and online communications from the young people's climate movement broadly. The challenge with this kind of approach to studying young climate activists is that it makes sweeping assumptions about a transnational movement using textual evidence from a relatively narrow set of sources, which the authors themselves acknowledge in conclusion.

There are clear advantages and benefits to textual analysis. In addition to speed and accessibility of data amidst a pandemic, textual analysis can be a way of engaging with young people on their own terms by examining youth-produced media, documenting how young people circumvent mainstream media to shape their own narratives (ex. Huttunen and Albrecht, 2021; Wielk and Standlee, 2021). Textual analysis also offers the opportunity to critique adultist or otherwise problematic portrayals of young activists (ex. Bergmann and Ossewaarde, 2020; Huttunen and Albrecht, 2021). At the same time, textual analysis can reinforce incorrect assumptions about the homogeneity of young people (Pickard, 2019) and "view youth as isolated individuals, neglecting the role of adults and communities" (Wood, 2020, 217). It can also use adult perceptions to explain the young climate strikers, rather than young people's experiences and ideas. We ask that scholars who employ this method take care to ensure these data do not lead to overly simplistic claims about young climate activists and consider ways to include young people in this kind of data collection and analysis.

Qualitative methods

In recent years, there has been an uptick in qualitative scholarship that explores the young people's climate strikes. While qualitative data provides its own set of challenges, particularly regarding sample size and representation, these studies give new dimensions to what can otherwise be a flat or reduced description of young climate activists. This work provides important "thick description" of the experiences and perspectives of these activists (Geertz, 1973).

Focusing on young activists in the UK who were involved in either the school strikes and/or a group called the Extinction Rebellion, Pickard et al. (2020) draw from a large sample of sixty semi-structured interviews carried out before, during, and after protest actions to try to examine how young people themselves understand their activism. Elsen and Ord (2021) draw from seven in-depth interviews with young climate activists affiliated with the Fridays For Future strikes. This work explores young people's attitudes toward adult involvement within "youth-led" climate groups. Cattell (2021) used ten in-depth interviews with young climate activists to unpack the ways regular involvement in climate activism shapes their imagined futures. While brief in length, Martiskainen et al. (2020) conducted 10 to 20-min interviews with sixty-four young activists participating in school strikes across six cities. The interviews– conducted after the strikes had already occurred– add some additional depth to the point-in-time surveys done at the strikes.

Not all scholars who engaged with qualitative methodology drew exclusively from interview data. Haugestad et al. (2021) employed mixed methods in their study of Fridays For Future protests. Using ethnographic fieldwork, ninety-three interviews, and survey data from 362 Norwegian high school students, the authors explore the predictive possibility of collective guilt, environmental threat, past protest participation, organized environmentalism, political orientation, and social capital on future protest intentions. In addition to twenty semi-structured interviews with students in Quebec, Dupuis-Déri (2021) draws from letters from school principals addressed to parents and pieces of media to document the way schools can be a place of political conflicts and struggles between students and adults and between students on different sides of the movement. Kettunen (2020) draws upon 4 months of participant observation and forty-seven interviews with young people between the ages of fifteen and sixteen to unpack the different ways young people practice environmental politics and construct their environmental citizenship. While not all forty-seven of her respondents claimed to be active in climate activism, the data set makes an interesting comparison between young people in Finland who did and did not strike. The rich qualitative data collected by these authors allows young people's voices to be an essential part of the overall analysis.

It is important to note two qualitative papers that offer examples for what deeply collaborative knowledge co-production with young people can look like. The articles Luna and Mearman (2020) and Navne and Skovdal (2021) are co-written with individual young activists who serve as lead author in both instances. Both articles include first person narrative written by the activist and largely unedited, mixed with commentary by both authors. While there are important ethical considerations in such approaches, addressed further below,

these papers elucidate methods that legitimately challenge the norms of adult-centered knowledge production.

Above, we have detailed the different kinds of methodologies implemented by scholars who study young climate activists. These methodologies range from event surveys to textual analysis, to interviews, and other ethnographic approaches, as well as mixed methods. While all of these studies offer valuable information on various components of the climate strikes, we argue that there needs to be deeper consideration of how we go about studying young people. First, however, we detail the core themes that this literature has to offer, to set the stage for a discussion of the intimate relationship between what we know about young climate activists and how we know it.

Key themes in the literature

While the above section examines how we know about young people's climate activism– the methodologies used to study it– we will now address what we know about it. This section explores the various findings available within the research. It is grouped by the various themes we identified within the literature. These themes are: composition of young people engaged in climate activism; pathways into climate activism; outcomes of young people's climate activism; and how young people are understanding and acting on climate change.

Composition of young people engaged in climate activism

Many scholars have examined the demographics of young climate activists. In Europe, two large quantitative studies gathered data on young people participating in Fridays For Future protests in March and September of 2019. Findings were similar across the two studies: the biggest age cohort was between 14–19 years old, and the median age was 21 years old (Wahlström et al., 2019; de Moor et al., 2020). Participants are more heavily female, and over seventy percent come from well-educated families, defined as having at least one parent with a college degree (Ibid).

A similar study found that participants in the climate strikes in the United States are predominately White, female, and from well-educated families (Fisher and Nasrin, 2021a,b). Interestingly, this data shows a steady increase in the age of participants over time; in the spring of 2019, the median age was eighteen, then twenty-five by fall 2019, and thirty-two by the spring of 2020. In this short time span, adult-led organizations (the Sierra Club and 350) increasingly took leadership roles, squeezing out the leadership of youth-led organizations (Fisher and Nasrin, 2021a,b). Lorenzoni et al. (2021) also found an increase in older participants over time. This trend of increased adult involvement could lead to co-opting and "watering down" or de-radicalizing young people's climate activism, as research shows that older activists are less radical than their younger counterparts (Bertuzzi, 2019; Elsen and Ord, 2021). One future direction for research is to examine this trend across time and in other geographic locations.

How young people come into climate action

Researchers have worked to identify the underlying motivations young people have for becoming climate activists. Governmental inaction and the sense that politicians are failing them is a common source of motivation; this is true among young climate strikers in the UK (Pickard et al., 2020; Elsen and Ord, 2021; Feldman, 2021) and is a common narrative in the Fridays For Future movement as a whole (Han and Ahn, 2020). Haugestad et al. (2021) and Martiskainen et al. (2020) found a variety of motivations for participation among climate strikers in Canada, the USA, the UK (Martiskainen et al., 2020) and Norway (Haugestad et al., 2021). Both found that concern about the environment and environmental threats and engagement with and desire to affect politics were key motivators. Additional motivators for protest participation included concern for family and future generations; being part of a protest movement; solidarity; anti-capitalism; security; collective guilt; past protest participation; the presence of organized environmentalism, and social capital (Martiskainen et al., 2020; Kenis, 2021). While the above research examines why young people mobilized, Fisher (2016) discusses the process of coming into activism. Fisher found that many young climate activists have some sort of transformative moment that compels them to commit to activism. For many, this was a moment of seeing environmental destruction. Many young people also held concerns for social justice and nature that proceeded and gave enhanced meaning to their transformative moments. Although sparked by particular moments, young people describe climate activism as a dynamic and ongoing process of continuously recommitting to activism.

Outcomes of young people's climate activism

Research also examines the outcomes of young people's activism, both for the young people themselves– how activism impacted their lives– as well as its bigger political ramifications. Regarding the outcomes for young people, much of the findings are not particularly surprising: young people who participated in Fridays For Future held less exploitative and more preservationist views of nature than students who did not participate (Barbosa et al., 2021). Additionally, students who engaged in activism developed self-efficacy, empowerment, and

optimism (Deisenrieder et al., 2020; Cattell, 2021; Elsen and Ord, 2021). Climate activism also enhanced their understanding of climate change, both how it impacts daily life as well as the politics of it (MacKay et al., 2020; Elsen and Ord, 2021). Lastly, research found that climate activism opened up new opportunities for young people, such as social connections (MacKay et al., 2020; Elsen and Ord, 2021).

While it is important to know that climate activism has positive outcomes for young people, research on the impacts of activism for young people falls into a paradigm that views young political actors as "citizens-in-training" (Gordon, 2009; Taft, 2017) by viewing activism as a learning experience instead of legitimate political action. Doing so requires that researchers pay more attention to the political impacts of young people's climate activism.

And indeed, (Fisher and Nasrin, 2021a,b) have made the call to focus on political outcomes. Despite the importance of this call, we could locate only two papers of the 51 identified that address this. Han and Ahn (2020) conclude that the young people's climate movement has successfully changed the public discourse around climate change and brought attention to global inertia. They have also successfully united disparate groups like students, teachers, unions, and environmentalists. Despite this, the young people's climate movement has been unable to garner enough power to enact the systemic change necessary. Kenis (2021) came to similar conclusions, finding that the movement has succeeded in re-politicizing the issue, thus putting it on the public agenda. However, through "empty demands" (p. 135), Kenis claims that the movement has made itself vulnerable to neutralization and co-option by hegemonic forces.

How young people understand climate change

A significant portion of the literature on young people's climate activism addresses how young people are understanding climate change. Much of this literature suggests that young people view climate change in more radical terms. Pickard et al. (2020) document how young people view climate change as an urgent crisis with potential for catastrophic impacts, thus requiring a radical rebuilding of society. (Piispa and Kiilakoski, 2021) and Terren and Soler-i-Marti (2021) found that young people view climate change as an issue of justice. Additionally, young people are linking climate change to capitalism (Holmberg and Alvinius, 2020; Pickard et al., 2020) and are willing to put the needs of the environment above those of the economy (Emilsson et al., 2020).

At the same time, young people are not a monolith and not all espouse radical perspectives on climate change– Dupuis-Déri (2021) found a split between more moderate vs. radical left young people within one activist organization. Similarly, Gaborit (2020) also found variance in terms of radicalism, and young people who were further left were more willing to critique capitalism. Piispa and Kiilakoski (2021) found that young people coalesced around the notion of "moderation" and "slowing down", while Huttunen (2021) found that young people wanted favored more responsive politicians over a deeper political revolution– not particularly radical ideas.

Han and Ahn (2020) explored the narrative structure of young activists' understanding of climate change. In this narrative, the villains (past generations, state leaders and the media) have passed the burden onto the victims (future generations and the Earth) by failing to act. Faced with the gross inaction and negligence of the villains, the victims will not remain mere victims. Instead, they become heroes by seeking justice through collective action. Young people will hold the villains accountable pushing for systemic transformation.

Taken together, this literature paints a picture of young people with more radical and justice-oriented understandings of climate change. Because of this, Bowman (2020) argues that young people's climate strikes are typically analyzed through the frames of mainstream environmentalism and engagement approaches, but that these frames are inappropriate. Instead, he suggests using Pulido's framing of subaltern environmentalism, distinguished from mainstream environmentalism by economic and social marginalization, by lives structured by domination, and by the centrality of the issue of positionality (Pulido, 1996). Bowman points out Pulido's claim that subaltern environmentalism is characterized by the struggle for environmental justice (Pulido, 1996) and that climate justice is, indeed, central to the demands of young movements like (Fridays for Future, 2019).

How young people are acting on climate change

Literature on young people's climate activism also discusses how young people are acting on climate change. Given their more radical understandings of the issue, it is not surprising that much of the literature shows that young people are also taking more radical approaches to action. In particular, three papers found that young people tend to favor collective action and civil disobedience when it comes to climate action (Gaborit, 2020; Pickard et al., 2020; Kenis, 2021). This action tends to be disruptive, but is rooted in non-violence, peace and joy (Pickard et al., 2020). Kenis (2021) comments on how young activists are using politicized tactics, which have successfully brought climate change to the forefront of public conversations. Overall, the manifestations of activism are largely shaped by availability– young people tend to adopt the politics and tactics of what is already happening in their geographic location (Prendergast et al., 2021; Rainsford and Saunders, 2021).

Just as understandings of climate change differ among young activists, so do their ideas for action. O'Brien et al. (2018) created a typology that describes the various types of dissent represented by young climate activists. They categorize youth dissent as dutiful, disruptive or dangerous. Dutiful dissent represents more normative and non-disruptive approaches, whereas disruptive and dangerous dissent are more radical, disruptive and non-normative. Similarly, research with French young climate strikers also found strong support for civil disobedience, but differing willingness to engage in it and differing views on the use of violence (Gaborit, 2020).

In regards to young people's activism, several scholars (Pickard, 2019; Kettunen, 2020; Dupuis-Déri, 2021) note that young activists often operate outside of traditional structures, in what Pickard (2019) terms "Do-It-Ourselves" activism. In this, young people "act politically without relying on traditional collective structures, such as political parties and trade unions to inform, organize and mobilize in a top down way" (Pickard, 2019, p. 5). Do-It-Ourselves activism occurs through individual lifestyle politics but also when young people come together to act collectively, such as in the climate strikes.

Another theme regarding how young people are acting on climate change examines the constraints put on activism. Kettunen (2020) found that both inertia among peers and friction between young people and adults created barriers to participation in activism. Dupuis-Déri (2021) also found that, when operating in a school context, adult authority figures often had the final say in decision making. Nakabuye et al. (2020) talk about the unique challenges faced by young African activists; these include limited formal climate change and lack of support, especially when demands oppose community economic needs from industries like logging and mining.

In regards to tactics, both Curnow et al. (2021) and Foran et al. (2017) examine how young people use humor, sarcasm, and irony in their activism. Curnow et al. (2021) examine a divestment campaign at the University of Toronto, where activists used what they termed snark– a type of humor that relies on sarcasm, irony, anger, and self deprecation–to develop identities, express rage and to build agency and solidarity. Foran et al. (2017) studied young activists who attended COP-19. They found that these young people aimed their activism at pointing out hypocrisy and failures of politicians, often through humorous actions like a lemonade stand to fund climate adaptation. It is likely, given ongoing studies of young people's participation in formal organizations (such as Thew et al., 2020), that more studies of this type are likely to emerge over the next few years.

Finally, two papers examine the use of social media as an organizing tool. Wielk and Standlee (2021) found that young people engaged in coalition building over social media by projecting activist identities, creating narratives that attract and engage other activists, and engaging in political conversation using evocative emotional narratives to build connections that resonate. Another paper found that social media was used to create group cohesion and emotional attachment (Brünker et al., 2019).

Perceptions and representations of young people's climate activism

A final theme identified in the literature on young people's climate activism explores how it is perceived and portrayed by outside entities. Several of these papers look at how the media portrays young activists. In general, these papers point to how the media delegitimizes young climate activists. (von Zabern and Tulloch, 2021) found that, while articles gave protesters a voice, they typically portrayed them apolitically, thus undermining protesters' agency and reproducing existing power structures. Huttunen and Albrecht (2021) also note the dominance of adult voices in debates on the young climate strikes. And finally, Bergmann and Ossewaarde (2020) found an ageist bias in the media in Germany. Similarly, Hess (2021) critiques a common frame in the United States media: the notion that Gen Z "will save us." Hess offers up examples of this from popular US media, discussing why it is problematic to reduce a generation to a singular, static narrative. While Hess celebrates the activism of Gen Z, he also concludes that "being seen as a beacon of hope is quite different than being truly listened to", an observation that certainly seems to be true.

Discussion

While the recent years have yielded important work on young people's climate activism, it is a new body of work and there are significant gaps and limitations. In the following section, we identify opportunities for expansion.

Moving beyond White activism

The first opportunity for expanding on existing work is the gap in the current literature on climate activism in what can be called the Global South and in marginalized communities across the world. More precisely, we not only identify this gap, but also a preponderance of data and theory that focuses on the Global North and largely on wealthy and White communities. More deeply, we find a general literature on young activism tends to focus on wealthy, White activism and that research on and with young people from other backgrounds tends to form another separate body of literature. A focus on wealthy, White activism is no surprise: Curnow and Helferty (2018) argue that mainstream environmentalism is a "default white space" and call for an "ethic of accountability" in environmentalism. In current research, most available data focuses exclusively

on young people in Europe, the United States, Australia and New Zealand. This is particularly notable when it comes to examining the composition of young people engaging in climate activism– there have been several large quantitative studies capturing protest participation across Europe (Wahlström et al., 2019; Zamponi et al., 2022) and some in the United States (Fisher and Nasrin, 2021b). While these studies are important in establishing the demographics of these movements, the literature neglects participation in most of the world. This paints young people's climate activism as centered in wealthy, mostly White countries, when in fact it is a global phenomenon. We argue that researchers must be accountable not only to the unjust impacts of environmental damage, but also the unjust distribution of research and knowledge. Thus, one key area for further research is examining the youth-led climate activism in the Global South. And indeed, scholars and news media alike have documented young people's climate activism in places like the Pacific Islands (Cocco-Klein and Mauger, 2018; Hayward et al., 2020), India (Singh, 2015) and African nations (Nakabuye et al., 2020). However, in centering activism in the Global North, researchers perpetuate misguided notions about who cares about and acts on the environment (Taylor, 1997). The centering of literature on the Global North also impedes full exploration of young people's activism in global, regional and national climate regimes where "Black lives matter less" (Sealey-Huggins, 2018; p.102) and in contexts where researcher's direct experiences of climate change may lead them to write with more reflective and autobiographical approaches to research (see Sultana, 2022).

This gap is also notable when it comes to more nuanced topics, like motivations for activism and how young people are understanding and acting on climate change. This is problematic, as there are significant disparities in how climate change is experienced in the Global North and South. While the Global North is responsible for the vast majority of carbon emissions, the Global South will experience the worst impacts of climate change (Shi et al., 2016). Additionally, countries in the Global South are disproportionately exploited for fossil fuel resources and experience a higher level of marginality when it comes to global politics, and young people in the Global South have historically been identified as the "worst affected victims of resource degradation and environmental pollution" (Bajracharya, 1994, 41). Thus, there is great opportunity to expand research to include young people in the Global South.

The work done in the Global North can also be expanded. Within the Global North, there are also populations with different relationships to climate change. Groups who already experience marginality in the Global North– communities of color, Indigenous communities, low-income communities, disabled populations, immigrant and migrant communities and LGBTQ+ communities– are also disproportionately impacted by climate change and fossil fuel extraction, despite typically contributing fewer greenhouse gas emissions (Kaijser and Kronsell, 2014; Routledge et al., 2018). Thus, researchers in the Global North should examine how climate activism is understood and performed differently across lines of race, class, gender identity, sexual orientation, Indigeneity, immigration status and ability.

More than mass mobilizations

Another key limitation of the current literature is the overemphasis of mass mobilizations. Much of the literature only examines young people engaged in the Fridays For Future walkouts. Indeed, these protests are an important aspect of young people's climate activism, as they are perhaps the most visible elements of this movement and are key in catalyzing action. However, these single-day events are only one element of the climate activism young people are involved in today. In focusing so heavily on them in the literature, research is neglecting the varied activities that young people are engaging in to demonstrate dissent and act for change. This presents a fairly flat and limited image of young people's climate activism. Researchers have documented these varied activities to a degree, such as work capturing everyday dissent (O'Brien et al., 2018), the campus movement for fossil fuel divestment (Curnow et al., 2021), after school clubs (Dupuis-Déri, 2021) participation and/or dissent through formalized politics (Foran et al., 2017; MacKay et al., 2020). This work should be expanded. Especially important is capturing localized struggles, such as campaigns against fossil fuel extraction, as this work is often done in low income communities of color. Thus, in overemphasizing mass mobilizations, research is overemphasizing the work of White and middle class young people. One important direction is long-term ethnographic work with young people's movements, which will be able to present a more nuanced image of young people's climate activism and the activities that go along with it.

Moving beyond Greta Thunberg

Finally, the analysis in this review revealed a common trend: a hyperfocus on Swedish climate activist Greta Thunberg. Indeed, invoking Greta Thunberg and her activities that sparked the Fridays For Future movement seemed a near-ubiquitous way to introduce papers on young people's climate activism. However, this framing seriously limits the literature by constraining the true scope and scale of young people's climate activism. It obfuscates activities that were happening before Greta's action, and outside of her sway. It incorrectly assumes that Greta was the inspiration for much of these activities, when in fact, many young people were already gravely concerned about and taking action on climate change (Ison, 2009; Fisher, 2016; Foran et al., 2017; Cocco-Klein and Mauger, 2018; O'Brien et al., 2018; Lee et al., 2020). Perhaps

more problematic than just the "Greta framing" is the "Greta methodology"– using speeches or actions by Greta Thunberg to make broad generalizations about the young people's climate activism. Drawing on the perspectives and actions of a single individual to generalize a global phenomenon constrains an understanding of this movement. To be clear, this critique is not aimed at Thunberg herself–indeed, we celebrate her bold actions, her ability to catalyze a movement and the important work she is doing to hold those in power accountable–but rather the ways researchers have constrained this literature by hyperfocusing on an individual. Thus, as researchers continue to examine young people's climate activism, an important opportunity is to look beyond a singular hero to the varied ways groups and ways young people are acting on climate change.

Challenges of studying the youth-led movement

In addition to the gaps in the literature named above, we also draw attention to the unique challenges that scholars face when studying young people. These challenges exist not only for those studying young climate activists but for scholars studying young people across a variety of contexts. The contested meaning of the category of "youth", practical barriers to studying young people, and adultism in the research process must be considered if scholars of the climate strikes wish to engage in reflexive research ethics (Cordner et al., 2012). We first name and acknowledge these challenges, and conclude this paper with some tentative solutions and possible ways forward.

The social construction of youth

One primary challenge of studying young people's activism lies in the way we define the concept of "youth" and what constitutes a "young person". The terms used to describe young people vary greatly across and within disciplines. The concept of youth is socially constructed (Bourdieu, 1993) and therefore has different meanings in different contexts. This means youth is not a universal category, nor does it mean the same thing across all social contexts.

While scholars have long acknowledged the social construction of categories like race (Omi and Winant, 1986) and gender (Lorber and Farrell, 1991; Butler, 1999) to name a few, there has been less scholarship that draws attention to the social construction of age (Gordon, 2007). Instead, young people are often described using universal, essentialist categories that reduce "adolescence", "young adulthood", and "childhood" into one monolithic experience. Additionally, tracing the history of the terms adolescent, teenager, and youth, Pickard (2019) highlights that these terms are laden with normative assumptions and are often linked to deviance and delinquency by both scholars and the mainstream media.

These challenges are beyond simple definitional squabbles. Instead, they prose significant methodological problems that need to be made clear. The definition used by the researcher can impact the outcome of the study and the methods chosen. If we continue to rely on essentialist ideas of the concept of "youth", we risk replicating these ideas, and as a result, contributing to an adultist perspective- explained further below- in our own work. In her work on "do-it-yourself democracy", Pickard (2019) provides us with a way forward for dealing with all this complexity. She claims,

> "There is however no clear-cut or absolute definition of "young people" and this might go some way to explaining why saying who actually counts as young people is so often omitted in studies on their relationships with politics. But one thing is clear: it is important not to generalize and not to lump all young people together as if they constituted in some objective way a homogenous demographic collective... Young people have different backgrounds, attitudes and interests; they have diverse political orientations, as well as varying types and levels of participation in politics. At the same time, young people are neither trainee citizens nor just numbers in the dataset I prefer to consider young people as full citizens capable of reasoned thinking with agency" (27).

In line with this, we argue that scholars studying young climate activists need to be more explicit about the variety that exists across members of this broader movement. To study young people in a way that avoids this essentialism, researchers need to acknowledge the heterogeneity of young people around the world. This means making space for complexity while being clear about the scope of research. This also means *talking to young people* about the definitions researchers use and the boundaries they set around who is and who isn't "youth" or what is or isn't "young people's activism".

The practical challenges of studying young people

In addition to the challenges around defining youth, there are also practical challenges to studying young people. For important reasons, young people are often given protected status in the context of research. For example, in the United States, all people under the age of 18 are considered minors, and researchers are usually required to receive parental consent before speaking with these young people. To add to the complexity, these rules change globally.

While these protections are important, parental consent can create problems, like the possibility of forced disclosure between a young person and their parent. Think for example, about a

study on young people who identify as LGBTQ+. If a researcher must gain parental consent to speak with any person under the age of 18, that means a researcher could accidentally "out" a young person to their parents by identifying them as a potential participant in this kind of research. While the stakes for young climate activists are different than the example provided above, it *is* possible that young people may not want their parents to know that they skipped school to participate in a climate strike. The challenge of gaining consent, then, becomes one we need to think deeply about when conducting research on young people (Woodgate et al., 2017; Moore et al., 2018). We share these complexities because researchers across the globe who wish to study young people deal with these questions: How do we gain consent and include the voices and perspectives of young people within the confines of important but challenging regulations around researching this population?

Adultism and the research process

While other researchers have documented the way adultism plays out in youth-led climate activism (Biswas and Mattheis, 2021; Ritchie, 2021), we argue that one must also be aware of the ways adultism can operate within the research process. Adultism is a bias that regards adults as superior to young people and enables adults to hold power over young people (Checkoway, 1996). Like any kind of systemic inequity, adultism is not relegated to one arena, like between students and teachers. Instead, adultism is structured into the fabric of our world, and as a result, it can appear in the research process in a variety of ways. It can be reinforced in the way researchers define the category of "youth", plan methodologies, or write up and share findings.

In order to challenge this, it is important researchers examine the way scholarship can intentionally or unintentionally reinforce adultism. This often happens through analytical frames. For example, looking at the activism of young people broadly, Earl et al. (2017) draw attention to the often-used "youth deficit model" where scholars make the adultist assumption young people are not engaged with politics and need adults to do so. This also manifests as the assumption that young people's activism is preparatory work and not legitimate political action (Gordon, 2009; Taft, 2017). We argue that instead, scholars should consider young people to be "active learners and decision-makers, who have distinct interests and have intersectional identities that include being young [and] need to be studied with agency in mind" (Earl et al., 2017, 8). In a similar vein, Biswas and Mattheis (2021) ask observers of young climate strikes to employ a "childist perspective", that takes them seriously as a political action and a form of civil disobedience, rather than labeling the activism as "truancy". While Elsen and Ord (2021) claim that adult activists need to be more aware of the structural power they hold in youth-centered spaces, we argue, along with the scholars cited above, this power imbalance extends to the researchers who are studying young climate activists as well. Being aware of the realities of adultism is an important first step in uprooting it.

A key way to start challenging adultism in research lies in the call we made toward the beginning of this paper: for the participatory co-production of knowledge alongside young people. As discussed earlier, Luna and Mearman (2020), Navne and Skovdal (2021) both pose models of deeply collaborative co-research with young people. This too, comes with ethical challenges, such as the complexities of adults obtaining both consent and assent from young people themselves, given the prominence of adultism. Luna and Mearman (2020) detailed the process of doing so, which included regularly checking in with the young person that they wished to continue the partnership. Furthermore, participatory research is time-consuming for young people and academics alike. On the one hand, this asks more of young activists, who are already juggling multiple demands on their time, such as school, work and their activism and often without remuneration or direct benefit to them. This is also a challenge for researchers, who operate within neoliberal institutions that place demands for "fast publication". This makes it difficult to devote the time to participatory research.

And indeed, scholars have found even when adults are aware of and actively trying to uproot adultism, it does not erase all possible challenges. For example, drawing from her research on the Peruvian movement of working children, Taft (2015) claims that even for well-meaning adults who recognize the agency and authority of young people, the structural power imbalance between adults and young people is difficult to avoid. This reminds us that even with awareness, adultism can creep into spaces where people are actively trying to develop youth-centered methods. Both Luna and Mearman (2020), Navne and Skovdal (2021) note this possibility even while doing participatory research. In this review, we argue that youth-led and "childist" approaches would not only be beneficial in responding to the opportunities provided by existing literature, but also represent a likely future turn in the academic literature as researchers seek to better understand the youth-centered, youth-led climate action movements that continue to act around the world.

Conclusion

In this review, we explored the development of a growing field of academic literature on young people's climate activism since 2018. We identify that although 2018 does not necessarily mark a watershed moment in activism itself - and that the roots of young people's environmentalist activism run much deeper than this - 2018 can be accurately described as a watershed moment in the study of climate activism and, we suggest, in the ways

that adults including academic researchers consider young activism. More specifically, we identify a surge of academic work is inspired by a youth-led, youth-centered approach among activists.

The recent methodological trends in studying young people's climate activism offer many opportunities for future research. Among these, we identified the need for research to move beyond a continuing tendency to focus on mass movements among young people, and particularly movements of young people in the global North and in movements where young people are comparatively rich and disproportionately White. We also identify a tendency to focus on the activism of the influential, and now iconic, young activist Greta Thunberg.

We conclude our review with the hope that our work will support future scholars. We have provided detail on the body of work that already exists on young people's climate activism, as well as gaps in the literature where future studies may make a positive contribution. We have also identified several methodological and ethical challenges that arise from the existing literature. Among these, we celebrate a continuing shift toward youth-led and youth-centered methods, including participatory research, as well as youth-centered theory. The responsibility for leading this shift sits not just with researchers, who themselves operate within constraints such as limitations of time, funding and academic norms. Instead, we hope to contribute to a re-imagining of the systems that produce knowledge. This includes more funding for youth-centered research and increased accountability to young people in making decisions about funding, and the same when it comes to editorial boards.

The young climate activist Brianna Fruean teaches us that "real education sometimes happens outside of the classroom. I think the school climate strikes have really proven that" (Healy, 2020; 179). Speaking as adult researchers, we hope that young people's action on climate change can continue to educate us about the concepts, forms and practices of activism, in order that we can better uphold young people's voices, and more effectively understand and contribute to their action on climate change.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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frontiers | Frontiers in Political Science

TYPE Original Research
PUBLISHED 17 January 2023
DOI 10.3389/fpos.2022.1063741

OPEN ACCESS

EDITED BY
Sarah E. Pickard,
Université de la Sorbonne Nouvelle Paris III, France

REVIEWED BY
Jade Sasser,
University of California, Riverside, United States
Florence Halstead,
University of Hull, United Kingdom
Lindsay Galway,
Lakehead University, Canada

*CORRESPONDENCE
Panu Pihkala
✉ panu.pihkala@helsinki.fi

SPECIALTY SECTION
This article was submitted to Political Participation, a section of the journal Frontiers in Political Science

RECEIVED 07 October 2022
ACCEPTED 22 December 2022
PUBLISHED 17 January 2023

CITATION
Coppola I and Pihkala P (2023) Complex dynamics of climate emotions among environmentally active Finnish and American young people. *Front. Polit. Sci.* 4:1063741. doi: 10.3389/fpos.2022.1063741

Complex dynamics of climate emotions among environmentally active Finnish and American young people

Isabel Coppola[1] and Panu Pihkala[2,3,4]*

[1]Independent Scholar (Formerly University of Vermont/University of Helsinki), Keene, NH, United States, [2]Faculty of Agriculture and Forestry, Helsinki Institute of Sustainability Science, University of Helsinki, Helsinki, Finland, [3]University of Helsinki, Helsinki, Finland, [4]Faculty of Theology, University of Helsinki, Helsinki, Finland

Climate emotions have become an increasingly salient issue since the beginning of the 2000s. This paper draws on data from in-depth interviews from the United States (USA) and Finland to provide insight into the complex dynamics of climate emotions in 23 environmentally active young people in these two countries. The analysis centers on two main themes: (a) complex dynamics of climate emotions and (b) identities and felt social expectations. The results support recent research about the importance of anger, grief, and guilt as very common climate emotions among active people, although a broad range of emotions was recognized by the participants. Some observations were made about the role of cultural factors in these two countries. Through this analysis, this article contributes to the understanding about the ways in which identities and felt social expectations shape climate emotions, including feelings of inadequacy and obligation. Analysis of the experiences of this limited number of young people shows the prevalence of feelings of inadequacy and thus supports the recent arguments about the need to provide young people tools to set their responsibility in context, in order to avoid negative consequences of the felt pressures.

KEYWORDS

climate emotions, young people, eco-anxiety, eco-guilt, significant life experiences, Finland, United States, inadequacy

1. Introduction

Public attention toward the affective dimensions of climate change has increased rapidly since 2018. The Intergovernmental Panel on Climate Change's (IPCC) released a special report detailing the possible impacts of a global warming of 1.5°C, which activated many people. The formation of Fridays for Future is an important example of how this increase in awareness and concern had a significant impact (for scholarship on Fridays for Future, see, e.g., Bowman and Pickard, 2021; Eide and Kunelius, 2021; Prendergast et al., 2021). Various emotions and feelings about the climate crisis and related environmental crises have been explored with more frequency in recent years

through the framework of "climate emotions" (Neckel and Hasenfratz, 2021; Pihkala, 2022c; Swim et al., 2022). The common use of climate emotions captures both conscious feelings and less conscious bodily emotions. Although there are many climate emotions, the term "climate anxiety" has become popularized as an umbrella term to describe a myriad of affective experiences by the scholars and laypersons alike (Pihkala, 2020a). In this article, we use climate emotions as the widest term, and climate anxiety is thus a significant one of them.

The range of climate emotions that people experience is extensive from, for example, grief and sadness (e.g., Cunsolo and Ellis, 2018) to anger and frustration (e.g., Antadze, 2020; Pihkala, 2022c), to joy and hope (e.g., Ojala, 2012), and to guilt and shame (e.g., Aaltola, 2021). These emotions are important for several reasons. They shape people's capacity and motivation to respond to climate issues, they are connected to wellbeing and functionality, and they have also been argued to be important in their own right, simply as parts of life that need attention (González-Hidalgo and Zografos, 2020; Pihkala, 2022b; Verlie, 2022).

This emotional landscape lies confusion, contradiction, and struggle of expression of certain emotions for a variety of reasons. People's climate emotions and their attitudes toward emotions are shaped by personal opinion and experience, cultural norms, and various social and ecological factors (e.g., Norgaard, 2011; Crandon et al., 2022). Various emotions, such as grief and shame, are difficult for different people. Scholars have pointed out several problems related to the lack of engagement with emotions, such as increased distress because of unencountered emotions such as grief (Ojala et al., 2021). There are many issues around feelings of guilt and shame (Jensen, 2019; Fredericks, 2021), and even active people have been noted to suffer from pervasive feelings of not being enough (e.g., Hoggett and Randall, 2018; Nairn, 2019). While the amount of empirical studies about climate emotions experienced in various contexts is steadily growing (e.g., Iniguez-Gallardo et al., 2021; Clissold et al., 2022), scholars emphasize the need for more research in various areas.

Environmental activists have been a subject of great interest when it comes to thinking about the emotional experience of climate change due to their proximity to the subject matter and the energy they bring to the cause (e.g., Eide and Kunelius, 2021; Pickard, 2019a; Pihkala, 2022a). This is in part because of a common assumption that action is an antidote to difficult climate emotions, which is, however, a partly contested assumption (for discussions, see, e.g., Coppola, 2021; Wray, 2022). Recent scholarship has explored the particular experience of climate emotions among young people (Hickman et al., 2021) and young climate activists (e.g., Bowman, 2019; Bowman and Pickard, 2021; Holmberg, 2021; Pickard, 2021; Piispa and Kiilakoski, 2021). However, much remains to be studied in relation to various emotional dynamics and the ways in which contexts influence them.

In this article, we study climate emotions and the complex dynamics related to them through interviews with environmentally active young people (aged 18–31) in the United States (USA) and Finland. In the context of our study, we use the terms "environmentally active young people" and "activists" rather synonymously. However, we would like to acknowledge that these terms can take on different meanings in different contexts. The term "environmentally active young person" is used to describe a wide range of people who are involved in environmental work but may not identify with the term activist that can be somewhat stigmatizing among some audiences. We define activist broadly in our study as an individual who takes some kinds of environmental action through a variety of means including direct action, research, and organizing. For the reasons of brevity, we sometimes use the wording "climate activists" in this article to refer to all the participants.

We chose to interview this population for several reasons. First, young people are a very important social group, whose role in efforts to shape climate politics is strong. Second, we are interested in the particular ways of climate emotions manifest in people who are both environmentally knowledgeable to some degree and active. Third, we are interested about possible manifestations, which bring difficulties for the wellbeing and action capacity of young people. Our study thus contributes to the scholarship about the relationship between climate emotions and action, but we are not focusing only on any instrumental role of emotions: we are interested in the emotions themselves and their various roles and manifestations.

We were curious about the dynamics between these identities and climate emotions. We were particularly interested in understanding the general emotional landscape of these young active people, how dynamics of responsibility and feelings of inadequacy emerge, and the ways in which these young active people cope with the various climate emotions they experience. We analyze the interviews and engage in interdisciplinary reflection (for interdisciplinary research, see, e.g., Scanlon et al., 2019). This combination of empirical and theoretical methods allows us to make in-depth observations, even though the results cannot be generalized broadly due to the rather small number of interviewees and the certain differences in the interviews between countries.

We are also interested in the cultural and social dynamics in these two countries. The USA and Finland are both wealthy countries, although there is much economic inequality especially in the USA (see, e.g., Berg, 2019). Both are Western countries, but the USA is a global superpower and Finland is a small nation in Northern Europe. There is a long history of climate activism in both countries (for Finland, see Huttunen, 2021; Piispa and Kiilakoski, 2021; for USA, see Sommer, 2015). Recent years have seen major developments in that activism, especially after the Autumn 2018 IPCC report that not only served as a kind of wake-up call for the climate crisis but also energized

many young people to mobilize for climate action (Ogunbode et al., 2020). There has also been increases in polarization around climate issues, although polarization is much stronger in the USA than in Finland (McCright et al., 2016). In a global survey of climate anxiety in children and young people, respondents from Finland and the USA did not differ extensively across a variety of emotions from powerless to optimistic to angry (Hickman et al., 2021). The structure of our research does not allow us to generalize our findings, but we aim to make observations about possible similarities and differences in the affective experiences of young active Finns and Americans. Our study contributes to the growing research about climate activists (e.g., Martiskainen et al., 2020; Eide and Kunelius, 2021; Huttunen and Albrecht, 2021; and the many articles in this theme number), but differs in the character of the participants: not all of them considered themselves the activists or took part in a certain activist organization.

In the following, we discuss three important aspects related to our study: framings of climate emotions, identities and felt social expectations, and being young in these times.

1.1. Framings of climate emotions

There are many possible framings of climate emotions, and the question of how "climate anxiety" is interpreted is closely connected to this issue. Some framings approach climate anxiety mainly as a problem for health and functionality, but scholars usually emphasize that climate anxiety can manifest both in adaptive and in maladaptive forms (Clayton, 2020; Hickman, 2020; Pihkala, 2020d; Coffey et al., 2021). Embracing a more expansive and nuanced understanding of climate emotions beyond the conventional good vs. bad thinking about emotions is important for navigating the uncertainty and complexity that comes with a changing climate.

Many terms have been used in the research about major affective dimensions of climate change. Glenn Albrecht coined the now well-known term "solastalgia," which refers to the pain associated with the loss of ability to derive solace from a physical place that has been transformed beyond recognition (Albrecht et al., 2007). Many scholars have applied solastalgia to the impacts of climate change (for a review, see (Galway et al., 2019). More broadly, Albrecht has used the concept of "Earth Emotions" to refer to various kinds of eco-emotions (Albrecht, 2019). Much research has focused on "climate grief": the impacts of various changes and losses due to climate change (Cunsolo and Ellis, 2018).

Much like the physical impacts of the climate crisis that disproportionately impact countries and places that contribute the least to the phenomenon, affective impacts are both unequally distributed and experienced differently across individuals and groups (Lawrance et al., 2022). There are also complex dynamics related to the justice issues and privilege when it comes to investigating climate emotions (e.g., Uchendu, 2022). Notably, indigenous people, who are particularly attuned to climatic changes due to their lifestyles experience climate emotions such as grief, sorrow, and solastalgia quite heavily (Cunsolo Willox et al., 2013; Middleton et al., 2020). Other factors that have an impact on the force of climate emotions include having an environmental activist identity (Hoggett and Randall, 2018; Nairn, 2019), researching environmental issues (Pihkala, 2020c), and having deep emotional connections with the region around oneself (e.g., Marshall et al., 2019; Eide and Kunelius, 2021).

Efforts have been made by many climate emotion scholars to emphasize the importance of not broadly pathologizing climate emotions such as eco- or climate anxiety that can be understood as being rational and even healthy to respond to an understanding of the current state of the planet (Verplanken and Roy, 2013; Hickman, 2020; Pihkala, 2020a). Furthermore, some scholars suggest that the experience of phenomena such as eco-grief or eco-anxiety is correlated with a healthy understanding of climate change (Cunsolo et al., 2020). Terms such as Kurth (2018)'s "practical anxiety" have been adopted by the climate emotion scholars to emphasize the constructive potential of conventionally negatively coded emotions such as anxiety (Kurth, 2018; Pihkala, 2020a,b; Kurth and Pihkala, 2022). Relatedly, efforts have been made to emphasize the problematic nature of taking a conventional individualistic approach to understanding and addressing the emotional responses to climate change (Kałwak and Weihgold, 2022). Scholars emphasize that social dynamics shape climate emotions in profound ways (González-Hidalgo and Zografos, 2020; Neckel and Hasenfratz, 2021; for young climate activists and different social dynamics, see Prendergast et al., 2021).

1.2. Identities and felt social expectations

Climate emotions and the ways in which people feel, understand, and express them exist within a cultural context. Beyond simple differences in meaning and understanding of different emotions, the extent to which certain emotions are culturally acceptable to express and acknowledge differs across cultures (Mesquita et al., 2016). In general, Western, industrialized nations promote a culture in which open dialog about difficult climate emotions such as grief or sadness is discouraged through formal and informal social mechanisms (e.g., Weintrobe, 2021). As a result, it can be challenging and uncomfortable for people raised in these emotionally stunted contexts to openly and freely express and engage in conversation about these difficult emotions. Certain emotions such as guilt and shame are both intimately tied with one's sense of self and highly influenced by those around one and are, therefore, more challenging to face (Aaltola, 2021). Many scholars have observed that gender has a role in recognition of climate emotions (e.g.,

Hyry, 2019; Galway and Beery, 2022), and generally, it is well-known that emotion norms and feeling rules in societies often have gendered dimensions (for observations about this and climate emotions, see, e.g., Du Bray et al., 2019).

There has been an extensive amount of research conducted to explore the development of ecological identities and the impact nature connectedness has on these identities. Many scholars have developed scales for measuring environmental identity (e.g., Clayton, 2003) and they have been revised overtime (Clayton et al., 2021). Numerous studies have been conducted to understand what influences one's environmental identity (for environmental activists and these dynamics, Samsten, 2019). It has been found that an ecologically oriented moral identity affects both behavior and eco-emotions (Jia et al., 2017).

Many kinds of social dynamics influence environmental behavior, both inside groups and between groups. Ingroup–outgroup dynamics have been studied by the psychological researchers from various fields (e.g., Dono et al., 2010). Whether intentional or not, informal codes of ethics about expected behavior from others in the group and even those outside the group often exist within environmentalist spaces (e.g., Lacasse, 2016). Examples include sentiments such as "it's frustrating that X does not recycle" or "X is just something you should do" (e.g., Chan and Bishop, 2013). In his interview-based study, Berglund (2019) illustrated this dynamic of expectations for oneself and others in Swedish environmental activists aged 19–29 who felt climate anxiety both "from the interaction between the understanding of the problem and the others, whose change was described throughout as too slow" (Berglund, 2019, p. 34).

Furthermore, failure to achieve what one feels is the necessary or expected type of behavior can lead to the feelings of inadequacy. Many environmentally active people, particularly those in the Global North who understand the ways in which capitalism and other systems of oppression and exploitation and, by association, their ways of life as participants in societies in the Global North contribute to climate change, feel a sense of responsibility tied to their identity (e.g., Piispa and Kiilakoski, 2021, p. 9–10). Diversion from these expectations and a perceived failure to uphold one's responsibility can elicit emotional responses such as disappointment, frustration, or even guilt (Kleres and Wettergren, 2017; Bryan, 2022).

Several scholars and writers have raised critical observations about the dynamics of privilege and race in discourses about climate emotions. In response to the reactions to and questions about her 2020 text, *A Field Guide to Climate Anxiety*, related to the "whiteness" of the topic of climate anxiety, Sarah Jaquette Ray raises the question of whether the predominance of white folks resonating with the feelings of climate anxiety is related to the history of existential threats that experiences by Black and brown people in the USA throughout history that are unrelated to climate change (Ray, 2021, p. 2). Mary Annaïse Heglar writes about the idea of "existential exceptionalism" associated with viewing the climate crisis as the greatest existential threat to humanity given that "history is littered with targeted—but no less deadly—existential threats for specific populations. For 400 years and counting, the USA has been an existential threat to Black people" (Heglar, 2019). Environmental justice advocate and writer Wanjiku Gatheru speaks specifically to the experience of climate emotions among people of color and more broadly about the history of racism and exclusion in environmentalism: "people of color experience climate grief more deeply than white people, because we are disproportionately affected by the climate crisis and have a long history of racial terror. We also feel grief being forgotten in a movement tasked with solving the biggest threat to our lives" (Gatheru, 2020).

This connects to our study insofar as these kinds of dynamics can shape the reactions of majority folks in the West and participants in our study are mostly White. For example, the scholars of psychology such as Orange (2017) have suggested that climate change can cause deep feelings of guilt and shame, which are interlinked with the feelings about colonial injustices, and indeed, different emotional norms about climate guilt have been observed among climate activists in North and South by empirical scholars (e.g., Kleres and Wettergren, 2017).

1.3. Childhood and youth shaped by the climate crisis

Young people in the contemporary world have grown up amidst rapidly intensifying climate impacts. Specifically, since 2018, climate awareness and debates in societies have increasingly shaped their lifeworlds (IPCC, 2018; Ogunbode et al., 2020). While there is naturally a great variation in contexts and people's experiences are varied, in many ways, contemporary youth are "a climate generation," as for example, Ray (2020) has called them (for a review of youth perceptions of climate change around the world, see Lee et al. (2020); for a critical review of research on youth climate activism, see Neas et al., 2022).

The young people who are the subject of our study have thus been exposed, in various degrees, to climate issues for a long time. For technical reasons, we could not include under 18-year-olds in this study, but emerging research conducted among that age group shows that they indeed experience many kinds of climate emotions (e.g., Hickman, 2020; Feldman, 2021; Halstead et al., 2021). Many of these young adults have commented that they feel that older adults are not taking their climate emotions seriously enough (e.g., Diffey et al., 2022). Thus, by focusing on climate emotions in our research, we at the same time wanted to give at least to these young people an experience of adults being very interested about their climate emotions. We did not regrettably design the study together with young people, but the main author is still young herself and empirical data about youth experiences and views shaped the design of the study.

Youth studies and sociology are increasingly investigating the dynamics around climate change, and scholars point out that climate change is a major factor shaping childhood and youth today (see, e.g., Pickard, 2019b). While the authors of this article are not sociologists or trained in youth studies, we hope to contribute to these fields by investigating the lived experiences of young environmentally active people and the complexities of their climate emotions. Identities and social expectations (see previous section) are very powerful for youth in relation to climate change. Climate change brings up the changes and challenges related to social dynamics (e.g., relationships with parents and relatives and between youths with differing opinions; see, e.g., Dupuis-Déri, 2021). Climate emotions are present throughout all these dynamics.

2. Materials and methods

2.1. Research questions

Our main research questions in the study are as follows:

1. What does the climate emotions "landscape" look like for young, environmentally aware and engaged Finns and Americans? On the basis of this limited data, what kind of observations can be made about cultural and social factors which impact climate emotions in each country? Can there be discerned differences between the cohorts related to climate emotions?
2. What kinds of felt social expectations and identity factors seem to shape these young people's climate emotions, especially in relation to sense of duty and feelings of inadequacy?

2.2. Procedures and measures

We used semi-structured interviews to explore the participants' climate emotions through a variety of lenses. The questions [Appendix A (USA questions) and Appendix B (Finland questions)] aimed to provide data for the assessment of our main research questions through understanding participants' involvement with environmental issues, sources of environmental knowledge, sources of climate emotions, connections between and among different climate emotions, coping mechanisms for these climate emotions, and perceptions about the future—personally and more broadly. We did not strictly ask every participant every question but rather allowed ample space for the exploration of emergent themes as they related to climate emotions. The Finnish version of interview questions was adapted further through discussion and cooperation between Author 1 and Author 2. In the Finnish version, even more attention was given to the specific dynamics of climate emotions and coping, because that was deemed to be especially important for advancing research following the conclusion of the interviews in the USA.

We also used an emotion word survey adapted from a study conducted by Krista Hiser and Matthew (Appendix C) (Hiser and Lynch, 2021). The survey aimed to provide broad insight into how participants were feeling about climate change. Its results helped to guide the interviews insofar as it was possible to ask about selections and omissions of recognized climate emotions. The emotion word survey for the Finland study was translated to Finnish by Author 1 using Google Translate and assistance from Author 2 and other Finnish speakers. We asked the participants to review the survey two times: first, to highlight all words that resonated with them related to climate change and second, to highlight the top five words.

All participants received information about the study before agreeing to participate and provided verbal agreement to participate. All interviews were recorded with the consent of each participant using *Zoom* recording technology and were then transcribed using transcription software from *Otter.ai*. In the USA study, the length of interviews ranged from 22 to 61 min. In the Finland study, the length of the interviews ranged from 37 to 97 min. The discrepancy in interview length between the two studies is attributable partly to the longer list of questions and partly to the fact that Finnish participants were interviewed in their second language and, therefore, needed additional time to express themselves. In both studies, informed consent was guaranteed for participants through the provision of explanations of the intentions, execution, context, and funding behind the study. Furthermore, care was taken to ensure that all principles of the Declaration of Helsinki were followed throughout the entire research process. For the gathering of the USA data, an IRB approval was necessary and it was acquired; for the Finnish data, an official IRB statement was not required according to the Finnish research guidelines.

The positionality and privilege of the authors is discussed in Appendix E.

2.3. Participants

Participants and basic information about them can be seen in Table 1.

The USA sample ($n = 14$) was recruited *via* listservs of environmental organizations at the University of Vermont (UVM) in Vermont, USA, in October 2020. The Finland sample ($n = 9$) was recruited *via* word of mouth at the University of Helsinki in Helsinki, Finland and in environmental activist groups in the Helsinki Capital region in January 2022. All of our interviewees reside in the Global North (the USA and Finland) which is an important factor when considering their positionality within the context of the climate crisis and movement.

TABLE 1 Summary of participants.

Participant	Pseudonym	Country	Age	Gender	Type of engagement
A	Amy	The United States	20	Female	Member of the Sunrise Movement
B	Becca	The United States	21	Female	University environmental publication editor
C	Carly	The United States	20	Female	Member of divestment-focused campus organization
D	Deb	The United States	20	Female	Member of campus environmental group related to communication and advocacy
E	Evan	The United States	21	Male	Member of two environmental groups related to advocacy and sustainable transportation
F	Fred	The United States	19	Male	Member of campus environmental group related to sustainable lifestyles
G	Gretchen	The United States	22	Female	Member of environmental group related to sustainable transportation
H	Harper	The United States	20	Female	Member of campus environmental group related to sustainable lifestyles
I	Ingrid	The United States	19	Female	Member of divestment-focused campus organization
J	Joan	The United States	18	Female	Member of divestment-focused campus organization
K	Kelly	The United States	21	Female	Member of campus environmental group related to sustainable lifestyles
L	Lauren	The United States	21	Female	Member of the Sunrise Movement
M	Michael	The United States	21	Male	Member of environmental group related to sustainable transportation
N	Nicole	The United States	20	Female	Member of campus environmental group related to communication and advocacy
1	Sara	Finland	24	Female	Student of aquatic ecology, researcher
2	Aurinko	Finland	28	Non-binary	Freelance sustainability expert, employee of non-profit environmental organization, Master of Environmental Change and Global Sustainability
3	Vilho	Finland	28	Male	Intern of at environmentally focused public foundation in Finland, Master of Environmental Change and Global Sustainability
4	Lida	Finland	24	Female	Involved in the religious, ecumenical, interfaith space, also with environmental themes
5	Eetu	Finland	25	Male	Agricultural specialist, Master of Environmental Change and Global Sustainability
6	Kerttu	Finland	21	Female	Member of Elokapina (Extinction Rebellion)
7	Liisa	Finland	26	Female	Laboratory assistant at environmentally focused museum in Finland, Master of Environmental Change and Global Sustainability
8	Juho	Finland	31	Male	Member of Elokapina (Extinction Rebellion)
9	Meri	Finland	28	Female	PhD student of Environmental Education

In the USA study, the criterion for selection included the following: participation in one or more environmental organizations and being a member of an age group that has been called *the Climate Generation* by Ray (2020): being born between the early 1990s and early 2000s. Participation in one or more organizations was self-assessed and self-reported. In 2020, this meant that the oldest participant—born in 1990—could be 30. In the Finland study, the criterion for selection included the following: involvement in environmental work in some capacity (research, studies, and activism) and being a member of the same age group with the USA participants, which in 2022 meant the oldest participant—born in 1990—could be 32. Collectively, participant ages ranged from 18 to 31 with the USA participants ranging from 18 to 21 and Finland participants ranging from 21 to 31. Participants have a range of levels of previous engagement with and knowledge of climate emotions—with some engaged in explicit study of the topic and others with no previous engagement or even serious thought. All participants were actively involved in the environmental work, and thus, they do not represent an average population in relation to environmental attitudes and knowledge. Given that all participants are highly educated, we are missing many lived experiences and a range of identities and social locations.

Burlington, Vermont is the most densely populated place in Vermont and houses the largest university in the state. Among other USA states, Vermont is more politically liberal in general

and does not reflect the average American. This should be taken into the consideration for understanding the context from which participants come.

2.4. Analysis

Data were gathered from the two sets of interviews and climate emotions surveys. The interviews were analyzed through several iterations of coding using both inductive and deductive analysis of qualitative data. The first iteration was broad and more inductive, primarily focused on gathering a wide scope of emergent narratives from data. We began by organizing data into two broad categories: *background/contextual information* and *emotions*. *Background/contextual information* was broken into two subcategories: *description of nature of environmental involvement/work* (activists, students, and others) and s*ources of climate/environmental knowledge*. A subheading of s*ources of climate/environmental knowledge* was *influential actors or experiences in shaping environmental identity, knowledge, etc. including childhood experience*. The *emotions* category worked to identify the presence of emotion either explicitly (I feel/felt…) or implicitly: Author 1 made the observations about emotional tones based on the body language, verbal style, and choice of words by the respondents. However, the observations of implicit emotion were treated differently in data analysis and only as potentially indicative. Overall, the authors do not aim or claim to define exactly what all emotions the respondents are feeling: the aim is to make the observations of emotions and related dynamics, based on what the respondents declared. Special notes were also made about any discussion of hope, but no further analysis was done.

The second iteration was more narrow and deductive. It focused on the three main research questions: dynamics of climate emotions, identities, and felt social expectations (specifically as they relate to climate emotions) and coping mechanisms (especially for climate emotions). Coping mechanisms were further categorized based on the results from the study by Ágoston et al. (2022). Although Author 1 led the analysis, close collaboration occurred throughout the entire process between both authors through continuous dialog and shared *Google* documents. Author 1 made the coding using a combination of inductive and deductive styles and asked Author 2 to check especially the borderline cases. The following is an example of coding: emotions: implicit or explicit.

3. Findings

As Table 2 displays, we will show our findings in three sections.

The study also resulted in a rich data about coping, which cannot be fully discussed here due to space limits, and thus, coping dynamics will be the major topic of a further research article by the authors. In the following, only a few references to coping themes will be made to show the links between them and the topics discussed here.

TABLE 2 Contents of findings section.

3.1. Complex dynamics of climate emotions
3.1.1. The broad landscape of climate emotions: grief, anger, and guilt
3.1.2. Sense of responsibility
3.1.3. The question of "enoughness"
3.2. Identities and felt social expectations
3.3. Comparisons between Finnish and American participants

3.1. Complex dynamics of climate emotions

> *It's just this feeling of kind of feeling everything. And sometimes the idea of being positive and negative feeling at the same time is - I'm just feeling like exploding.* Aurinko (Non-binary, 28 years, Finland)

The interviews created an open space for the participants to explore and discuss their climate emotions freely. Each conversation was laden with the descriptions of emotions. Interconnections between and among emotions were abundant. It was often challenging, if not impossible, to completely separate the emotions from each other. Participants' awareness of and ability to describe the complexity of their emotional experiences varied. Participants also displayed differing levels of comfortability with the ease of expression of various emotions.

Although each participant's personal emotional landscape was unique, analysis revealed that certain emotional themes were most salient among participants. Grief, anger, and guilt were very common. Broadly, the participants expressed many emotions related to a sense of responsibility, emotions related to feelings of "enoughness," and emotions related to uncertainty.

Appendix D displays an overview of emotion words selected by the participants altogether. Table 3 provides a visualization of key emotions from pre-interview surveys. It is to be noted that we observed climate emotions also in the interviews, so this table does not include all the emotions found in our study.

3.1.1. The broad landscape of climate emotions: Grief, anger, and guilt

It is important to acknowledge the range and diversity of climate emotions experienced and discussed by the participants.

TABLE 3 Visualization of emotions from pre interview surveys.

It should be noted that our analysis in this paper heavily focuses on difficult emotions, but also many other kinds of emotions were connected with environmental issues by the participants. In the following, we lift up the examples of prominent feelings of overwhelm, sadness, anger, frustration, and guilt among the participants. Other emotions the participants connected to environmental issues included disappointment, fear, anxiety, hopelessness, shame, uncertainty, and hopefulness. They displayed many affective tones of motivation, determination, and resolve.

Feeling overwhelmed emerged as a salient theme for participants although notably, the English word does not translate very well into Finnish. Some participants, such as Gretchen (female, 22 years, the USA), felt overwhelmed by their perceived inadequacy, given a lack of tools and scope of the challenge. Similarly, Aurinko (non-binary, 28 years, Finland) expressed feeling a lack of power as an individuals as "maybe this feeling off this kind of like ahhh how can we like—I understand that as an individual I don't have such power that I could change all these things, but like, even as communities or like with these, like in this system that is so fixed to be so damaging, like, how can we actually like to do any change?"

Numerous participants experienced sadness and grief, which supports the growing research about the prominence of climate grief and sadness among people (Ojala et al., 2021). These sad feelings were often connected to other emotions, such as feeling powerless and/or anxious. Sadness was linked with both changes that had already happened and anticipatory losses, again reflecting the results of previous research (e.g., Randall, 2009). A telling example is how a participant from the USA talked about the sadness associated with changes in landscapes:

> *I guess, talking about like, feeling sad, because that's a big word. I think that I am repeatedly going through these stages of like grieving around our environment. I have so many memories from my childhood and even pretty recently, I've just like, moving through these big, beautiful, like, landscapes of the wilderness that just like took my breath away, and to think about them changing so quickly. If I ever have kids like maybe they won't be able to see that. It's just like so profoundly heartbreaking, I think.* Becca (female, 21 years, USA)

As seen in the quote, the participant muses about a process of ecological grief. They think about their childhood and the changes that have already happened, which brings into their mind also the possible experiences of future children, who might experience an even more changed environment. Thus, reactions to already-happened losses are linked with anticipatory grief and fears or worries about future children (For scholarly literature about processes of ecological grief, see, e.g., Jones et al., 2021).

Another participant from the USA describes the felt changes in Glacier National Park and strongly brings into fore the feelings of powerlessness to stop the changes. They also link that with feeling disconnected:

> *"It makes me feel sad that it's going away, and it doesn't seem like there's a lot we can do. And then I think I feel just like disconnected as well."* Michael (male, 21 years, USA)

For Finns, topics of ecological grief included the eutrophication of the Baltic Sea and the lack of old growth forests. Some participants discussed difficulty with expressions of sadness and grief. A Finnish activist, Kerttu (female, 21 years, Finland), described the feelings of sorrow associated

with the changes in the natural world and also described tension around expressing it because "it feels like there are things that it's more appropriate to have feelings about" and "I think that being frustrated is easier than sorrow because it's so vulnerable somehow." The quote shows how the participant is thinking about emotion norms and different audiences. They think that being frustrated or worried is more socially acceptable and point to the difficulty of showing vulnerability.

Overall, many participants discussed the feelings of anger and frustration. Some participants spoke of them as being very accessible emotions when compared to other emotions such as guilt or even disinterest. Evan (male, 21 years, the USA) described frustration based in inaction on climate despite the fact that many solutions are readily available.

Sara (female, 24, Finland) explained how expression of anger is easier to express than to guilt and pondered that it is difficult to confess that one has flaws:

> *I think anger is easier to express than, maybe. I think guilt is something that I think this is like the first time I have really actually liked, like, really expressed, that I feel guilty about, but I know that I have been feeling guilt also. But it's like, I think it's like the first time that word has come up. So that's maybe more difficult to express.*
>
> *I guess it's like difficult because it's like, it's easier always to say I'm such a good person, and I'm doing everything I can than to say, or than to confess that I'm actually not always the most perfect person. Like, yeah, I guess it's not like something that's easy for me to always like, say, yeah.*

This pondering shows many things, such as the previous lack of incentive or chances for the person to think about guilt in an environmental context. It also shows the difficulty of self-admitting guilt, which is also an important insight in relation to surveys about climate emotions. It may be that climate guilt and its close emotions such as shame are not always noticed in surveys, because people fail to self-recognize them (cf. the results by Hyry, 2019; Swim et al., 2022). Overall, many participants engaged in vivid discussions about climate guilt. A participant in the USA discussed collective aspects of guilt associated with their way of life as an American:

> *Yeah, I think being in the US like, I feel a huge sense of guilt because of just like our normal way of living like I was talking about earlier. Like, it just feels like we consume at such a like high rate that's so unnecessary, but like, um, on a general like scale like no one really seems to find it, like, problematic. So, like, that's probably that, like, just the fact that like the US is like such a huge global emitter and like, American citizens really just like don't care at all makes me feel really, really guilty.* Deb (female, 20 years, USA)

Thus, the participant also reflected on the conflicting feelings generated by various reactions that people have. Liisa (female, 26 years, Finland) linked collective climate guilt to a kind of species-level guilt:

> *"I feel guilty, I guess. But like, on behalf of, like, humanity, I guess."*

This reminds of the discussions of "species shame" by climate emotion scholars (Jensen, 2019).

Many causes for individual climate guilt were mentioned. Sara (female, 24 years, Finland) described feeling guilt associated with thinking they should be more environmentally active or make more environmentally friendly consumer choices. Evan (male, 21 years, USA) described how they would feel guilt if they were not involved in environmental work:

> *"I would feel guilty if I didn't take the environmental path."*

They also highlighted "moral duty" in this reflection, which is a theme we will discuss at length later in this paper.

Another USA participant described guilt related to wanting to have children:

> *But like, I still really want to have children and I probably will because like, yeah, I'm just I guess that's just selfish, but I feel guilty about that. Thinking about that. I feel guilty. I feel guilty, but I still think like, yeah, I'm just going to enjoy my life because it is what it is. And I'm like well, not my fault. But like, I think everyone can kind of say that like, not mine. Yeah. So yeah, it's hard. It's a very difficult issue.* Michael (male, 21 years, USA)

This theme of whether to have children because of the climate crisis is receiving growing attention, and the issue clearly causes complex and difficult feelings (Schneider-Mayerson and Leong, 2020; Hickman et al., 2021; Schneider-Mayerson, 2022). Participants' internal struggle and conflict surrounding the question of whether or not to have children given the state of climate change suggest a consideration of the moral consequences and it reflects a desire to live according to one's values. Given that these participants are knowledgeable about climate change and other environmental issues, they are considering whether or not it would be responsible to bring children of their own into the world. It is possible that for some participants, this consideration serves as a kind of coping mechanism to deal with the feelings such as guilt and grief. If they do not have children of their own, these feelings may be relieved at least in part: they may feel less guilty because they are not increasing carbon emissions through having a child, and they may feel less anticipatory grief because they do not have their own children who they believe will suffer

in the future because of climate crisis. Although Meri (female, 28 years, Finland) spoke candidly to her acceptance that she would not have children of her own, the rest of discussions related to children were riddled with uncertainty. This internal, moral conflict seems connected to a plethora of emotions among the participants.

3.1.2. Sense of responsibility

> *I can't not do this work because I'll spend the rest of my life like, thinking about like, I didn't do anything to solve humanity's biggest challenge and I just like stood idly by.* Evan (male, 21 years, USA)

A strong theme in the responses of the participants was a sense of responsibility, an issue intimately linked with the topic of guilt discussed above. Other closely related affective issues include feeling "obligation" and "moral duty." In total, 13 out of the 14 American participants and five out of the nine Finnish participants indicated either explicitly or implicitly that they had experienced the feelings of responsibility, obligation, and/or moral duty related to the environment and climate change. It should be kept in mind that the respondents are environmentally aware people. These feelings were connected to many experiences including feelings of privilege, perceived seriousness of the various environmental crises, capacity, and, therefore, necessity for action. In general, participants appeared to be comfortable expressing and discussing feelings related to a sense of responsibility, suggesting that these feelings are accessible.

As mentioned above, feelings of responsibility, obligation, and/or moral duty were connected to many experiences, which can be understood as different rationales or justifications for why one feels a sense of responsibility. Many reported being awakened to the urgency of the crisis and their own responsibility through important experiences such as seeing a climate documentary film like Al Gore's *Inconvenient Truth* or becoming stricken by a climate science report, most notably IPCC's 2018 *Special Report: Global Warming of 1.5°C*.

Amy (female, 20 years, the USA) described the feeling responsible for being engaged with the climate issues because of one's possibilities as an American citizen and because of being part of the system, "even though we didn't start it." This same participant goes on to describe rationales for responsibility including having "the opportunity to learn about it and be educated about it" and it being "a privilege that I do know about it, and that I have that like position to do something about it."

Another theme included concern for future generations specifically in the context of one's own children. In this context, Kerttu (female, 21 years, Finland) described that feeling like action is simply necessary "as a responsible human being." Some participants including Fred (male, 19 years, the USA) describe having a sense of generational responsibility to act. Others, such as Juho (male, 31 years, Finland), highlighted their wealth and related privilege as a reason they feel responsible. Aurinko (non-binary, 28 years, Finland) described an entanglement of identity and moral duty in addition to obligation to future generations articulating that "it's just the thing we have to do for the other and coming generations and other species."

A significant theme tied to a sense of responsibility was related to felt pressure and especially a kind of temporal urgency. Gretchen (female, 22 years, the USA) spoke to this saying that "I think just being the age we are in seeing the effects already, there's like a very intense feeling of pressure to get things done very fast and every day that there isn't something that's changing for the positive in favor of climate mitigation. Like we're losing, though." Kelly (female, 21 years, the USA) talked about an overall sense of feeling like they "should" be doing something practically all the time, such as signing a petition or donating to an environmental fund and becoming "more involved" because "these things are happening."

These feelings of pressure and obligation to act link to feelings around questions of adequacy. Ambiguous language such as "very fast" and "more" in the context of environmental work contributes to a sense of inadequacy that we will explore in the next section.

3.1.3. The question of "enoughness"

> *Because, like, the more you learn, the more you feel like you need to like, do as much as you possibly can, or else you're not doing enough.* Evan (male, 21 years, USA)

Most of the participants reported some kinds of feeling of "not being enough." Feeling words related to this include inadequacy, powerlessness, hopelessness, and helplessness. In total, nine out of 14 American participants and eight out of nine Finnish participants either explicitly or implicitly expressed that they had experienced the feelings of inadequacy, powerlessness, hopelessness, and/or helplessness with regard to the climate change and other environmental challenges.

Many participants expressed feeling like they were powerless to act in the face of climate change and that even the actions they do take, whether that be through activism or everyday life, sometimes feel too small, which leads them to feeling inadequate and inefficacious. Many expressions of feeling a lack of enoughness came in the form of rhetorical questions, such as by asking:

> *Is there anything I can even do like, is anything really going to change?* Becca (female, 21 years, USA)

Expression of feelings related to not being enough seemed to come fairly easily for the participants. This testifies for the

commonality of these kinds of feelings among the participants. Furthermore, this may have been helped in the case of Finns by the existence of a related emotional concept in Finnish language, "riittämättömyyden tunne."

As mentioned in Section 3.1.2, a sense of temporal urgency played an important role in participants' contextualization of their environmental efforts. Some participants employed rhetoric related to a perceived lack of time as reports such as the IPCC's infamous "12 year report" lays out a "timeline that's ticking away so quickly" according to Becca (female, 21 years, the USA) and a resulting sense of urgency creating a "crunch feeling of like, not having enough time" according to Amy (female, 20 years, the USA). This time-related pressure was also connected to feeling like one did not have the ability to act sufficiently in the face of the problem in the given timeline.

Some participants described a disconnect between (a) what they understand to be the immensity of the climate crisis and the power of the opposing forces, such as corporations and wealthy politicians and their supporters, and (b) their own perceived capacity to effect change. This affected their feelings of "not being enough." Carly (female, 20 years, the USA) described sometimes feeling powerless in her activism "because it takes so much to do something, like get one university to take some money out of fossil fuels. So, it's just like, I guess still a little bit powerless because like in the grand scheme of things, I am much more powerless than I am in that situation." Becca (female, 21 years, the USA) described feeling inadequate compared to big corporations saying "oh my god. I'm just like a single person. And you hear about these big corporations driving our crisis. And you're like, I'm doing what I can, but it doesn't feel like enough." Similarly, Kelly (female, 21 years, the USA) described feeling powerless after learning about how "the whole, like rich people, and like, billionaires are the ones that are like causing this and like, they're the ones with all the power." Vilho (male, 28 years, Finland) reflected on how his attempts to take individual environmentally friendly actions such as recycling sometimes feel meaningless when he looks at how many people are not taking actions: "it just makes kind of makes you feel kinda like helpless. Like, here I am, like thinking about all the individual choices, and then it's just like, the impact is still very low." Liisa (female, 26 years, Finland) expressed:

> *I feel helpless because it feels like even though I try my best to live sustainably I know, it's not enough in any way, you know?*

These feelings of "not being enough" were connected to a variety of other emotions and issues including feeling overwhelmed, guilt, fear, distress, panic and a sense of responsibility, obligation, and/or moral duty. Thus, it was connected to basically all the issues that have been discussed above in Sections 3.1.1 and 3.1.2.

3.2. Identities and felt social expectations

We found that identities and felt social expectations played an important role in participants' experience of climate emotions in this study. We found the aforementioned themes of feelings of responsibility and inadequacy to be an important underlying current within this theme as well, which we will expand upon in the Discussion.

Social expectations related to common Western norms for emotional expression emerged as a prominent dynamic among participants' emotional landscape, especially for Finnish participants; also, the changes in our study design for the Finnish part made these themes closer to participants. Several Finnish participants spoke very candidly about the ways in which Finnish culture discourages open discourse on feelings and particularly "negative" feelings. Aurinko (non-binary, 28 years, Finland) expressed that:

> *Maybe in general, negative feelings are not so like, welcome in our culture or like in that way.*

Another Finnish participant, Liisa (female, 26 years, Finland), mentioned different subcultures and explained that:

> *Finns in general don't discuss much… Yeah. So I'm a Swedish speaking Finn*[1]*. So I guess we or our culture is quite the same. But I guess we are a bit more open about discussing feelings and such. But in general Finns don't talk about feelings. Like maybe in the sauna, but other than that, not so much. Yeah. So then talking about climate related feelings is even harder, I would say.*

Meri (female, 28 years, Finland) commented more broadly on social norms around emotional expression saying that in Finnish culture "reason is more important than emotion." Overall, participants had certain expectations for themselves and for others related to climate/environmental behavior, which led to a variety of emotional experiences often related to dynamics of disappointment and frustration.

Another theme related to identities and felt social expectations was the idea of conflicting identities, which led to questions of belonging. For several participants, grappling with overlapping and contradictory identities was a source of tension. One Finnish participant's parents are beef farmers. When describing how conversations with his parents go he said:

1 Finland has a Swedish-speaking minority and Swedish is another of the two official languages in the country. Most of the "suomenruotsalaiset" ("finlandssvenskar" in Swedish) do speak also Finnish, but there are distinctive (sub)cultural characteristics among many of them.

> *If I'm saying that beef production is super bad, you shouldn't do it then there's a lot of arguments, of course, for my dad, especially that—well, like he he's not saying that beef production is good for the environment but he's defending, of course, the beef production, for example. But we are not like fighting ever. We are just discussing. Of course, we are both getting a little angry at some point,* Eetu (male, 25 years, Finland).

Another Finnish participant's (6) parents work for *Metsähallitus*, which describes itself as "*a state-owned enterprise that provides natural resource services to a diverse customer base, from citizens to large companies*" (www.metsa.fi). She reports that her parents see forests through the lens of economic use rather than intrinsic value like she does. In both these examples, the parents' work both engrained intrinsic environmental/nature values in the participants, while also being a source of conflict and emotion when the participants grew up, became educated, and formed their own environmental identities, which were often based more in sustainability and climate matters rather than a general appreciation for the natural world. We will discuss this theme of parental influences more in the Discussion.

Another theme related to the identities and felt social expectations was the idea of social expectations for behavior and related emotions. Sources of these felt expectations included people close to the participant (family, friends, and members of organizations), more distant people with vague identities (humanity, people in general), and people in power (politicians, leaders, and governments).

Several participants expressed concerns about observed "preaching" and moral purity within environmentalism, and common emotions tied to this were frustration and disappointment. Some participants reflected on their own tendencies to use preachy language. Sara (female, 24 years, Finland) described how when she talks to people who she feels do not care as much as they should about climate change she becomes a "kind of preacher" who "wants to make people feel like a bit guilty." This brings also out the potential functional similarities in religious and environmental behavior and language, which scholars of religion have studied (e.g., Berry, 2013).

Vilho (male, 28 years, Finland) raised questions related to a sense of existential moral obligation as it relates to trying to change the opinions of others as it related to environmental matters:

> *Like, am I morally obligated to try to preach for people about the things that I consider to be right? Or should I just let people live their lives and like, maybe more follow this more like, democratic idea, like people have a right to make up their own minds?*

There were also feelings of disappointment about others not caring. For example, Amy (female, 20 years, the USA) expressed that it is especially disappointing to hear people who will be minimally impacted by climate change debating its importance.

3.3. Comparisons between Finnish and American participants

Although there is not enough data to make rigorous comparisons between participants in these two countries, we want to offer some preliminary observations that could be further explored in future research.

In general, when the experiences of the participants from these two different countries are compared, it can be observed that there is much in common, as was to be expected since both countries are wealthy Western nations and the respondents are active people. Being American caused stronger ponderings than being a Finn, probably for many reasons: as the USA is a major superpower and the environmental impacts of "an American way of life" have been much discussed (e.g., Benedikter et al., 2015). Participants mentioned particular sources of difficult emotions, both regionally and nationally, and the different ecological circumstances in these two countries naturally shaped these dynamics; but the emotional impact itself had strong similarities.

It can be observed that American participants appear to feel a greater sense of responsibility related to the climate crisis than the Finnish participants. This possibly relates to the fact that the USA is much richer and arguably more responsible for climate related impacts than Finland based on the emissions per capita (UNEP, 2021). When the experiences of the participants from USA and Finland are compared in relation to feeling "good enough," it can be observed that the dynamics were very similar, but in Finland, the existence of a related feeling concept—*riittämättömyyden tunne*, feeling not being enough—helped the participants to reflect on the issue more easily. American participants reflected more on the role of rich people in relation to climate impacts. This is possibly attributable to the fact that the difference in income and wealth is so much stronger in the USA. It should be emphasized, however, that the data to support this are limited and further exploration is needed.

In general, when the experiences of the participants from these two different countries are compared in relation to themes of identities and felt social expectations, it can be observed that there are naturally different feeling rules and emotion norms (Ahmed, 2014) in various cultures and in subgroups inside those cultures. The Finnish participants reflected more on these kinds of social and cultural dynamics, but also our study design contributed to that, and it seems that these dynamics are indeed important to include in studies on eco-emotions and climate

activism (similarly, e.g., Kleres and Wettergren, 2017). We could observe nationally significant themes, which impacted the participants, such as the role of forests as a key environmental issue in Finland, which causes a lot of eco-emotions (e.g., Kovalainen and Seppo, 2009), but the limited scope of our data prevents any strong conclusions about these dynamics.

4. Discussion

Our study brings more information about how strongly climate change affects the lives of many young people around the globe, in this case in the USA and Finland. Being young in these times involves the challenge of forming a relationship with climate activism, either by joining it in one way or another, or by trying to distance oneself from it (see also Dupuis-Déri, 2021). The participants of our study were young people who had decided to "stay with the trouble" (Haraway, 2016) of climate change: they were in many ways active in relation to climate politics, even though not all of them considered themselves activists. They were found to experience many kinds of climate emotions, and their comments revealed important dynamics related to identities and felt social expectations. It is important to note that the concept of "youth" is complicated (for insightful analysis on this and climate activism, see Neas et al., 2022), and we have explored climate emotions among only a narrow section of young people. Our participants were people motivated by climate emotions (for similar observations of emotion as motivating, see, e.g., Eide and Kunelius, 2021; Feldman, 2021), but we did not interview people whose emotions are connected with passive responses to climate change.

The results of this study highlight the interconnectedness and complexity of climate emotions, the identities, and social context, which contribute to and inform those emotions, and the coping strategies employed to address those emotions. The results demonstrated how feelings of obligation and "enoughness" are interlinked, and how they exist within a cultural framework and are upheld by complex dynamics of privilege. For many of these participants who recognize, to varying degrees, the privilege and embedded responsibility that comes with living in the emission-intensive societies of the USA and Finland, there was a sense that their privilege inherently makes their environmental work never enough. Although this sentiment was not expressed by all participants, an overall sense of deep seated obligation rooted in privilege and, therefore, lack of "enoughness" was strong.

Participants experienced a wide range of climate emotions. This was to be expected based on the earlier research (e.g., Pickard, 2021), but our results display an usually broad spectrum of emotional tones. Furthermore, the data provided many interesting and important insights about the complexity of them. In general, it appears that it was easier for the participants in this study to express and engage with those emotions that (a) allow the feeler to maintain their distance (such as frustration or anger at a non-specific entity such as "government" or (b) are more socially acceptable (excitement, interest, in some circles even eco-anxiety) in terms of broad Western cultural norms about emotions. Conversely, it appeared more difficult for some to express and engage with emotions that (a) require the feeler to get close and intimate with a difficult emotion (such as grief or guilt) or (b) are less socially acceptable in terms of broad Western cultural norms about emotions (Ahmed, 2014). Similar to other potentially challenging or even taboo subjects, the extent to which eco-anxiety is engaged with and exists in the cultural consciousness of a society is a result of whether it is being discussed in the media and through other venues such as academia.

Environmentally engaged people such as these interview participants have certain similarities in their identities because they share many values and commitments (see also the important role of biospheric values for climate protesters in the study by Prendergast et al., 2021). Not surprisingly, they were shaped by the various influences from their parents; the role of parents on pro-environmental behaviors has been the subject of much research (see, e.g., Grønhøj and Thøgersen, 2009, 2017; Ojala and Bengtsson, 2019). Although parental careers were a cause of tension in the household for some participants, others were initially compelled to engage in environmental work because of a passion and love for the environment often fostered by a parent or other role model figure in their childhood. On the one hand, this supports once again the research that shows the prominence of these kinds of influences (for an overview, see Chawla, 2020). On the other hand, the findings show the complexity of gained influences from parents and other role models (cf. Ojala and Bengtsson, 2019) and point out the need for careful analysis of various psychosocial factors when making interpretations of the influences for youth environmental behavior (cf. Crandon et al., 2022). Our findings suggest that other socio-cultural factors, such as opinions around appropriate use of natural resources for profit, may be more influential than parents. However, there is not nearly enough data in our study to make any strong conclusions, and this issue should be explored further in the future investigations.

For many participants, their strong environmental identities generated by childhood experiences and adult role models were further solidified by a moment or a series of moments of awakening which are often remembered clearly due to their emotional intensity (cf. the description of such a "Waking-Up" process by Edwards and Buzzell, 2009). Then, two particularly salient moments of awakening for many participants, both Finnish and American, in this study were the viewing of Al Gore's 2006 film *An Inconvenient Truth* and the release of the IPCC's 2018 *Special Report: Global Warming of 1.5°C*. This speaks to the role culture and social forces play in shaping environmental identity and related emotions (for these dynamics and young

climate activists, see also Feldman, 2021; Prendergast et al., 2021).

The results show that for participants in this study, a strongly felt obligation and duty to engage in environmental work exists as a motivator to both begin work initially and continue the work. The results also clearly show how prominent the issue of "not feeling adequate" is for these active people who, despite being actively involved in environmental work in various ways, feel as though their contributions to the "challenge" are not enough. We regard this as highly important, and it speaks to the influence of larger and complex structural societal dynamics. Despite the fact that our study participants were engaged in environmental work in various capacities, they still also struggled with the feelings of "enoughness." Thus, the findings testify to the observed need to help people communally to accept their limits and resist the potential negative aspects of feeling inadequate. This is in line with the broader observations by earlier scholarship (e.g., Prendergast et al., 2021) about the need to find ways to sustain the emotional wellbeing of young climate protesters. For example, in her 2020 text, Sarah Jaquette Ray describes how understanding one's "sphere of influence" can help to contextualize and ground actions and help one to understand the extent of and limitations to their agency and efficacy (Ray, 2020). It would be important to be able to feel also healthy contentment and pride for one's environmental efforts (Ray, 2020; Pihkala, 2022b). Our study provides, through its limited data, empirical support for the theoretical ideas brought forth by Kałwak and Weihgold (2022) about the ways in which individualistic approaches to understanding and experiencing climate emotions can be harmful for both people's wellbeing and the climate cause, because individualized responsibility and constant feeling of inadequacy can lead to burnout or cynicism (see also Hoggett and Randall, 2018; Nairn, 2019). We suggest that there is a possibility of collectivizing feelings of inadequacy in order to relieve some of the individual burdens felt by these active participants. This could help in strengthening the empowering emotional impacts of climate activism, which have also been often noted in studies about young climate activists (e.g., Bowman, 2019; Bowman and Pickard, 2021; Eide and Kunelius, 2021; Neas et al., 2022).

Our results also have implications as regards terminology about climate emotions. The sense of duty and willingness to act clearly has affective dimensions, and in some studies, scholars have explored vocabulary for these kinds of feelings, such as "feeling an urge to do something" and caring (Pihkala, 2022b). The findings also suggest the need to have a feeling word for feeling inadequate in English, an equivalent for "riittämättömyyden tunne" in Finnish.

We were able to make some observations about the cultural dynamics in Finland and the USA. Although there is not enough empirical data to support any broad interpretations of cultural factors, in general, Finnish participants seemed more comfortable talking about climate anxiety somewhat casually without too much raw emotion. This is in line with the observations of Finnish eco-anxiety scholars that the terms eco-anxiety and climate anxiety are not as polarized in Finland as in some other countries (Pihkala, 2018). Overall, we noticed that various differences related to economic, cultural, and social factors between these two countries affected the climate emotions of this limited sample of young people.

4.1. Strengths, limitations, and possibilities/subjects/tasks for future research

Strengths of the study include its in-depth focus on climate emotions and its internationality (both the USA and Finland). Few previous studies have concentrated on climate emotions especially among young environmentally active people. Furthermore, an unusually wide array of climate emotions was explored. The design of and space created by the study allowed for subjects to engage with and explore emotions at a depth that is not possible in a survey-based study or shorter, more narrowly designed interview-based study. This gave the participants more self-knowledge and recognition. The analysis and discussion drew from a wide range of disciplines, thus providing a rich mosaic of climate emotion dynamics. Naturally, readers who are scholars from various disciplines might desire more discussion of the field that they represent; interdisciplinary is a multi-sided enterprise.

Further strengths include the observations about emotion dynamics that greatly affect these young people's wellbeing and action, most significantly the prevalence of feelings of inadequacy. These observations support the recommendations of many writers about the need to provide support for young people, so that they could better balance their feelings of enoughness and inadequacy, and thus, our study can participate for its small part to policy recommendations.

There are some limitations of this study. A lack of inter coder reliability due to there being only an individual coder of the data opens the potential for coder bias, even though Author 2 checked especially the borderline cases. There is also a potential for bias with regard to discussion about climate emotions/unintentional influence from the study because of the pre interview survey administered to each participant. Although the use of the survey was intended to support the depth of potential conversation, it also lends to a potential for a priming of subjects to talk about emotions that they may not have acknowledged without the presence of the survey. Another limitation is the change of interview questions between countries. Although the change in questions allowed for more expansive and nuanced exploration through the interviews in Finland, it also weakened the ability to draw conclusions about the cultural conditions within the data.

Also, the homogeneity of participants (mostly white, mostly upper class, all educated) reflects a somewhat limited experience

as globally compared. Future studies should consider recruiting and including proportional numbers of non-white participants in order to properly analyze the role race plays within this topic (similarly Neas et al., 2022). As with all subjects of environmental work, environmental emotions impact different populations differently, and thus, careful investigation of these differences is important. Given the limitations of our studies, we could not contribute to this analysis.

Studies on topics such as this should be conducted also together with young people, allowing youth to participate both in the design and in the analysis phases. Regrettably, we could not contribute to this aim directly, but we hope that our results can inform for their part future participatory co-research with young people. Another limitation is the lack of participants under 18 years, which resulted from practical limitations of our study, and future studies should explore the complexities of climate emotions more also with under 18-year-olds.

Many themes for further research emerge from this study. Broadly, the complexity of the emotional experiences of these participants suggests a need for continued interdisciplinary exploration of this topic. The emotion words and tones explored in this study provide possibilities for nuanced studies. One potentially important theme for future research is the extent to which cultural conversations about different climate emotions, such as the one in Finland about climate anxiety, impacts people's relationship to, and experience of those emotions. More broadly, the ways in which various factors influence the experience of climate emotions are the continuously important areas for future exploration. More research is needed about the ways in which one's identity and related social expectations impact what climate emotions one experiences and how one engages with those emotions including coping mechanisms. In general, coping dynamics emerged as a strong and important theme in our research, and the authors plan to write another research article about it in the future. Young people clearly need societal and community support in developing constructive methods for engagement with climate emotions.

5. Conclusions

This study sought to understand the dynamics of climate emotions among 23 environmentally engaged people aged 18–31 in the USA and Finland through in-depth interviews and theoretical discussion. We found the emotional landscape of these participants to be rich and complex with many interconnections between and among a range of emotions. As in previous research, we found many experiences of a range of feelings and emotions such as sadness, anxiety, and worry among participants. Themes of responsibility, "enoughness," and uncertainty and related emotions featured strongly among the participants in both the USA and Finland. The influence of social expectations, identities, and identity politics emerged as an important factor in both populations both with regard to the ways in which participants experience climate emotions and the ways in which they cope with them. Our findings suggest a need for more research about feelings related to inadequacy and "enoughness" and about constructive ways to experience and manage these feelings.

Broadly, we interpret our results as supporting the view that climate emotions are something that one has to learn to live with and channel constructively, instead of trying to repress them or leave them behind. The prevalence of feelings of inadequacy among this limited group of young people supports the recent arguments about the need to provide young people tools to set their responsibility in context, in order to avoid negative consequences of the pressures that they feel.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by University of Vermont IRB. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

IC and PP designed the study at the initiative of IC. IC conducted the interviews, coded the data, and wrote major parts of the first version. IC and PP co-designed the structure of the manuscript and co-developed the Finnish interview questions. PP checked especially the borderline cases and wrote sections of the first version. All authors edited the manuscript and revised it in the peer review process.

Funding

This research was enabled in part by a grant from the Fulbright Finland Foundation to IC. PP worked part-time with a grant from the Kone Foundation during the writing of this study.

Acknowledgments

We thank the three reviewers and the editor for their rich and supportive critical comments about our manuscript.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2022.1063741/full#supplementary-material

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