

Being positively moved by climate protest predicts peaceful collective action

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Highlights

- Fridays for Future activists are negatively moved by the climate crisis but positively moved by climate protests
- Feelings of being positively moved (but not negatively moved) predict peaceful (but not violent) collective action intentions
- Acceptance of non-normative collective action like street occupation and damage to property was predicted by the belief that the Fridays for Future protests are ineffective
- Activist identity but not pro-environmental identity differentiates between Fridays for Future activists and non-activists

Abstract

People can be motivated to engage in collective action for climate protection because they are angry about an injustice or because they are emotionally moved by the idea that they can achieve something together. However, previous research on emotions and collective action has not distinguished between being positively and being negatively moved and between normative and non-normative collective action. To address this gap, we conducted a field study in Germany with activists and non-activists of Fridays for Future ($N = 223$). Participants reported their appraisals, feelings and intentions related to the climate crisis and the Fridays for Future protests. Being positively moved predicted intentions to engage in normative collective action (signing petitions, participating in demonstrations) but not intentions to participate in non-normative collective action (involving damage to property or risk of personal injury). Being negatively moved did not significantly predict either of these collective action intentions. This suggests that the motivational effect of being moved on collective action is specific to being positively moved and to normative collective action. Acceptance of non-normative collective action was predicted by perceptions of injustice and low collective efficacy beliefs. Thus, non-normative collective action for climate protection seems to be considered when peaceful protest is perceived as ineffective.

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Keywords

pro-environmental collective action, positive emotions, being moved, collective efficacy, injustice appraisals

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Plain Language Summary

1. Background

There are different reasons why people protest for climate protection. For one, they think the climate crisis is unjust, a fact which incenses them. Secondly, they believe it is possible to make the world a better place which moves and affects them.

2. Why was this study done?

When people say they are moved this can mean that they are positively or negatively emotionally affected. The study was done to find out whether people want to protest when they are positively moved or negatively moved (or both). We wanted to know whether these feelings motivate activists to sign petitions and take part in peaceful demonstrations or if these feelings also motivate people to block roads and destroy things.

3. What did the researchers do and find?

We asked Fridays for Future activists and people who had not participated in the Fridays for Future protests about their thoughts and feelings about climate change and protest. We also asked them whether they were willing to sign petitions, take part in peaceful demonstrations and if they accepted more incisive forms of protest e.g., blocking roads, vandalism, or violence. We found that Fridays for Future activists were negatively affected by the climate crisis but positively impassioned when asked about climate protests. We found that people who believe that together they can change the world are positively moved about that and want to protest by signing petitions and taking part in peaceful demonstrations (more than those people who did not have these thoughts and feelings). People who believed that the Fridays for Future protests were ineffective accepted protests involving occupation, damage to property and personal harm (more than people who believed that the Fridays for Future protests were effective).

4. What do these findings mean?

People are likely to protest peacefully if they think that these protests will be effective and when they have positive feelings about this. If they think that the climate crisis is unfair and they believe that peaceful protest is not effective, they tend to accept more extreme actions.

Introduction

The Fridays for Future movement, which started with Greta Thunberg's school protest in Sweden, led to demonstrations with up to 1.6 million people in 2019 around the globe (De Moor et al., 2020; Wahlström et al., 2019). The movement's main goal is to raise awareness of climate policy grievances and to press for compliance with the Paris Agreement to limit global warming to 1.5 °C. It thus addresses a major challenge to humanity and can be considered exceptional with regard to its size and global connectedness. At the same time, critics argue that the Fridays for Future protests are the starting point for more radical collective action. We investigate emotional processes that motivate collective action and test whether these processes are associated with peaceful or violent collective action.

Collective action can be defined as action taken together to pursue a political goal in a situation that is not formally organized (Barbett & Landmann, in press). These actions can be peaceful (signing a petition or participating in a peaceful demonstration) or violent (when it includes damage to property or violence against humans). Dual pathway models of collective action (Thomas et al., 2009; Van Zomeren et al., 2008) suggest that people go to the streets to vent their anger (the emotional path) or because they rationally think about the advantages of acting together (the rational path). This claim has been supported by research on collective action in different contexts including collective action for environmental protection (e.g., Bamberg et al., 2015; Thomas, et al., 2012; Van Zomeren et al., 2010) and is compatible with research on participation in the Fridays for Future protests (Haugestad et al., 2021; Wallis & Loy, 2021). However, recent research challenged this view, proposing that people can be emotionally moved by the idea to change something together and this constitutes a second emotional path to collective action (Landmann & Rohmann, 2020). We argue that considering these feelings of being moved is relevant for understanding protest.

Being Moved and Collective Action

Tears are usually associated with negative emotions. Still, people can have tears in their eyes in situations that they perceive as positive, such as weddings or the birth of a child. To address this paradox, scholars started to study the concept of being moved (see Zickfeld et al., 2019, for a review). Research shows consistently that feelings of being moved, stirred and positively overwhelmed are present in episodes of elevation and awe, they differ from mirth and are associated with meaningfulness (see Landmann, 2021, for a review). People experience these feelings of being positively moved when they perceive someone as showing exceptional helpfulness, psychological closeness or outstanding achievement (Menninghaus et al., 2015; Seibt et al., 2017; Strick & Van Soolingen, 2017). Thus, the common thread of

moving situations seems to be that someone positively deviates from a norm (Landmann et al., 2019). Taken together, these findings suggest that being moved is an emotional episode that includes feelings of being moved, stirred and positively overwhelmed as well as appraisals of surpassing a standard.

In collective action research, positive emotions have been considered as a response to collective gatherings. Durkheim (1912, as cited by Mellor, 1998) suggested that intense experiences of shared emotions in collective gatherings lead to experiences of union and empowerment and described this process as *collective effervescence*. This notion was supported by field studies and experiments showing that collective gatherings and demonstrations elicit the experience of shared emotions, strengthen identification with the group and facilitate positive self-transcendent feelings such as being moved and in awe (see Pizarro et al., 2022, for a review).

These positive emotional reactions potentially motivate further collective action. For answering the question whether the collective action will be effective, it is necessary to anticipate the effects of protest in advance. Consequently, emotional reactions to protest may be anticipated as well. Recent research supports of this claim: The extent to which participants believed that people can collectively combat climate change predicted how intensely they were emotionally moved by environmental protests and their intention to engage in future collective action (Landmann & Rohmann, 2020, Study 1). This positive emotional path to collective action was replicated in an experiment (Landmann & Rohmann, 2020, Study 2) and in the context of the Black Lives Matter movement (Lizarazo Pereira et al., 2022). Hence, people are moved by the idea that they can together make a difference and this motivates them to act. The first aim of the present study was to test whether this second emotional path to collective action is relevant for the Fridays for Future protests as well.

However, previous research leaves open whether these feelings of being emotionally moved by anticipated protest are purely positive. Although feelings of being positively moved are more prevalent, people can also be negatively moved (Cova & Deonna, 2014; Schindler et al., 2022). Typical situations of being negatively moved are watching a film, in which someone dies or in which close friends have to say goodbye (Hanich et al., 2014). So far, research that investigates the role of being moved for collective action has not differentiated between being positively and negatively moved. Our second aim was thus to differentiate between being positively and negatively moved and to identify their specific contribution to collective action intentions.

Furthermore, it is not clear whether feelings of being moved motivate different types of collective action. Previous research distinguished between normative and non-normative collective action. Normative collective action such as signing a petition or a peaceful demonstration conforms to social norms, whereas non-normative collective action e.g., occupation or property damage violates societal norms (Wright et al., 1990; Becker & Tausch, 2015). These collective action types are affected by different emotions. In the context of collective action against tuition fees, anger predicted normative collective action whereas contempt predicted non-normative collective action (Becker & Tausch, 2015). The very beginning of collective action research was coined by the notion of deindividuation – the idea that people in large groups lose their sense of self and become irrational and aggressive (Le Bon, 1895, cited by Drury & Reicher, 2020). Although the notion of deindividuation has been falsified multiple times (see Postmes & Spears, 1998, for a review), it is possible that participation in large groups elicits positive ecstatic emotions that motivate extreme actions. Our third aim was thus to test whether being moved predicts normative and non-normative collective action.

Identity and Collective Action

The intensity to which someone identifies with relevant groups is related to the motivation to participate in collective action as well (see Van Zomeren et al., 2008, for a review). Thus, social identity is an important factor in collective action models – as a predictor of the anger and the collective efficacy path in the Social Identity Model of Collective Action (SIMCA, Van Zomeren et al., 2008) or as a mediator of these paths in the Encapsulation Model of Social Identity in Collective Action (EMSICA, Thomas et al., 2009).

Politicized identity (i.e., identification with the activist group) is particularly predictive of collective action across diverse contexts (Simon et al., 1998) including the context of pro-environmental collective action (Bamberg et al., 2015; Fielding et al., 2008; Thomas et al., 2012; Wallis & Loy, 2021). In the specific context of pro-environmental collective action, pro-environmental identity may be of additional relevance. Pro-environmental identity (i.e., the extent to which a person sees him- or herself as an environmentally friendly person) predicts individual pro-environmental behaviour like eco-friendly shopping, energy conservation, and waste reduction (Van der Werff et al. 2013; Whitmarsh & O'Neill, 2010). The relevance of pro-environmental identity for collective action is less clear. Identification as an environmentalist (Dono et al., 2010) and identification with nature (Mackay et al., 2021; Schmitt et al., 2019) are only indirectly associated with environmental activism. Furthermore, politicized identity but not pro-environmental identity differentiates well between different

levels of activism for forest protection (Landmann & Rohmann, 2020). Our third aim was thus to identify the relative importance of politicized identity and pro-environmental identity for collective climate action.

The present study

To address these goals, we conducted a field study with climate activists and non-activists in Germany. We hypothesized that the association between collective efficacy appraisals and collective action intentions is mediated by feelings of being moved. We explored whether this emotional path to collective action is specific to context-specific efficacy beliefs, feelings of being positively moved and normative collective action or whether it generalizes to general efficacy beliefs, feelings of being negatively moved and non-normative collective action. We hypothesized that politicized identity differs between activists and non-activists. We explored whether pro-environmental identity would differ between the two groups as well and how politicized identity is associated with the emotional paths to collective action.

To this aim, we adapted the materials from Landmann and Rohmann (2020) for the context of the Fridays for Future protests. We asked participants whether they thought the Fridays for Future protests are effective (specific efficacy beliefs) in addition to their beliefs about the possibility to stop climate change (general efficacy beliefs). In order to differentiate between feelings of being positively and negatively moved, we assessed a range of positive and negative emotions in addition to established measures of anger and being moved. Furthermore, we added questions about non-normative collective action intentions and the acceptance of different forms of collective action.

The current research was conducted in accordance with the APA Code of Conduct (American Psychological Association, 2017) and the Declaration of Helsinki (World Medical Association, 2022). The local ethical review board approved the study. The study was not publicly preregistered but we followed the analysis plan from Landmann and Rohmann (2020) adapted for the additional variables. We report all data exclusions, all manipulations, and all measures in the studies. Anonymized data, codebook, syntax and questionnaire are stored in an OSF project (<https://osf.io/jfqht/>).

Method

A total of 223 members of the community in Germany were recruited via snowball technique including university mailing lists, Facebook and LinkedIn groups, as well as

climate activists' social media platforms (e.g. Signal). Participants gave informed consent and participated online. Sample size was determined based on a *Monte Carlo Power Analysis for Indirect Effects* (Schoemann et al., 2017). Effect sizes were estimated based on the average correlations from Landmann and Rohmann (2020, Study 1). The power analysis (3 mediators, $r_s = .40$, $1 - \beta = .80$, $\alpha = .05$) revealed that 170 participants would be required for the mediation analysis. We collected data from fifty additional participants to account for possible data exclusions. One participant did not pass the control question, which asked not to select any response to show that they have read the question. The remaining 222 participants (151 female, 67 male, 3 non-binary) were between 14 and 73 years old ($M_{age} = 33.8$, $SD = 14.7$). Thirty-five participants (15.8%) volunteered with and thirteen participants (5.9%) were employed in pro-environmental organizations.

Each participant received the same information about climate protests either via video, via text/music or via text only. As the variation of the medium did not affect the dependent variables, we collapsed the data-set over these conditions. After indicating how they felt and what they thought while receiving the information (see codebook at <https://osf.io/jfqht/>), participants indicated how intensely they experience a set of emotions towards different actors in the climate crisis as well as to what extent they agree with a set of statements concerning the topic. If not indicated differently, participants responded to these questions on 7-point scales ranging from 1 (*not at all*) to 7 (*completely/very much*).

Appraisals. General collective efficacy appraisals (*Together, people can significantly mitigate the climate crisis; People can work together to permanently stop the climate crisis; People can together, through joint effort, reduce the climate crisis*; 3 items, $\alpha = .76$) and injustice appraisals (*Continued environmentally damaging behavior as in the past is ethically unacceptable; The current climate-damaging behavior of people violates moral rules; People in the global North behave unfairly through their high consumption of resources*; 3 items, $\alpha = .83$) were adapted from Landmann and Rohmann (2020). In addition, participants responded to specific collective efficacy appraisals associated with the Fridays for Future protests (*Fridays for Future actions have a strong influence on political decisions; The Fridays for Future movement has a powerful impact on our society; Fridays for Future members can accomplish a lot together*; 3 items, $\alpha = .83$). Appraisals of meaningfulness were intermixed with these scales (see codebook at <https://osf.io/jfqht/>).

Emotions. Participants indicated how intensely they experience a set of 15 emotions (see Table 1) first towards those responsible for the climate crisis and again towards the Fridays for Future actions. We conducted principal component analyses with varimax rotation

on the emotion items for emotional reactions towards the climate crisis and for emotional reactions towards Fridays for Future protests separately. Both analyses revealed three factors with Eigenvalue > 1 explaining 66.91% (climate crisis) and 69.98% (Fridays for Future) of variance in the emotion items. Across the two contexts the items loaded differently on the three factors (see Table 1). Emotional reactions towards the climate crisis formed three factors, which represent anger, joy, and being negatively moved (i.e., a combination of being moved and negative emotions). Different from that, emotional reactions towards Fridays for Future formed three factors, which represent fear, sadness and being positively moved (i.e., a combination of being moved and positive emotions). Hence, whether being moved is associated with positive or negative emotions depends on the context. Based on these results, we created scales of anger towards those responsible for the climate crisis (3 items, $\alpha = .90$), being negatively moved by the climate crisis (9 items, $\alpha = .90$) and a scale of being positively moved by Fridays for Future (6 items, $\alpha = .87$).

Collective Action Intentions. Items addressing normative collective action intentions were adapted from Landmann and Rohmann (2020) and supplemented with non-normative collective action. Principal component analysis with varimax rotation revealed two factors with Eigenvalue > 1 explaining 65.70% of variance in the intention items. These factors represent normative collective action (*get involved in environmental protection initiatives; participate in a legal demonstration of Fridays for Future; support actions like those of Fridays for Future elsewhere; sign petitions for environmental protection; convince others to support environmental protection; follow the progress of events like Fridays for Future in the media*; 6 items, $\alpha = .85$) and non-normative collective action (i.e., *participate in non-violent but illegal actions (road blockades, etc.); participate in illegal actions where things could be damaged; participate in illegal actions where people could be harmed.*; 3 items, $\alpha = .82$).

Acceptance of Collective Action. Items addressing acceptance of collective action covered normative and non-normative action as well. Principal component analysis with varimax rotation revealed two factors with Eigenvalue > 1 explaining 75.88% of variance in the acceptance items. These factors represented acceptance of normative collective action (*Signing a petition; Registered and legal demonstrations*; 2 items, $\alpha = .86$) and non-normative collective action (*Non-violent but illegal actions (e.g. road blockades); Actions in which it is accepted that things are damaged (e.g. damage to property); Actions in which it is accepted that people come to harm (e.g. throwing objects)*; 3 items, $\alpha = .72$).

Identity. We assessed pro-environmental identity (*Acting environmentally friendly is an important part of who I am; I am the type of person who acts environmentally friendly; I*

see myself as an environmentally friendly person; 3 items, $\alpha = .89$; Van der Werff et al., 2013) and identification with Fridays for Future activists (*I feel committed to the group of activists*; *I am glad to be an activist*; *Being an activist is an important part of how I see myself*; *I identify with the group of activists*; 4 items, $\alpha = .93$, Postmes et al., 2013).

Involvement in the climate protests was assessed with five items representing different types of collective action. Participants indicated whether they had participated in each type of collective action via dichotomous variables (1 = *yes*, 0 = *no*). A total of 129 participants (58.1%) had supported collective action for climate protection by signing a petition, 101 participants (45.5%) had participated in a Fridays for Future demonstration, 27 participants (12.2%) had participated in peaceful but illegal actions like street blockage, 10 participants (4.5%) had participated in actions that involved property damage, and 7 participants (3.2%) indicated that they had participated in action in which it was accepted that people would be harmed.

At the end of the questionnaire, participants responded to the Meaning in Life Questionnaire (Steger et al., 2006, see codebook at <https://osf.io/jfqht/>).

Results

Differences between activists and non-activists. To explore how the dependent variables differ between activists and non-activists, two involvement groups were created from the involvement items: The activist group consisted of participants who had taken part in one or more Fridays for Future demonstrations ($N = 101$). The non-activist group consisted of all others ($N = 121$). We conducted ANOVAs with involvement (activists vs. non-activists) as predictor and appraisals, emotions, collective action intentions/acceptance and identification as dependent variables. Sensitivity analysis ($1 - \beta = .80$, $\alpha = .05$) with *G*power* (Faul et al., 2007) revealed that these ANOVAs ($N = 222$, two groups) were able to detect medium differences between groups ($\eta^2 = .03$). Results of the ANOVAs are displayed in Table 2.

Fridays for Future activists appraised the climate crisis as less fair and collective effort for climate protection as more effective – in general and specifically for the Fridays for Future protests. Accordingly, activists reported higher levels of anger and feelings of being negatively moved towards those responsible for the climate crisis and higher levels of being positively moved by the Fridays for Future protests than non-activists. Activists also identified more strongly with the group of activists but not with being a pro-environmental person. Furthermore, the Fridays for Future activists were more willing to take part in

normative as well as non-normative collective action and accepted both types of collective action more than non-activists.

Mediation analysis. To test the hypothesis that being moved mediates the effects of collective efficacy beliefs on collective action intentions and to explore whether this effect is specific to specific efficacy beliefs, feelings of being positively moved and normative collective action, we conducted a mediation analysis with *Mplus* bootstrapping (Muthén & Muthén, 2012). We adapted the analysis plan from Landmann and Rohmann (2020) for the additional variables. Accordingly, we specified a saturated model with injustice appraisals and efficacy appraisals as predictors, anger, being positively moved and being negatively moved as mediators and collective action intentions as dependent variables (see Figure 1). The results of the mediation analyses are displayed in Table 3, correlations between the variables are reported in the Supplemental Material (Table S1-S3).

In accordance with our hypothesis, the effect of specific efficacy appraisals on normative collective action intentions was partially mediated by feelings of being positively moved (*total effect* = .27, $p < .001$; *indirect effect* = .06, $p = .038$; *direct effect* = .20, $p < .001$). In addition, the effect of injustice appraisals on normative collective action intentions was partially mediated by feelings of being positively moved as well (*indirect effect* = .06, $p = .016$). General efficacy, feelings of being negatively moved and anger correlated with normative collective action intentions (Table S1) but did not significantly predict these intentions when controlling for the respective other variables in the mediation analysis (Table 3). Non-normative collective action intentions significantly correlated with injustice appraisals, anger and being positively moved (Table S1) but were not significantly predicted by appraisals or emotions in the mediation analysis (Table 3).

However, the *acceptance* of non-normative collective action was positively predicted by injustice appraisals and negatively predicted by specific efficacy appraisals (Table 3) although the three variables correlate positively (Table S1). This indicates that participants were more inclined to accept non-normative actions like street blockage or damage to property when they perceived the situation as unfair and at the same time thought that the Fridays for Future actions are ineffective. These associations between appraisals and acceptance of non-normative collective action were not significantly mediated by the considered emotions. Acceptance of normative collective action was not significantly predicted by appraisals or emotions in the mediation analysis (Table 3).

To account for the role of social identification in the SIMCA and the EMISCA model, we repeated the mediation analyses with activist identity as predictor (SIMCA version, Figure

S1) or as mediator (EMISCA version, Figure S2). Results are displayed in the Supplemental Material (Table S4, Table S5). In both versions, the hypothesized path via efficacy appraisals and feelings of being moved diminishes when controlling for activist identity.

In sum, the hypothesized emotional path from collective efficacy beliefs on collective action via feelings of being moved was found for specific collective efficacy beliefs (but not general collective efficacy beliefs), for feelings of being positively moved (but not feelings of being negatively moved) and for normative collective action intentions (but not for non-normative collective action intentions or acceptance of collective action) when considering appraisals and emotions (but not when controlling for activist identity).

Discussion

Dual process models of collective action (Van Zomeren et al., 2008; Thomas et al., 2009) propose a negative emotional path to collective action via injustice appraisals and anger and a non-emotional path to collective action via collective efficacy beliefs. The present research accords with the extension of this model (Landmann & Rohmann, 2020; Lizarazo Pereira et al., 2022) revealing a second emotional path to collective action via collective efficacy beliefs and feelings of being positively moved. Climate activists do not only experience negative emotions like anger towards those responsible for the climate crisis. In addition, they can be positively moved by climate protest. Fridays for Future activists were moved and positively overwhelmed by the idea that it is possible to change the situation together and this predicted their motivation for peaceful protest.

Specifying the Positive Emotional Path to Collective Action

The present research extends previous findings (Landmann & Rohmann, 2020; Lizarazo Pereira et al., 2022) by showing that the emotional path of being moved to collective climate action is specific to feelings of being *positively* moved. Participants were positively moved by the climate protests and negatively moved by those responsible for the climate crisis. This is consistent with the finding that people experience negative awe in response to frightening situations (e.g., Nakayama et al., 2020). However, the experience of being negatively moved did not predict collective action intentions. These feelings seem to serve functions different from collective action for climate protection.

The present research further demonstrates that the positive emotional path to collective action is specific to context-specific efficacy beliefs. Participants were positively moved to the extent they believed that the climate protests are effective. More general beliefs that humanity can together reduce climate change did not significantly predict feelings towards climate protests. This is in accordance with research that identifies different effects for

different types of collective efficacy beliefs (Hamann & Reese, 2020). Finally, being positively moved predicted normative but not non-normative collective action in the mediation analyses. Hence, being moved by peaceful protests seems not to facilitate more extreme action.

Nonetheless, these emotional paths to collective action, diminished when controlling for activist identity. This pattern of results may be explained by a very close link between emotions and identity: Being moved by climate protest may immediately affect identity, which then contributes to the motivation for further protest.

Activist Identity is more relevant for Collective Action than Pro-environmental Identity

Within the study, participants who had already taken part in at least one Fridays for Future demonstration identified more strongly as climate activist than others. Interestingly, activists and non-activists did not differ in their pro-environmental identity: Both groups perceived themselves as individuals who care for the environment and act accordingly. This finding is consistent with Landmann and Rohmann (2020) who found that activist identity but not pro-environmental identity was associated with collective action for forest protection. It also resonates with the finding that identification as environmentalist (Dono et al., 2010) and identification with nature (Mackay et al., 2021; Schmitt et al., 2019) are only indirectly associated with environmental activism via politicized identity. It seems that the evaluation of being a pro-environmental person is mainly based on individual consumption and conservation behaviour (Van der Werff et al. 2013; Whitmarsh & O'Neill, 2010) and relatively independent of the person's collective actions.

Low Collective Efficacy can be associated with Non-normative Collective Action

According to the DIME-model, perceived failure of a movement can have different consequences: Some people give up (Disidentification), others try more extreme methods (Innovation), convince others (Moralization), or continue protesting with even more energy (Energization) (Lizzio-Wilson et al., 2021). This claim is consistent with research showing that perceived ineffectiveness of peaceful protest predicts more extreme forms of protest (Saab et al., 2016; Tausch et al., 2011). The present research suggests that this process is relevant for climate protests as well. Persons who perceived the climate crisis as unfair and the Fridays for Future protests as ineffective, agreed more than others that illegal and even violent actions are acceptable. Hence, evaluating the effectiveness of peaceful climate protests as negative together with the awareness of the seriousness of climate change seems to open the door for more extreme actions.

The Role of Anger for Climate Protest

Anger has been identified as a reliable predictor of collective action in diverse contexts (Van Zomeren et al., 2008) including the Fridays for Future protests (Wallis & Loy, 2021). Nevertheless, anger did not significantly predict collective action when controlling for positive emotions in the present study. This accords with the minor role of anger for collective action for forest protection when considering positive emotions (Landmann & Rohmann, 2020) and for climate activism when controlling for hope (Feldman & Hart, 2016). By contrast, engagement in Extinction Rebellion groups is predicted by anger and not by hope (Furlong & Vignoles, 2021). Hence, the role of anger depends on the specific climate activist group. Climate activists from the Global North report about their attempts to transform their anger into something positive (Kleres & Wettergren, 2017). It seems that some activist groups establish a culture of peaceful emotion regulation which results in the dominance of positive emotions.

Limitations and Future Research

The present findings are based on comparison between activists and non-activists and mediation analysis of correlational data based on self-report. It can thus not reveal causal effects and it depends on the reliability of participant's introspection. The study was powered to identify the expected medium and large associations between the variables and medium differences between activists and non-activists. Smaller effects can only be investigated with a larger sample. To the extent that this is ethically acceptable, future studies could conduct experiments and observe actual protest behaviour. For instance, emotional expressions of climate protesters shown in video-recorded demonstrations could be analysed.

As most research on collective action, this study was conducted in a WEIRD society (Western, Educated, Industrialized, Rich, Democratic). We chose to conduct the present study in Germany because of the high numbers of Fridays for Future activists in this country. The focus on WEIRD societies, however, limits the generalizability of the results. In non-democratic systems, fear of repressions and courage to face dangerous situations may be relevant for protest motivation. It is possible that feelings of being negatively moved are more important in these contexts. It would be interesting to investigate if feelings of being positively moved push through despite the restrictive system or if they are particularly strong because protest in repressive contexts is more impressive.

Practical Implications

Social and structural change are indispensable for a social-ecological transformation that meets the 1.5°C target (Bamberg et al., 2015). Climate protest may play a key role for this transformation. The present research advances our understanding of what motivates

people to engage in climate protest. Climate activists are not only angry about the missed opportunities to combat climate change, they are also positively moved by the idea that they can change something together. Organizers of climate protests may consider this when developing protest campaigns. They can highlight the specific collective efficacy beliefs that were associated with positive feelings and collective action intentions in the present study. Furthermore, knowing that feelings of being moved are prevalent experiences of activists may be relevant for coaching. When activists perceive their emotions as shared with others this prevents activist burnout (Vandermeulen et al., 2022). Thus, sharing their moving experiences may help activists to cope with stressful situations.

The results of the present research show that being positively moved by Fridays for Future protests was not associated with non-normative (and violent) collective action. We could not find any sign of deindividuation or radicalization associated with these positive emotions. By contrast, perceiving these peaceful forms of protest as ineffective was associated with the acceptance of more extreme and violent forms of protest. This finding supports the view that the Fridays for Future protests provide a means for peaceful negotiation between generations, civil society as well as politics in handling climate change.

The finding that participants accepted non-normative (and violent) collective action more when they evaluated the Fridays for Future protests as ineffective, highlights the importance of identifying factors that lead to this negative evaluation of effectiveness. Gulliver et al. (2021) suggest that this evaluation may be based on goals directed at different audiences (i.e., self, supporters, bystanders, third parties, opponents) and different points in time (i.e., immediate, short- or medium-term, long-term goals). Reflecting about these – sometimes implicit goals – may help activists to keep their goals realistic and to avoid frustration as well as openness to more radical means.

Conclusion

Fridays for Future activists can be negatively moved and frightened by climate crisis but at the same time positively moved and touched by the climate protests. These feelings of being positively moved predicted the intention to engage in peaceful collective action. The acceptance of more extreme actions like street occupation and damage to property were increased when people who perceived the climate crisis as unfair arrived at the conclusion that peaceful protests are ineffective.

Declaration of Interest

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Data Availability

Anonymized data, codebook, syntax and questionnaire are stored in an OSF project (<https://osf.io/jfqht/>).

Author Contributions

HL and JN designed the study, JN programmed the study and collected the data, HL analysed the data and wrote the first draft of the manuscript, HL and JN revised the manuscript

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Table 1. Principal component analysis (varimax rotation) on emotional reactions towards those responsible for the climate crisis and towards the Fridays for Future protests

Emotion Item	Climate Crisis			Fridays for Future		
	Factor 1 (Negatively Moved)	Factor 2 (Anger)	Factor 3 (Joy)	Factor 1 (Fear)	Factor 2 (Positively Moved)	Factor 3 (Sadness)
angry	.309	.857	-.086	.555	-.270	.518
outraged	.303	.869	-.073	.683	-.127	.462
indignant	.274	.851	-.049	.569	-.151	.518
moved	.704	.216	.151	.048	.706	.290
overwhelmed	.676	.113	.111	-.097	.849	.091
stirred	.696	.135	.223	-.088	.814	.309
sad	.660	.289	-.027	.404	-.005	.726
downhearted	.681	.374	-.040	.403	.081	.704
blue	.673	.281	.014	.463	.053	.697
cheerful	.071	-.041	.887	.055	.712	-.444
happy	.107	-.019	.909	.005	.776	-.352
delighted	.059	-.112	.863	-.127	.802	-.281
afraid	.785	.173	-.013	.845	-.035	.177
scared	.783	.091	.038	.818	-.017	.248
frightened	.753	.240	.045	.842	.049	.171

Note. The largest loadings of the emotion items on the principal component factors are marked in bold.

Table 2. Differences between activists and non-activists

	Activists (N = 101)	Non-Activists (N = 121)			
Age	29.5 (13.9)	37.2 (14.5)			
Gender	32% male, 66% female, 2% non-binary	29% male, 69% female, 2% non-binary			
Appraisals			<i>F</i> (1, 220)	<i>p</i>	η^2
Injustice	6.26 [6.02; 6.51]	5.25 [5.03; 5.48]	35.35	<.001	.14
Efficacy Specific	5.04 [4.79; 5.29]	4.42 [4.19; 4.65]	12.88	<.001	.06
Efficacy General	5.74 [5.49; 5.99]	5.31 [5.08; 5.56]	6.40	.008	.03
Emotions	Activists	Non-Activists	<i>F</i> (1, 220)	<i>p</i>	η^2
Anger	5.68 [5.37; 5.99]	4.58 [4.29; 4.86]	26.79	<.001	.11
Being negatively moved	3.90 [3.64; 4.16]	3.11 [2.88; 3.36]	18.75	<.001	.08
Being positively moved	4.88 [4.58; 5.19]	3.70 [3.40; 3.95]	31.91	<.001	.13
Collective Action Intentions	Activists	Non-Activists	<i>F</i> (1, 220)	<i>p</i>	η^2
Normative	5.67 [5.43; 5.91]	4.15 [3.93; 4.37]	83.48	<.001	.28
Non-normative	2.24 [2.02; 2.47]	1.35 [1.14; 1.56]	32.73	<.001	.13
Collective Action Acceptance	Activists	Non-Activists	<i>F</i> (1, 220)	<i>p</i>	η^2
Normative	6.91 [6.72; 7.09]	6.64 [6.47; 6.80]	4.66	.032	.02
Non-normative	3.81 [3.57; 4.06]	2.45 [2.23; 2.68]	64.12	<.001	.23
Identification	Activists	Non-Activists	<i>F</i> (1, 220)	<i>p</i>	η^2
Activist	3.25 [2.92; 3.58]	1.81 [1.51; 2.10]	41.39	<.001	.16
Pro-environmental	5.19 [4.95; 5.43]	4.97 [4.75; 5.19]	1.74	.189	.01

Note. Mean age (standard deviation in parentheses) and percentages of male, female and non-binary persons are shown. For all other variables, means and 95% confidence intervals are displayed. Anger and being negatively moved were directed towards those responsible for the climate crisis; being positively moved was directed towards the Fridays for Future protests; Efficacy Specific = Efficacy of the Fridays for Future protests; Efficacy General = Efficacy of humanity to combat climate change

Table 3. Mediation analysis

	Collective Action Intention		Collective Action Acceptance		Emotions		
	Normative	Non- normative	Normative	Non- normative	Anger	Negatively Moved	Positively Moved
<i>R</i> ²	.58	.05	.09	.23	.46	.19	.37
Direct Effects							
Injustice Appraisals	.38***	.09	.23	.43***	.65***	.42***	.31***
Efficacy Beliefs (general)	.04	.03	.14	.04	.00	-.10	.13
Efficacy Beliefs (specific)	.20***	-.10	.03	-.20**	.07	.11	.30***
Anger	.14	.15	.02	.11			
Negatively Moved	.01	-.01	.01	-.09			
Positively Moved	.19**	.06	-.12	.08			
Indirect Effects							
Injustice → Anger	.09	.09	.01	.07			
Injustice → Neg.Moved	.01	.00	.01	-.04			
Injustice → Pos.Moved	.06*	.02	-.04	.03			
Gen.Eff. → Anger	.00	.00	.00	.00			
Gen.Eff. → Neg.Moved	.00	.00	.00	.01			
Gen.Eff. → Pos.Moved	.03	.01	-.02	.01			
Spe.Eff. → Anger	.01	.01	.00	.01			
Spe.Eff. → Neg.Moved	.00	.00	.00	-.01			
Spe.Eff. → Pos.Moved	.06*	.02	-.04	.03			

Note. Standardized estimates are shown. *** $p < .001$, ** $p < .001$, * $p < .01$. Gen.Eff. = General Efficacy Beliefs, Spe.Eff. = Specific Efficacy Beliefs, Neg.Moved = Negatively Moved, Pos.Moved = Positively Moved

```

graph LR
    IA[Injustice Appraisals] --> A[Anger]
    IA --> BN[Being Negatively Moved]
    IA --> BP[Being Positively Moved]
    GE[General Efficacy Appraisals] --> A
    GE --> BN
    GE --> BP
    SE[Specific Efficacy Appraisals] --> A
    SE --> BN
    SE --> BP
    A --> NCA[Non-Normative Collective Action]
    A --> NCA2[Normative Collective Action]
    BN --> NCA
    BN --> NCA2
    BP --> NCA
    BP --> NCA2
  
```

Note. Indirect paths specified in the mediation model are shown. In the saturated model we allowed for direct effects between appraisals and collective action as well as for correlations between appraisals, between emotions and between the collective action types.

Supplemental Material

This material supplements the publication: Landmann, H. & Naumann, J. (2023). Being positively moved by climate protest predicts peaceful collective action. *Global Environmental Psychology*

Table S1. Means, standard deviations, and correlations (complete sample)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Injustice Appraisals	5.71	1.36											
2. Efficacy (specific)	4.70	1.30	.46**										
3. Efficacy (general)	5.50	1.28	.50**	.48**									
4. Anger	5.08	1.67	.68**	.37**	.35**								
5. Negatively Moved	3.66	1.47	.43**	.27**	.19**	.55**							
6. Positively Moved	4.18	1.48	.51**	.51**	.43**	.57**	.46**						
7. Normative CA Intention	4.84	1.45	.69**	.54**	.46**	.60**	.41**	.59**					
8. Non-normative CA Intention	1.76	1.24	.18**	.03	.10	.20**	.11	.14*	.29**				
9. Normative CA Acceptance	6.76	0.93	.27**	.15*	.22**	.17*	.11	.09	.23**	.02			
10. Non-normative CA Acceptance	3.07	1.43	.44**	.07	.22**	.34**	.19**	.24**	.41**	.59**	.20**		
11. Pro-env. Identity	5.07	1.23	.24**	.19**	.07	.25**	.22**	.16*	.34**	.11	.00	.12	
12. Activist Identity	2.46	1.81	.28**	.26**	.12	.31**	.32**	.35**	.47**	.20**	-.02	.14*	.12

Note. * $p < .05$, ** $p < .01$, CA = Collective Action

Table S2. Means, standard deviations, and correlations (non-activist subsample)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Injustice Appraisals	5.25	1.51											
2. Efficacy (specific)	4.42	1.30	.52**										
3. Efficacy (general)	5.31	1.43	.63**	.58**									
4. Anger	4.58	1.80	.66**	.47**	.48**								
5. Negatively Moved	3.12	1.42	.38**	.32**	.32**	.59**							
6. Positively Moved	3.70	1.42	.52**	.51**	.45**	.63**	.48**						
7. Normative CA Intention	4.15	1.45	.64**	.57**	.59**	.57**	.31**	.58**					
8. Non-normative CA Intention	1.35	0.83	.04	-.06	.00	-.05	-.05	.01	.13				
9. Normative CA Acceptance	6.64	1.18	.27**	.16	.26**	.17	.07	.05	.23*	.03			
10. Non-normative CA Acceptance	2.45	1.16	.36**	.08	.21*	.15	.06	.13	.27**	.47**	.24**		
11. Pro-env. Identity	4.97	1.28	.22*	.22*	.12	.19*	.20*	.16	.35**	.01	.02	.05	
12. Activist Identity	1.81	1.44	.23*	.20*	.16	.28**	.32**	.33**	.36**	.09	-.06	.04	.01

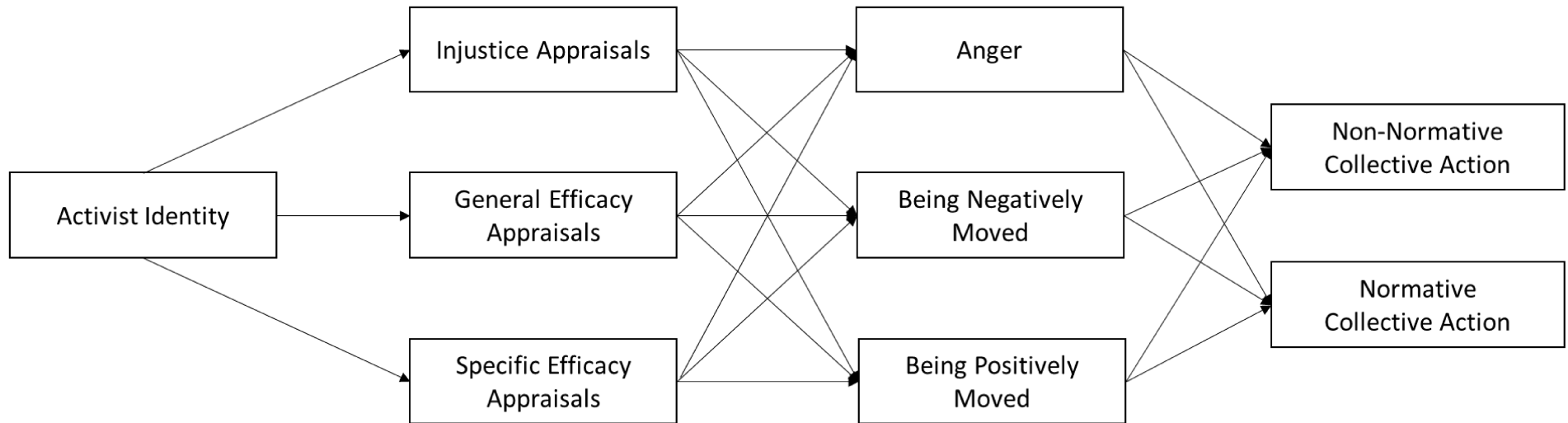
Note. * $p < .05$, ** $p < .01$, CA = Collective Action

Table S3. Means, standard deviations, and correlations (activist subsample)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Injustice Appraisals	6.26	0.87											
2. Efficacy (specific)	5.04	1.23	.22*										
3. Efficacy (general)	5.74	1.02	.03	.25*									
4. Anger	5.68	1.28	.57**	.05	-.06								
5. Negatively Moved	3.90	1.23	.32**	.03	-.28**	.40**							
6. Positively Moved	4.76	1.36	.30**	.41**	.33**	.33**	.20*						
7. Normative CA Intention	5.67	0.92	.54**	.42**	.05	.42**	.28**	.38**					
8. Non-normative CA Intention	2.24	1.46	.07	-.06	.08	.26**	.07	.02	.16				
9. Normative CA Acceptance	6.91	0.46	.04	.04	-.02	.00	.02	.03	-.03	-.17			
10. Non-normative CA Acceptance	3.81	1.37	.30**	-.17	.10	.33**	-.03	.06	.16	.55**	-.01		
11. Pro-env. Identity	5.19	1.17	.25*	.11	-.06	.31**	.17	.11	.36**	.14	-.09	.13	
12. Activist Identity	3.25	1.91	.06	.17	-.06	.14	.23*	.16	.34**	.06	-.22*	-.14	.19

Note. * $p < .05$, ** $p < .01$, CA = Collective Action

Figure S1. Mediation model including activist identity in line with the SIMCA model

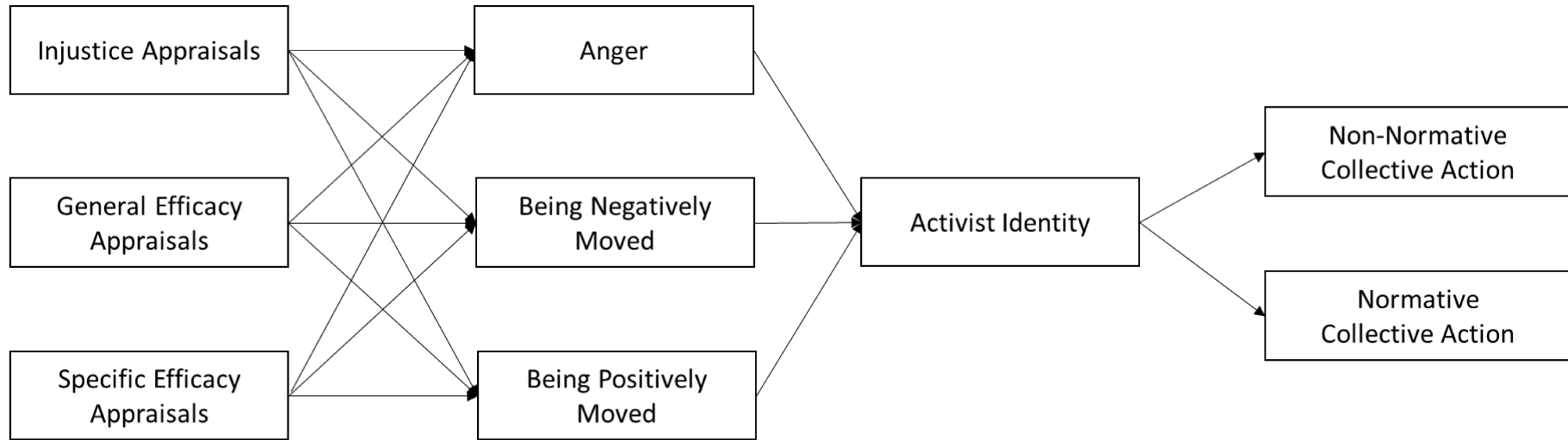


Note. Indirect paths specified in the mediation model are shown. In the saturated model we allowed for direct effects between activist identity, appraisals, emotions and collective action as well as for correlations between appraisals, between emotions and between the collective action types.

Table S4. Mediation analysis (SIMCA version)

	Collective Action Intention		Collective Action Acceptance		Emotions	Appraisals				
	Normative	Non-normative	Normative	Non-normative		Injustice	Efficacy (general)	Efficacy (specific)		
<i>R</i> ²	.63	.08	.10	.24	.48	.24	.40	.08	.02	.07
Direct Effects										
Activist Identity	.24***	.17*	-.10	.04	.13**	.24***	.19**	.28***	.12	.26***
Injustice Appraisals	.36***	.08	.24	.43***	.62***	.36***	.27***			
Efficacy Beliefs (general)	.06	.04	.13	.04	.01	-.09	.15*			
Efficacy Beliefs (specific)	.18**	-.12	.04	-.21**	.05	.07	.27***			
Anger	.13	.14	.02	.11						
Negatively Moved	-.04	-.04	.03	-.10						
Positively Moved	.14*	.03	-.10	.08						
Indirect Effects										
Injustice → Anger	.08	.09	.01	.07						
Injustice → Neg.Moved	-.02	-.02	.01	-.03						
Injustice → Pos.Moved	.04*	.01	-.03	.02						
Gen.Eff. → Anger	.00	.00	.00	.00						
Gen.Eff. → Neg.Moved	.00	.00	.00	.01						
Gen.Eff. → Pos.Moved	.02	.00	-.01	.01						
Spe.Eff. → Anger	.01	.01	.00	.01						
Spe.Eff. → Neg.Moved	.00	-.01	.00	-.01						
Spe.Eff. → Pos.Moved	.04	.01	-.03	.02						
Act.Ident. (total indirect)	.23***	.03	.08*	.10**						

Note. Standardized estimates are shown. *** $p < .001$, ** $p < .001$, * $p < .01$. Gen.Eff. = General Efficacy Beliefs, Spe.Eff. = Specific Efficacy Beliefs, Neg.Moved = Negatively Moved, Pos.Moved = Positively Moved, Act.Ident. = Activist Identity

Figure S2. Mediation model including activist identity in line with the EMISCA model

Note. Indirect paths specified in the mediation model are shown. In the saturated model we allowed for direct effects between appraisals, emotions, activist identity and collective action as well as for correlations between appraisals, between emotions and between the collective action types.

Table S5. Mediation analysis (EMISCA version)

	Collective Action Intention		Collective Action Acceptance		Activist Identity	Emotions		
	Normative	Non-normative	Normative	Non-normative		Anger	Negatively Moved	Positively Moved
<i>R</i> ²	.63	.08	.10	.23	.18	.46	.19	.37
Direct Effects								
Injustice Appraisals	.36***	.08	.24	.43***	.06	.62***	.36***	.27***
Efficacy Beliefs (general)	.06	.04	.13	.04	-.08	.01	-.09	.15*
Efficacy Beliefs (specific)	.18**	-.12	.04	-.21**	.11	.05	.07	.27***
Anger	.13	.14	.02	.11	.04			
Negatively Moved	-.04	-.04	.03	-.10	.21**			
Positively Moved	.14*	.03	-.10	.08	.19*			
Activist Identity	.24***	.17**	-.10	.04				
Indirect Effects								
Injustice → Anger	.08	.09	.01	.07				
Injustice → Neg.Moved	-.02	-.02	.01	-.04				
Injustice → Pos.Moved	.05*	.01	-.03	.02				
Injustice → Act.Ident.	.01	.01	-.01	.00				
Gen.Eff. → Anger	.00	.00	.00	.00				
Gen.Eff. → Neg.Moved	.00	.01	.00	.01				
Gen.Eff. → Pos.Moved	.02	.00	-.01	.01				
Gen.Eff. → Act.Ident.	-.02	-.01	.01	.00				
Spe.Eff. → Anger	.01	.01	.00	.01				
Spe.Eff. → Neg.Moved	.00	-.01	.00	-.01				
Spe.Eff. → Pos.Moved	.04	.01	-.03	.02				
Spe.Eff. → Act.Ident.	.03	.02	-.01	.01				

Note. Standardized estimates are shown. *** $p < .001$, ** $p < .001$, * $p < .01$. Gen.Eff. = General Efficacy Beliefs, Spe.Eff. = Specific Efficacy Beliefs, Neg.Moved = Negatively Moved, Pos.Moved = Positively Moved, Act.Ident. = Activist Identity