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Is hope good for motivating collective action in the context of climate change? Differentiating hope's emotion- and problem-focused coping functions

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ABSTRACT

Climate change may be the most fundamental collective action problem of all time. To solve it through collective action, collective motivation is required. Yet, given the complexity and scale of the collective problem, it may be difficult for individuals to experience such motivation. Intriguingly, the experience of *hope* may increase collective motivation and action. We offer an integrative coping perspective on hope and collective action in the context of climate change. It explains how hope stimulates individuals' collective motivation to act against climate change (serving a *problem-focused coping* function), or fails to do so (serving an *emotion-focused coping* function). Testing these competing hypotheses, we conducted three studies that experimentally manipulated a core antecedent of hope (i.e., the perceived possibility of change) among US participants (total N = 1020). Across the board, this manipulation increased individuals' hope but not their collective motivation and action. Furthermore, collective motivation predicted collective action intentions across all three studies. Hoping thus seems to serve an emotion-focused coping function and hence may not increase the collective motivation required for collective action in the context of climate change.

1. Introduction

Snyder (2002, p. 269): “A rainbow is a prism that sends shards of multicolored light in various directions. It lifts our spirits and makes us think of what is possible. Hope is the same—a personal rainbow of the mind.”

Climate change may be the most fundamental collective action problem of all time. To solve it through collective action (e.g., public demonstrations such as climate marches), collective motivation is required (i.e., based in identification with a relevant group; Van Zomeren, 2013). Given the complexity and scale of the collective problem, however, it may be difficult for individuals to experience such motivation. Yet *hope*, defined as the emotional experience of perceiving the possibility for change (Lazarus, 1991; Snyder, 1994; see also Bury et al., 2016), may increase collective motivation and action (Cohen-Chen and Van Zomeren, 2018), perhaps because it functions as a “rainbow in the mind”, as quoted above. Unfortunately, we know little about hope's effects in the context of climate change. The first goal of this article is to test whether hope is good for increasing collective motivation and action in this context. Its second goal is to offer an integrative coping perspective, which differentiates two potential *coping functions* (Lazarus, 1991, 1993) that connect, or do not connect, hope to collective motivation as identified in an integrative model of collective action (e.g., Van Zomeren, 2013). Hope's *problem-focused coping* function

implies that hoping induces the collective motivation that stimulates collective action (e.g., Greenaway et al., 2016). By contrast, hope's *emotion-focused coping* function implies that hoping wards off negative feelings of despair and hopelessness (i.e., a form of individual emotion regulation; Gross, 1998), which removes the need to act. To achieve both goals, we differentiated hope's coping functions in three studies, in which we experimentally manipulated the core appraisal of hope's emotional experience (i.e., perceived possibility of change). This set-up enabled us to test whether this manipulation increases hope, collective motivation and action intentions (the *problem-focused coping hypothesis*) or whether it increases only hope (the *emotion-focused coping hypothesis*).

1.1. Hoping as coping

Hope is elicited by the cognitive appraisal that a meaningful goal is possible to achieve in the future (Averill et al., 1990; Lazarus, 1991). We concur with Lazarus (1993, p. 653, emphasis added) in defining hope: “Although desire (or motivation) is an essential feature, hope is much more than this because it requires the belief in the possibility of a favorable outcome, which gives hope a cognitive aspect and distinguishes it from the concept of motivation, *per se*.” We prefer this definition to others that already assume that hope and agency are connected. Snyder (2002), for

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example, argued that “hope is a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals)” (p. 287). For present purposes, then, hope reflects the emotional experience of perceiving the possibility of climate change to change for the better. Adopting a coping perspective (Lazarus, 1991, 1993), the context of climate change represents a contextual threat or demand with which individuals need to cope. Individuals’ coping efforts (such as collective action) serve to successfully negotiate the person–environment relationship (e.g., social change). As Van Zomeren et al. (2012, p. 184, emphasis added) put it, “Although a coping perspective has been most regularly applied to individuals’ negotiation of their individual circumstances, individuals also cope with their group circumstances [...]. Thus, [...] collective disadvantages (e.g., higher taxes, *environmental issues*) are important contextual demands with which people cope.” Hope’s problem- and emotion-focused coping functions explain how people can cope in different ways (Lazarus, 1991, 1993). Problem-focused coping serves to change the external stressor and requires agentic action (Lazarus and Folkman, 1984); by contrast, emotion-focused coping serves to change the individuals’ appraisal of the stressor to regulate individuals’ emotions (see also Lazarus, 1999; Snyder, 2002). Hope’s problem-focused coping function is good for collective problem-solving, whereas its emotion-focused coping function is good for regulating individuals’ emotions (which does not solve the problem)

1.2. Problem- and emotion-focused coping

Hope’s problem-focused coping function corresponds to Snyder’s (2002) metaphor of hope as a “rainbow in the mind”, which strongly emphasizes thoughts about agency and pathways to goal achievement as antecedents of goal pursuit. Perceiving hope for social change is similarly thought to foster collective action (e.g., Tajfel and Turner, 1979; Wright, 2001). Włodarczyk et al. (2017) found that individuals’ hope was positively associated with their collective action intentions in the context of M-15 movement in Spain, whereas Greenaway et al. (2016) found that thinking about a hopeful aspect in participants’ personal lives increased their support for social change. Such piecemeal findings, although not focused on climate change, point to a problem-focused coping function of hope. There are indirect indications of hope’s potential emotion-focused coping function. Optimistic messaging about climate change may increase complacency (Hornsey and Fielding, 2016; Stern, 2012), but this research does not focus on the experience of hope. Other work examines hope as a response to the loss of loved ones, or finding oneself diagnosed with terminal illness (Lazarus, 1991; see Folkman, 2010), which seem rather different from coping with climate change. Nevertheless, Lazarus (p. 239, emphasis added) suggests that: “When stressful conditions are viewed by a person as *refractory to change*, emotion-focused coping predominates; when they are appraised as *controllable by action*, problem-focused coping predominates.” As the complexity and scale of climate change may make it difficult to perceive this problem as controllable by action, emotion-focused coping may predominate, and hence individuals may hope to regulate their emotions

1.3. Collective motivation and action in the context of climate change

Our coping perspective adds to work focused on raising individuals’ awareness and value of pro-environmental behavior (e.g., Steg and Vlek, 2009; Stern, 2000) as it suggests that solving a collective problem — certainly one of this complexity and scale — requires collective motivation and action (e.g., Bamberg et al., 2015; Fritsche et al., 2018; Hornsey and Fielding, 2016; Rees and Bamberg, 2014; Sloot et al., 2018; Van Zomeren et al., 2014), revolving around collective and public negotiation with governments or other power holders. We use the term collective motivation to refer to the predictors of collective action integrated in the *Social Identity Model of Collective Action* (SIMCA;

Van Zomeren et al., 2008; Van Zomeren et al., 2012). This model predicts that individuals’ *group identification* (i.e., individuals’ psychological ties to a group), their experience of *group-based injustice* (i.e., perceiving group-based injustice and/or feelings of anger), and their *group efficacy beliefs* (i.e., believing that the group can achieve its goals through joint action) uniquely predict their collective action (intentions). Van Zomeren et al. (2012) integrated individuals’ *moral conviction* (i.e., individuals’ attitudes that reflect their moral beliefs about right and wrong) into the SIMCA, because such convictions predict group identification, anger, efficacy and collective action (Van Zomeren et al., 2012; Wermser et al., 2018). Applying the SIMCA to the context of climate change is feasible because its scope stretches beyond traditional collective action contexts that revolve around disadvantaged groups (e.g., Klavina and Van Zomeren, 2018; Cakal et al., 2011, 2018; Van Zomeren et al., 2011, 2018). Integrating our coping perspective on hope with the SIMCA, we hypothesized that if hope has a *problem-focused* coping function, perceived possibility (as experimentally manipulated) should stimulate hope, but also collective motivation and action intentions. By contrast, if hope has an *emotion-focused* coping function, then it should increase only hope.

2. Study 1

2.1. Method

2.1.1. Participants and design

Participants were 288 (159 women, 129 men; average age = 38.32) MTurk workers. Study 1 was the first and only study in this line of research that included two manipulated between-subject factors (whereas Study 2 and 3 had one-factor designs): Whereas Study 2 and 3 manipulated perceived possibility of change (as the central appraisal of hope), Study 1 added a clarity manipulation that offered *clear* or *unclear pathways* to goal achievement (Snyder, 2002). Unlike the Possibility manipulation, the Clarity manipulation, did not increase hope and hence we dropped this manipulation from Study 2-3.

2.1.2. Manipulations and checks

To introduce the context, participants read a text under the heading of “The problem of climate change”. Then, participants were randomly assigned to the *possibility* and *clarity* manipulations, under the heading of: “Is there a solution?” Based on existing manipulations (Bury et al., 2016; Cohen-Chen and Van Zomeren, 2018), the text started with the possibility manipulation: “Recently, environmental experts have indicated that the ambitious targets needed to implement change in the form of environmental policies are a *possibility/not a real possibility* in the future. Model analysis suggests that it is *possible/nearly impossible* to achieve the 2°C climate target, with a likely chance, given the estimated 2020 emission level resulting from current implemented and planned policies.” The text continued with the clarity manipulation. For the clarity condition, it read: “The means to achieve this are very clear. ‘Strong determination by political actors and resolute and vocal public support for environmental policies will result in the positive projected outcomes. We have a clear understanding of the means needed to implement this change’ concluded a recent environmental report.” By contrast, for the lack of clarity condition, it was: “However, the means to achieve this are very unclear. ‘The shift from general commitments to concrete actions presents a major challenge, and it is unclear how to practically implement these changes’ concluded a recent environmental report.” Finally, we added the following sentence for the low possibility conditions only, in order to explain the perhaps rather unlikely combination of low possibility and high clarity: “Unfortunately, too many elements and external factors burden the process of reducing the heavy damage to the environment to the extent of almost impossibility’ concluded a recent environmental report.” After this, we included manipulation checks of perceived possibility ($r = .79$; “When I read the article, I thought that *solving the problem of climate change is possible in the*

long run / there is hope for the future when it comes to solving the problem of climate change”) and perceived clarity ($r = .78$; “When I read the article, I thought that it is clear how to solve the problem of climate change / what is needed to solve the problem of climate change”; (see also Supplementary Materials).

2.1.3. Measures

The online questionnaire contained informed consent, the questionnaire items and a debriefing. For our measures of **action intentions**, we included a measure of collective, public action intentions (e.g., joining a protest). The indicators of **collective motivation** were *moral conviction* (about climate change), *group identification* (with Americans, or with those in the US who share one’s opinion about climate change; e.g., Bliuc et al., 2015; Thomas et al., 2012, 2016), *group-based anger* (against those responsible for climate change) and *group efficacy beliefs* (i.e., Americans as a group). For explorative purposes, we included a measure of *participative efficacy beliefs*, which reflects the belief that one can meaningfully contribute to group efforts to achieve group goals (and make at least a, rather than the, difference (Van Zomeren et al., 2013). All scales were based on existing scales (e.g., Van Zomeren et al., 2013), consisted of multiple items, and were statistically reliable across the three studies. All items in Study 1 were assessed on 6-point Likert response scales (1 = “strongly disagree” and 6 = “strongly agree”) and can be found in the Appendix.¹ For hope, we used a 7-item measure ($\alpha = .84$); for group efficacy beliefs, we used 6 items ($\alpha = .81$); for participative efficacy beliefs, we used 2 items ($r = .89$). For group identification, we measured opinion-based group identification (4 items, $\alpha = .95$) and American identification (2 items, $r = .82$). Group-based anger was measured with 2 items ($r = .67$). Collective action intentions consisted of 4 items ($\alpha = .90$). Moral conviction was measured at the end of the questionnaire with two items ($r = .70$). Finally, we asked individuals an open-ended question about how they defined hope in the context of climate change, which enabled us to learn about hope’s subjective meaning. Because we also included this question in Study 2–3, we discuss the overall results in the *General Discussion*.

2.2. Results

Our analytical strategy was to first report mean-level analyses that test our hypotheses derived from hope’s problem- or emotion-focused coping function. Second, we report regression analyses to test whether the SIMCA indicators of collective motivation (moral conviction, and group identification, efficacy and anger) are positively related to one another and uniquely predict collective action intentions. We then explored which specific identity and efficacy variables were the more psychologically relevant indicators of group identification (opinion-based group or American) and efficacy beliefs (group or participative), and whether hope explains any unique variance in addition to the SIMCA. All means, standard deviations of key variables, as well as the correlations between them can be found in Table 1.

2.2.1. Analyses of means

We first checked whether our manipulations were successful. An Analysis of Variance (ANOVA) showed a significant effect of the possibility manipulation on the respective check: $F(1, 284) = 19.96$, $p < .001$, $\eta_p^2 = .07$; the clarity manipulation did not affect this check, $F(1, 284) = 0.03$, $p = .864$, nor did their interaction, $F(1, 284) = 0.12$, $p = .727$. Thus, as intended, stronger possibility was perceived in the possible ($M = 4.62$, $SE = .10$) than in the not possible condition

¹ The order of the measures was: manipulation checks, group and participative efficacy beliefs, hope, action intentions, emotions and group identification. Moral conviction was measured last in Study 1 and 3, and at the start of the study for Study 2.

Table 1
Descriptive statistics for Study 1.

| | <u>2.</u> | <u>3.</u> | <u>4.</u> | <u>5.</u> | <u>6.</u> | <u>7.</u> | <u>8.</u> |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1. Hope <i>M = 4.29, SD = 1.00</i> | .78 | .59 | .25 | .69 | .20 | .47 | .19 |
| 2. Group efficacy beliefs <i>M = 4.13, SD = 0.95</i> | | .69 | .26 | .66 | .25 | .50 | .30 |
| 3. Participative efficacy beliefs <i>M = 3.92, SD = 1.42</i> | | | .16 | .66 | .27 | .56 | .46 |
| 4. Group identification (American) <i>M = 4.68, SD = 1.16</i> | | | | .46 | -.09 | .09 | -.03 |
| 5. Group identification (opinion-based) <i>M = 4.32, SD = 1.37</i> | | | | | .25 | .61 | .45 |
| 6. Group-based anger <i>M = 3.33, SD = 1.47</i> | | | | | | .43 | .48 |
| 7. Moral conviction <i>M = 4.02, SD = 1.42</i> | | | | | | | .52 |
| 8. Collective action intentions <i>M = 2.63, SD = 1.47</i> | | | | | | | |

Note: Correlations in italics mean that those were not statistically significant ($p = .05$).

($M = 4.01$, $SE = .10$). Another ANOVA showed an effect of the clarity manipulation on the relevant check: $F(1, 284) = 19.69$, $p < .001$, $\eta_p^2 = .07$; the possibility manipulation did not affect this check, $F(1, 284) = 0.03$, $p = .868$, nor did their interaction, $F(1, 284) = 0.89$, $p = .348$. Thus, as intended, stronger clarity was perceived in the clarity ($M = 3.89$, $SE = .12$) than in the no clarity condition ($M = 3.17$, $SE = .12$). As such, both manipulations were successful. We then tested our hypotheses. As expected, an ANOVA showed a main effect of the possibility manipulation on hope, $F(1, 284) = 5.35$, $p = .021$, $\eta_p^2 = .000$. Specifically, individuals in the possible condition showed stronger hope ($M = 4.43$, $SE = .08$) than individuals in the not possible condition ($M = 4.16$, $SE = .08$). By contrast, we found no main effects of the possibility manipulation on any of the indicators of collective motivation and action: For group efficacy, $F(1, 284) = 1.95$, $p = .163$; for anger, $F(1, 284) = 0.34$, $p = .854$; for opinion-based group identification, $F(1, 284) = 0.21$, $p = .645$; for moral conviction, $F(1, 284) = 0.75$, $p = .387$; for collective action intentions, $F(1, 284) = 1.52$, $p = .218$; for American identification, $F(1, 284) = 0.52$, $p = .473$; and for participative efficacy beliefs, $F(1, 284) = 0.11$, $p = .741$. Together, these mean-level findings support the *emotion-focused coping hypothesis*. We found no main effects of the clarity manipulation on hope, or any of the indicators of collective motivation and action; nor were there interactions between the manipulations on any of these variables (all F s in between .00 and 1.16, all p s in between .28 and .99). This does not support the idea that perceiving clear pathways to goal achievement is a central aspect of hope (Snyder, 2002).

2.2.2. Explaining collective action intentions through SIMCA

We tested whether the SIMCA predictors predicted individuals’ collective action intentions. Before conducting these regression analyses, we inspected the correlations between the SIMCA predictors. As can be seen in Table 1, and confirming the SIMCA, these were all positive and significant, with the exception of American identification. This suggests that this group identity was not the most psychologically relevant one in this context — instead, opinion-based group identification seemed more relevant and we therefore used this variable in the regressions. In line with the SIMCA, moral conviction predicted collective action intentions ($\beta = .52$, $p < .001$), group-based anger ($\beta = .43$, $p < .001$), opinion-based group identification ($\beta = .61$, $p < .001$) and group efficacy beliefs ($\beta = .50$, $p < .001$). When entering the SIMCA predictors in the model, moral conviction ($\beta = .25$, $p < .001$), opinion-based group identification ($\beta = .27$, $p < .001$) and group-based anger ($\beta = .33$, $p < .001$) uniquely predicted collective action intentions. This was not the case for group efficacy beliefs ($\beta = -.08$, $p = .198$). We then explored whether *participative efficacy*

beliefs, which focus on individuals' own contributions to collective efforts without referring to "Americans" (as group efficacy beliefs did), would have more predictive power. When we replaced group efficacy with participative efficacy beliefs (which were, as expected, predicted by moral conviction: $\beta = .56, p < .001$), moral conviction ($\beta = .20, p < .001$), opinion-based group identification ($\beta = .14, p = .035$), group-based anger ($\beta = .31, p < .001$), and participative efficacy beliefs ($\beta = .17, p = .008$) uniquely predicted collective action intentions. To confirm that Americans may perhaps not be the most relevant group in this context, we reran our models with American identification (rather than opinion-based group identification) and found indeed that moral conviction did not predict American identification ($\beta = .09, p = .111$), and that American identification did not predict collective action intentions ($\beta = -.04, p = .395$). Thus, the relevant group identity here appeared to be the opinion-based group *within* the nation, rather than the broader nation itself, and this may also explain why participative efficacy beliefs outpredicted group efficacy beliefs. Finally, we tested whether hope predicted unique variance in collective action intentions. We thus reran the model with hope as an additional predictor, which showed that hope *negatively* predicted collective action intentions ($\beta = -.36, p < .001$), which supports its emotion-focused coping function.

2.3. Discussion

Study 1 showed first support for the emotion-focused coping hypothesis. Indeed, the possibility manipulation increased hope but not collective motivation and action intentions, and hope did not predict unique variance in collective action intentions. Study 1 further supported the application of the SIMCA to the context of climate change. However, group efficacy beliefs (about Americans as a group) and American identification did not predict unique variance in collective action intentions, suggesting that Americans was not the relevant group identity in this context. As these findings were explorative, we wanted to replicate and confirm them in Study 2. We thus aimed to replicate support for hope's emotion-focused coping function, and for the successful application of the SIMCA (specified to opinion-based group identification and participative efficacy beliefs) to the context of climate change.

3. Study 2

3.1. Method

3.1.1. Participants and design

Unplanned but certainly not trivial, Study 2 was conducted shortly after the US announced their withdrawal from the Paris Climate Accord in 2017. Participants were 251 MTurk workers. We excluded 13 participants from further analysis because they did not pass one or both of two attention checks, leaving a sample of 238 (132 men, 106 women; average age = 36.32). As noted, we reduced Study 2's experimental design to the possibility manipulation, which both conceptually and empirically seemed more central to hope.

3.1.2. Manipulation and checks

After reading a text under the heading of "The problem of climate change" (see Supplementary Materials), we manipulated perceived possibility under the heading of: "Is there a solution?", with the text for the *high possibility* condition being: "Even if the Trump administration withdraws from the agreement, it has little time to implement changes before the next presidential elections. Additionally, some states (California, Washington and New York) have pledged to implement the change in the form of environmental policies regardless of Trump's decision. It is therefore still a real possibility to achieve the 2 °C climate target. It is not too late for things to change." By contrast, in the *low possibility* condition the text read: "As the Trump administration

withdraws from the agreement, it has time to implement changes before the next presidential elections. Even though some states (California, Washington and New York) have pledged to implement the change in the form of environmental policies regardless of Trump's decision this is not enough — the entire country needs to be on board. It is therefore nearly impossible to achieve the 2 °C climate target. It may already be too late for things to change." The manipulation check included 4 items ($\alpha = .77$): "When I read the article, I thought that *solving the problem of climate change is possible in the short term / solving the problem of climate change possible in the long run / there is hope for the future when it comes to solving the problem of climate change / it is not too late to solve the problem of climate change*".

3.1.3. Measures

All items were assessed on 7-point Likert scales (1 = "strongly disagree" and 7 = "strongly agree"). As in Study 1, hope was measured with a reliable 7-item measure ($\alpha = .83$). For group efficacy beliefs, we used 6 items ($\alpha = .86$); for participative efficacy beliefs, we used 2 items ($r = .92$). For group identification, we measured American identification (2 items, $r = .84$), and opinion-based group identification with two additional, self-generated items to strengthen construct validity (6 items, $\alpha = .89$). Group-based anger was measured with 2 items ($r = .64$). Collective action intentions consisted of 4 items ($\alpha = .89$). Moral conviction was measured at the start of the questionnaire (i.e., before the manipulation) with four items ($\alpha = .91$), adding an often-used item (e.g., Skitka and Bauman, 2008) and one self-generated item to strengthen construct validity. As in Study 1, we asked individuals an open-ended question about how they defined hope in this context, which we discuss in the General Discussion.

3.2. Results

We used the same analytical strategy as in Study 1. All means, standard deviations of key variables, as well as the correlations between them can be found in Table 2.

3.2.1. Analyses of means

To check whether our manipulation was successful, an ANOVA showed the intended effect of the possibility manipulation on the relevant check: $F(1, 236) = 13.90, p < .001, \eta_p^2 = .06$, such that stronger possibility was perceived in the possible ($M = 6.35, SE = .15$) than in the not possible condition ($M = 5.58, SE = .15$). Thus, the manipulation was successful. Testing our hypotheses, ANOVA showed no effect of the possibility manipulation on hope, $F(1, 236) = 0.72, p = .397$. In

Table 2
Descriptive statistics for Study 2.

| | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|-----|-----|-----|-----|------|------|------|
| 1. Hope <i>M = 5.05, SD = 1.16</i> | .69 | .61 | .20 | .65 | .37 | .49 | .21 |
| 2. Group efficacy beliefs <i>M = 5.29, SD = 1.21</i> | | .71 | .16 | .70 | .54 | .62 | .31 |
| 3. Participative efficacy beliefs <i>M = 4.72, SD = 1.67</i> | | | .07 | .68 | .45 | .64 | .45 |
| 4. Group identification (American) <i>M = 5.17, SD = 1.58</i> | | | | .22 | -.13 | -.06 | -.18 |
| 5. Group identification (opinion-based) <i>M = 4.78, SD = 1.51</i> | | | | | .59 | .68 | .49 |
| 6. Group-based anger <i>M = 4.32, SD = 1.87</i> | | | | | | .60 | .47 |
| 7. Moral conviction <i>M = 4.89, SD = 1.63</i> | | | | | | | .47 |
| 8. Collective action intentions <i>M = 3.10, SD = 1.73</i> | | | | | | | |

Note: Correlations in italics mean that those were not statistically significant ($p = .05$).

line with Study 1, no other effects were found on any of the indicators of collective motivation: For group efficacy, $F(1, 236) = 2.33, p = .128$; for anger, $F(1, 236) = 0.74, p = .390$; for opinion-based group identification, $F(1, 236) = 1.76, p = .186$; for collective action intentions, $F(1, 236) = 0.43, p = .512$; for American identification, $F(1, 236) = 0.19, p = .663$; and for participative efficacy beliefs, $F(1, 236) = 1.45, p = .230$. There was no effect on moral conviction, $F(1, 236) = 0.71, p = .400$, as it was measured before the manipulation. Thus, perceived possibility did not induce hope in Study 2, and did not induce collective motivation and action either. These findings replicate support against the problem-focused coping hypothesis, but only partially supports the emotion-focused coping hypothesis.

3.2.2. Explaining collective action intentions through SIMCA

As can be seen in Table 2, and confirming the SIMCA, the correlations between the SIMCA predictors were all positive and significant, with the exception of American identification. Further in line with the SIMCA, moral conviction predicted collective action intentions ($\beta = .47, p < .001$), group-based anger ($\beta = .60, p < .001$), opinion-based group identification ($\beta = .68, p < .001$) and group efficacy beliefs ($\beta = .62, p < .001$). With all SIMCA predictors in the model, moral conviction ($\beta = .21, p = .010$), opinion-based group identification ($\beta = .33, p < .001$) and group-based anger ($\beta = .25, p < .001$) uniquely predicted collective action intentions. Group efficacy beliefs negatively predicted them ($\beta = -.19, p = .020$). We then, now confirmatory, replaced group efficacy with participative efficacy beliefs, as the latter also were predicted by moral conviction ($\beta = .64, p < .001$). With all SIMCA predictors in the model, moral conviction no longer predicted collective action intentions ($\beta = .11, p = .174$), and these intentions were non-significantly predicted by OBG identification ($\beta = .16, p = .064$) and significantly by group-based anger ($\beta = .24, p = .001$) and participative efficacy beliefs ($\beta = .17, p = .034$). Across the board, these findings are in line with the SIMCA (although weaker compared to Study 1), and confirm the relevance of participative over group efficacy beliefs. Moreover, opinion-based group identification seemed more relevant than American identification: Moral conviction did not predict American identification ($\beta = -.06, p = .341$), and American identification negatively predicted collective action intentions ($\beta = -.12, p = .039$). Finally, as in Study 1, we reran the model with hope as an additional predictor and found that hope non-significantly (yet if anything negatively) predicted collective action intentions ($\beta = -.15, p = .063$).

3.3. Discussion

Study 2 offered further yet weaker support for hope's emotion-focused coping function and for the application of the SIMCA to the context of climate change. Different from Study 1, however, the possibility manipulation did not increase hope itself, which we suspect was related to the salient reality constraints of the 2017 US announcement to withdraw from the Paris Climate Accords. We also suspected that these constraints may explain why Study 2 found that American identification and efficacy beliefs negatively predicted collective action intentions. We therefore wanted to replicate this study at a later point in time and with a larger sample size, as to enable a final test of our hypotheses and of the application of the SIMCA to the context of climate change.

4. Study 3

4.1. Method

4.1.1. Participants and design

Participants were 515 MTurk workers. We excluded 21 participants from further analysis because they did not pass one or both of two attention checks, leaving a sample of 494 (244 men, 250 women; average

age = 37.02). The design of the study was a 2 (Possibility: High versus Low) between-subjects design, with any participant randomly assigned to one of the two conditions.

4.1.2. Manipulation, check, and measures

The materials and manipulation were the same as in Study 2, and hence the check was also the same (4 items; $\alpha = .80$). All items were assessed on 7-point Likert scales (1 = "strongly disagree" and 7 = "strongly agree") and were the same as in Study 2. For hope, we used a reliable 7-item measure ($\alpha = .84$). For group efficacy beliefs, we used 6 items ($\alpha = .83$); for participative efficacy beliefs, we used 2 items ($r = .88, p < .001$). For group identification, we measured American identification (2 items, $r = .87$), and opinion-based group identification (6 items, $\alpha = .88$). Group-based anger was measured with 2 items ($r = .64$). Collective action intentions consisted of 4 items ($\alpha = .87$). Moral conviction was measured at the end of the questionnaire with four items ($\alpha = .90$). Finally, we asked individuals an open-ended question about how they defined hope, which we discuss in the General Discussion.

4.2. Results

We used the same analytical strategy as in Study 1–2. All means, standard deviations of key variables, as well as the correlations between them can be found in Table 3.

4.2.1. Analysis of means

To test whether the manipulation was successful, an ANOVA showed the intended effect of the possibility manipulation on the check: $F(1, 492) = 11.25, p < .001, \eta_p^2 = .02$, such that stronger possibility was perceived in the possible ($M = 4.79, SE = .08$) than in the not possible condition ($M = 4.42, SE = .08$). Thus, as in Study 1 and 2, the manipulation was successful. Testing our hypotheses, an ANOVA showed an effect of the possibility manipulation on hope, $F(1, 492) = 4.25, p = .04, \eta_p^2 = .009$. Replicating Study 1, the possible condition resulted in higher hope ($M = 5.08, SE = .07$) than the not possible condition ($M = 4.87, SE = .07$). Replicating Study 1 and 2, there were no other effects of the manipulation on any indicators of collective motivation: For group efficacy, $F(1, 492) = 2.19, p = .140$; for anger, $F(1, 492) = 1.59, p = .207$; for opinion-based group identification, $F(1, 492) = 1.24, p = .266$; for moral conviction, $F(1, 492) = 0.43, p = .513$; for collective action intentions, $F(1, 492) = 0.65, p = .422$; for American identification, $F(1, 492) = 2.05, p = .153$; and for participative efficacy beliefs, $F(1, 492) = 0.35,$

Table 3
Descriptive statistics for Study 3.

| | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|--|-----|-----|------|-----|------|------|------|
| 1. Hope <i>M = 4.97, SD = 1.12</i> | .73 | .66 | .07 | .53 | .33 | .47 | .27 |
| 2. Group efficacy beliefs <i>M = 5.21, SD = 1.12</i> | | .70 | .01 | .50 | .40 | .53 | .27 |
| 3. Participative efficacy beliefs <i>M = 4.70, SD = 1.62</i> | | | -.01 | .49 | .39 | .52 | .40 |
| 4. Group identification (American) <i>M = 4.93, SD = 1.59</i> | | | | .21 | -.23 | -.14 | -.22 |
| 5. Group identification (opinion-based) <i>M = 4.72, SD = 1.44</i> | | | | | .38 | .42 | .39 |
| 6. Group-based anger <i>M = 4.49, SD = 1.72</i> | | | | | | .59 | .50 |
| 7. Moral conviction <i>M = 4.87, SD = 1.59</i> | | | | | | | .50 |
| 8. Collective action intentions <i>M = 3.24, SD = 1.59</i> | | | | | | | |

Note: Correlations in italics mean that those were not statistically significant ($p = .05$).

$p = .554$. These findings support the emotion-focused coping hypothesis.

4.2.2. Explaining collective action intentions through SIMCA

As can be seen in Table 3, and confirming the SIMCA, the correlations between the SIMCA predictors were all positive and significant, except for American identification. Further replicating the SIMCA, moral conviction predicted collective action intentions ($\beta = .50$, $p < .001$), group-based anger ($\beta = .59$, $p < .001$), opinion-based group identification ($\beta = .42$, $p < .001$), and group efficacy beliefs ($\beta = .53$, $p < .001$). With all SIMCA predictors in the model, moral conviction ($\beta = .30$, $p < .001$), opinion-based group identification ($\beta = .22$, $p < .001$), and group-based anger ($\beta = .29$, $p < .001$) uniquely predicted collective action intentions. Group efficacy beliefs ($\beta = -.12$, $p = .013$) predicted them *negatively*. We then replaced group efficacy with participative efficacy beliefs, as the latter also were predicted by moral conviction ($\beta = .52$, $p < .001$). With all SIMCA predictors in the model, moral conviction ($\beta = .22$, $p < .001$), opinion-based group identification ($\beta = .14$, $p = .001$), group-based anger ($\beta = .27$, $p < .001$), and indeed participative efficacy beliefs ($\beta = .11$, $p = .019$) predicted collective action intentions. This effectively replicates the SIMCA's application to the context of climate change across our three studies. We reran these models with American identification in place of opinion-based group identification. Moral conviction negatively predicted American identification ($\beta = -.14$, $p = .003$), and American identification negatively predicted collective action intentions ($\beta = -.11$, $p = .005$). Finally, we reran the model with hope as an additional predictor, finding that hope did not predict collective action intentions ($\beta = .00$, $p = .961$).

4.3. Discussion

Study 3 replicated support for hope's emotion-focused coping function. As in Study 1, the possibility manipulation increased hope and, as in Study 1–2, did not increase any indicators of collective motivation and action; furthermore, hope did not predict unique variance in collective action intentions. As in Study 1–2, Study 3 once more showed the SIMCA's successful application to the context of climate change.

5. General discussion

The two goals of this research were to test whether hope is good for *increasing collective motivation and action intentions* in the context of climate change, and to offer an integrative coping perspective on hope's different *coping functions* (Lazarus, 1991, 1993) that explains why hope can or cannot be expected to produce such increases. Across three empirical studies (total $N = 1020$) conducted in 2016–2018 in the context of climate change in the US, we experimentally manipulated perceived possibility for climate change to change for the better, as a core appraisal of hope's emotional experience. The findings were consistently in line with the idea that hoping serves an emotion-focused coping function.² Perceiving possibility thus did not increase the collective motivation and action intentions toward solving the collective problem, but increased only hope, presumably to facilitate individuals' emotion regulation. Nevertheless, collective motivation indeed seemed pivotal to collective action, as the SIMCA was successfully applied to

this context (Fig. 1).

5.1. Implications

The first implication of our findings is that hoping, in this context at least, does not necessarily connect to the agency that Snyder (2002) portrayed as “rainbows in the mind”. Rather, hoping for climate change to change for the better may have an emotion-focused coping function, which can be quite a healthy coping response when “nothing useful can be done to change the situation” (Lazarus, 1993, p. 238). Perceiving the possibility of change may at least, for this reason, make individuals at least feel better about something negative (Gross, 1998; see Ford et al., 2019). Although we did not measure individuals' emotion regulation or well-being in our studies, a hypothesis worth testing is that hoping contributes to individual well-being, while failing to solve the collective problem. Second, this view of what hope is good for fits with our analysis of the subjective definitions of hope that participants generated in an open-ended format across the three studies (reflecting more than 1000 individual definitions and almost 20,000 words). In the Supplementary Materials, we list the words mentioned more than 20 times and visualized this in a word cloud to illustrate the words people used most. Aside from “hope” and “change”, frequently occurring words were “future”, “can”, “meaning”, “believe”, “people” and “positive”. This resonates with our scholarly definition of hope, and make clear that hope and agency should not necessarily be equated in the context of climate change. Third, our findings consistently supported the SIMCA's application to this context. Specifically, individuals' moral convictions, opinion-based group identification, group-based anger and participative efficacy beliefs predicted their collective action intentions. This adds to mounting evidence that the scope of the SIMCA stretches beyond traditional collective action contexts and populations (e.g., Klavina and Van Zomeren, 2018; Cakal et al., 2011, 2018; Van Zomeren et al., 2011, 2018), yet requires specifications (e.g., opinion-based group identification and participative efficacy beliefs). The SIMCA may also be a better fit to the context of climate change than other models, such as the Encapsulated Model of Social Identity in Collective Action (EMSICA; Thomas et al., 2012), which basically offers the same predictors as the SIMCA, but predicts no unique effects for group-based anger and efficacy beliefs. Our findings across the three studies offer support for such unique effects. Fourth, our findings emphasize the importance of collective motivations for collective action in the context of climate change (e.g., Bliuc et al., 2015; Thomas et al., 2016). Because the SIMCA seems to require specification in terms of which group identity is relevant in this context, the recently advanced Social Identity Model of Pro-Environmental Action (SIMPEA; Fritzsche et al., 2018) may offer fresh inspiration for follow-up research. This model suggests that any exogenous threat can make a specific group identity relevant, for instance in terms of opinion-based groups, but even humanity as a whole (e.g., McFarland et al., 2012; Reese et al., 2015). As such, SIMPEA may offer a useful framework for *a priori* predicting which group identities are likely to be relevant in the context of climate change. Fifth, our findings for participative efficacy beliefs suggest that in more complex contexts such as climate change, it may make little sense to expect rather abstract groups to make *the* difference, but one's personal contribution to collective efforts may at least make *a* difference (Rees and Bamberg, 2014). In this sense, participative efficacy beliefs may ironically serve more of a *problem-focused coping* function, and thus reflect more of a “rainbow in the mind”, than hope itself. Future research should test this hypothesis, for instance among those participating in climate marches. Sixth, our findings offer suggestions for mobilizing people for collective action against climate change in the US. For one, across our studies we found that the relevant group identity is opinion-based, rather than nation-based. This suggests that American mobilization campaigns may not benefit from targeting national identification, and are more likely to benefit from a focus on opinion-based groups. Furthermore, across the board individuals'

² Differentiating hope and optimism, Lazarus (1999) points to optimism as a confident perception or belief that things will generally turn out positively. While optimism focuses broadly on future outcomes in general, hope concentrates on a specific goal in the future (Bryant and Cvengros, 2004), and includes within it anxiety regarding the possibility that things will not improve. Based on this definition, we are clearly manipulating and measuring the discrete emotion of hope (e.g., Bury et al., 2016; Cohen-Chen et al., 2015).

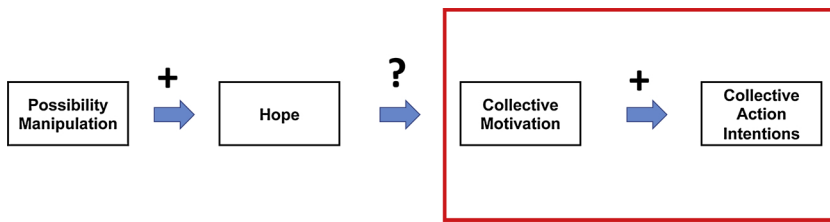


Fig. 1. Conceptual model integrating hope with the SIMCA in the context of climate change. Hope is represented as based in perceived possibility; its problem-focused coping function would be indicated by a positive relationship with the SIMCA, summarized in the red box; its emotion-focused coping function by a null relationship (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article).

group-based anger and participative efficacy beliefs uniquely predicted their collective action intentions, which implies that mobilization campaigns may also benefit from targeting them. Finally, our findings add to the accumulating insight that the *collective* problem of climate change requires a *collective* solution, and one such a solution may be *collective* action on the basis of *collective* motivation (e.g., Fritsche et al., 2018). This raises the question for those interested in achieving pro-environmental change which strategy may be the better one: To stimulate individual awareness of environmental issues to induce pro-environmental behavior (e.g., Steg and Vlek, 2009), or to stimulate collective motivation to induce collective, public action (Van Zomeren, 2013). Our findings indicate that the latter road may psychologically be possible to take, yet hoping does not seem to be the way to get us there.

5.2. Limitations and directions for future research

Our studies have at least five limitations. First, although we surveyed more than 1000 participants across our studies, this is not a *representative* survey of individuals from the US. Rather, we aimed to systematically test the internal validity of our hypotheses in a real-life context among sufficiently powered samples, which warrants solid but careful conclusions. Representative data would allow stronger inferences about whether our conclusions apply to the US population as a whole, although this was not our aim. Second, our findings may not *generalize* toward individuals outside the US. This is also a strong suit of our approach, as we consistently focused on the same context, topic, and type of sample in order to draw solid and careful conclusions. Restricting ourselves to this particular context makes sense because the US, as a world leader and global powerhouse, can potentially do a lot to solve the collective problem of climate change. Future research should further test our hypotheses outside of the US. Third, a critic may argue that intentions are “cheap” and that research should use *behavioral* measures of collective action. Although extending our findings toward behavior would be ideal and is certainly to be commended, its absence does not necessarily invalidate our findings. Van Zomeren et al.’s (2008) meta-analysis, for example, showed that although we may see “inflated” effect sizes when using intention rather than behavioral measures, these effect sizes are not zero and intentions are key predictors of actual behavior (Webb & Sheeran, 2006). Fourth, we acknowledge the relatively small *effect sizes* produced by the experimental manipulation on hope, although it is also true that effect sizes on the manipulation check were stronger. A stronger manipulation may therefore have produced statistically significant effects on collective motivation and action intentions. Nevertheless, this observation is less hopeful than it sounds, because such effects can be expected to be even smaller in magnitude than those on hope. Finally, we did not predict, and our experimental design does not enable us to make causal inferences for, higher-order interactions between hope and other predictors of collective action³. Future research may therefore use experimental designs in which hope and one or more SIMCA predictors are manipulated orthogonally, as to properly test for such interactions.

³ Aiming to replicate Cohen-Chen et al. (2015), we tested the hope by group efficacy beliefs interaction (see the Supplementary Materials). We do not replicate these findings, suggesting that the climate change context caters to hope’s emotion-focused coping function.

6. Conclusion

Our research integrated and applied insights from the hope and collective action literatures to the context of climate change, asking whether hope is good for collective action in this context. Our findings indicate that hoping for climate change to change for the better is likely to serve an emotion-focused coping function that regulates individuals’ emotions, but does not motivate people to act collectively. Nevertheless, our findings showed that collective motivation, in the form of the SIMCA, is absolutely pivotal for collective action. Hoping may thus make us feel better, but does not seem to mobilize us to solve what may be the most fundamental collective action problem of all time.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.gloenvcha.2019.04.003>.

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