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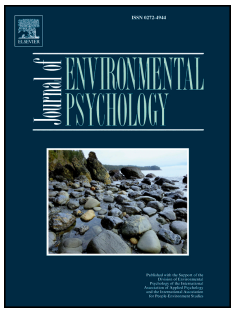

Redefining climate change inaction as temporal intergroup bias: Temporally adapted interventions for reducing prejudice may help elicit environmental protection

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Redefining climate change inaction as temporal intergroup bias: Temporally adapted interventions for reducing prejudice may help elicit environmental protection

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Abstract

The consequences of the environmental decisions we make today will bear upon future generations of people. We argue that the framing of climate change is inherently *intergroup* in nature and suggest a reason for inaction on climate change is the perception of future generations as an outgroup. We test whether a technique adapted from the realm of intergroup relations may provide a novel approach to encouraging more sustainable environmental conduct. In Study 1 we found that participants who completed a simple social categorization technique designed to reduce (temporal) intergroup bias subsequently displayed a heightened preference for sustainable goods in a product choice task. Study 2 replicated these results with an alternative measure of pro-environmental intentions, and confirmed that the effect of the intervention on environmental outcomes was explained by changes in intergroup perception.

KEYWORDS: Climate change, intergroup bias, social categorization, pro-environmental behavior

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The timeline of climate change stretches over several decades. Although expert predictions about the specific rates of change are not always in agreement, there is a general public perception that the most serious effects of climate change will not be seen for decades (e.g. Leiserowitz, 2005; Leiserowitz, Maibach, Roser-Renouf, & Smith, 2011; Lorenzoni & Pidgeon, 2006; Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007). This sense of temporal distance can act as a psychological barrier to environmental action (Gifford, 2011; Markowitz & Shariff, 2012; Spence, Poortinga, & Pigeon, 2012), and encourage the discounting of environmental risks (Svenson & Karlsson, 1989; Hendrickx, Van den Berg, & Vlek, 1993; Nicolaji & Hendrickx, 2003).

In this research we offer a new intergroup perspective on this problem. The consequence of the delay between cause and effect is that environmental damage fall upon members of a collective, or group, to which we do not belong – *future generations*. In his final address as US President, Barack Obama called for bolder action on climate change. To fail, he said, would "betray *future generations"* (Scientific America, 2017). Similarly, ahead of the United Nations Summit in Paris in 2015, Pope Francis described the destruction of the natural world for our own benefit as a sin against God and *future generations* (The Telegraph, 2015). We argue that the conception of climate change as something that affects future generations of people necessarily renders it an intergroup issue. To the extent that future generations can be construed as a social outgroup on a temporal dimension we contend that they will be party to all the ingroup-favoring biases that plague conventional intergroup relations.

One of the most powerful rules of behavior is that people are kinder to members of one's own groups (self-including 'in'-groups), than groups to which one does not belong (self-excluding 'out'-groups). This is true even group membership is arbitrary. Classic research within the Minimal Groups Paradigm demonstrates that merely distinguishing

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between people on the basis of their group affiliations appears to be sufficient to produce ingroup favoritism (Tajfel, Billig, Bundy, & Flament, 1971). This finding is important because it demonstrates that there is a psychological component to prejudice, beyond any economic, political or historical factors. The mere fact that that someone belongs to a different group to oneself is enough to like them less and discriminate against them. People are more likely to help ingroup members than outgroup members (De Dreu et al., 2010; Levine & Crowther, 2008), they are more willing to incur a personal cost to benefit ingroup versus outgroup members (Balliet, Wu, & De Dreu, 2014), and feel less angry about injustices to outgroup than ingroup victims (Batson, Chao, & Givens, 2009).

In the same way that members of different racial, national or religious groups are perceived as 'outgroups', we argue that members of future generations will also be perceived as (temporally) distant and differentiated. It follows that individuals may feel little obligation to act on their behalf. Protecting the environment, whether against climate change, or other environmental problems characterized by long-term negative consequences such as the depletion of fossil fuels, overfishing, deforestation etc., requires members of the present generation to make sacrifices and investments for the benefit of future generations. The present generation bears the cost of environmental action, while future generations can neither reciprocate for our actions, nor harm us in retribution for our inaction (Markowitz & Shariff, 2012). Indeed, research suggests that for sins of omission – of which inaction on climate change is a compelling example – group-serving tendencies may be exaggerated. Although individuals are generally hesitant about engaging in behaviors that would directly harm outgroup members, they are more comfortable indirectly harming outgroup members through their own inaction than they are ingroup members (Baron, 2012, see also Brewer 1999, 2000).

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It has previously been suggested that feelings of 'affinity' with future generations may foster more environmentally-friendly conduct (Wade-Benzoni, 2003; Wade-Benzoni & Tost, 2009). Wade-Benzoni (2008), for instance, measured participants' feelings of affinity with future others in a vignette based on a real life crisis in fisheries and found a positive association between participants' sense of affinity for future fishers and intergenerational beneficence in decisions concerning present fish consumption. Stronger 'generative concern' (that is, concern for and commitment to the well-being of future generations, McAdams & de St. Aubin, 1992), has also been shown to be positively associated with environmentalism (Jia, Alisat, Soucie, Pratt, 2015; Matsuba et al., 2012; Urien & Kilbourne, 2011). In this research we consider how intervention techniques developed in the realm of intergroup relations may offer a means to increase individuals' regard for future generations as a temporal outgroup and thereby encourage more sustainable conduct.

Our intervention approach derives from the social categorization approach to prejudice reduction. Central to this approach is the notion that the cognitive-perceptual processes that facilitate discrimination (i.e. the salience of intergroup boundaries) can also provide the solution. If categorization affords a psychological basis for understanding 'them' to be different to 'us', and it is this distinction that provides a prerequisite for intergroup discrimination, then it follows that reducing cognitive differentiation between ingroups and outgroups should decrease intergroup bias (Gaertner & Dovidio, 2000; Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Gaertner, Mann, Dovidio, Murrell, & Pomare, 1990). This basic idea is central to both social identity theory (Tajfel & Turner, 1986), and self-categorization theory (Turner; 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), and underpins social psychological interventions targeted at reducing prejudice. Manipulations of superordinate identity (Gaertner & Dovidio, 2000), intergroup contact (Brewer & Miller, 1984; Hewstone & Brown, 1986; Pettigrew, 1998), cross-categorization (Crisp & Hewstone,

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1999; Deschamps & Doise, 1978) and perspective-taking (Dovidio et al., 2004) all function, albeit through different methods, to blur intergroup boundaries and create a new sense of similarity to outgroup members. In this project we seek to test these principles in a new, temporal intergroup context and apply them to the key issue of environmental sustainability.

The Present Research

We argue that reducing ingroup-favoring biases and increasing concern for future generations is an important avenue for the enhancement of pro-environmental, intergenerational action. Our bias-reduction technique is adapted from work by Crisp and colleagues (Crisp & Beck, 2005; Hall, Crisp, & Suen, 2009). It requires participants to think of, and list, five things that members of the ingroup and members of the outgroup have in common. This simple manipulation has been shown to reduce bias in a number of 'traditional' intergroup contexts. It works by increasing individuals' perceptions of similarity to the outgroup (i.e. perceived intergroup overlap).

An initial pilot study sought to confirm that this technique could be successfully applied to increase perceived overlap, or similarity, to future generations and in doing so, boost evaluation of this temporal outgroup. Study 1 then explores the effect of this technique on environmental outcomes. Specifically, we examined whether participants who completed the bias-reduction technique will respond to a subsequent call to protect the planet for future generations with heightened preference for sustainable goods in a product choice task. Study 2 sought to replicate these results with an alternative measure of pro-environmental intentions and confirm that the effect of the intervention on environmental outcomes could be statistically explained by changes in intergroup perception.

Pilot Study. A total of 140 participants were recruited from the USA via Amazon's Mechanical Turk (MTurk). One participant was excluded for not completing the manipulation in full. The final sample consisted of 78 males and 61 females aged between 19

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and 74 (*M* = 35.52, *SD* = 11.13). Participants were randomly assigned to either the experimental (*n* = 70) or control condition (*n* = 69). Participants in the experimental condition were instructed to take a few minutes to "*think of five things that people from future generations and people from the present generation may have in common. That is, characteristics shared between the two generations*". Participants in the control condition completed a standard control task in which they generated characteristics that overlapped between two irrelevant categories – in this case, cats and dogs (Crisp & Beck, 2005; Hall et al., 2009).

After completing the manipulation participants completed an adapted "Inclusion of the Other in the Self" scale (IoS, Aron, Aron, & Smollan, 1992, see also Tropp & Wright, 2011). Participants were presented with seven pairs of increasingly overlapping circles, one of which represented themselves, and one which represented 'future generations'. They were asked to indicate how similar they felt to members of future generations by circling appropriate pairs of circles (1 = *no overlap*, 7 = *highest degree of overlap*). This measure has been shown to correlate highly with verbal measures of perceived similarity (Schubert & Otten, 2002) and captures the mechanism through which differentiation-reduction interventions exert their positive influence on intergroup evaluations (i.e., they bring the outgroup, like existing members of the ingroup, closer to the self). Outgroup evaluation was measured with the General Evaluation Scale (Wright, Aron, McLaughlin-Vope, & Ropp, 1997). Participants indicated how they felt towards people from future generations in general on six, seven-point semantic differentials (*cold-warm, suspicious-trusting, positive-negative, friendly-hostile, respect-contempt and admiration-disgust.* Items were recoded such that higher scores always indicated more positive outgroup evaluation (α = .93).

Independent samples *t*-tests confirmed that participants in the experimental condition reported significantly higher perceptions of similarity to the outgroup (*M* = 4.20, *SD* = 1.49)

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compared to the control condition (M = 3.52, SD = 1.58), t (137) = 2.61, p = .010, d = .44, 95% CI [0.11, 0.78]. Outgroup evaluation was also significantly higher in the experimental condition (M = 5.30, SD = 1.09), relative to the control (M = 4.90, SD = 1.11), t (137) = 2.15, p = .034, d = .36, 95% CI [0.03, 0.70]. A mediation analysis was then conducted to confirm that the ability of the differentiation-reduction technique to improve evaluation of the temporal outgroup was driven by its effect on perceived similarity to the outgroup. Hayes' (2013) PROCESS macro for SPSS (Model 4) was used to conduct the analysis. Based on bootstrapping with 5,000 resamples the mean estimate for the indirect effect was .20 (SE = .09) with a 95% confidence interval of .0512 to .3980. As zero did not fall within the confidence intervals the results indicate significant mediation. Full path estimates are displayed in Figure 1.

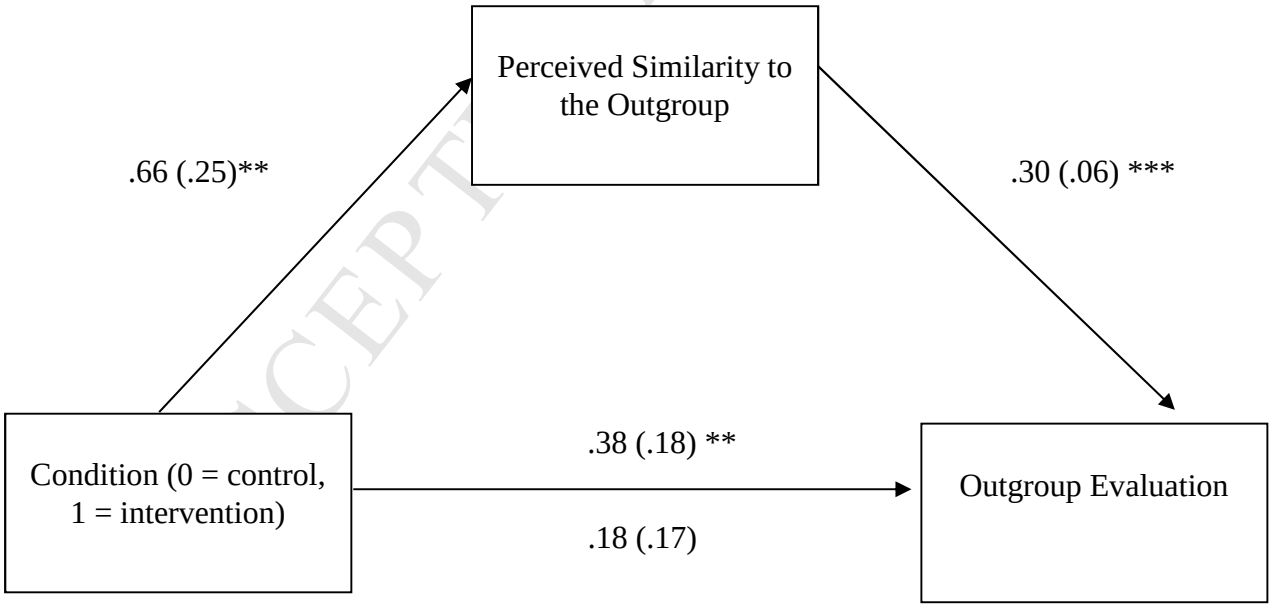

Figure 1. Mediational model of the relationship between intervention condition and outgroup evaluation through perceived similarity to the outgroup (Pilot Study)

Note: Path estimates represent unstandardized coefficients. Standard errors presented in parentheses. *p < .10 **p < .05 *** p<.01.

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Study 1

Having established the basic efficacy of our technique for improving temporal intergroup attitudes, Study 1 was designed to test the impact of the technique on environmentally-relevant outcomes. Specifically, we used a product choice task to test whether participants would be more willing to make adjustments to their environmentally-relevant behaviors after completing the social categorization intervention.

Methods

A sample of undergraduate participants was recruited from a UK University. The sample consisted of 80 participants, including 8 males and 72 females, aged between 18 and 45 (M = 19.44, SD = 3.15). The data from all participants were included in the analyses and no exclusions were required. Participants were randomly assigned to the experimental (n = 40) or control condition (n = 40).

The experimental manipulation was identical to that used in the pilot study. Participants were asked think of, and list five things that people from the present generation and people from future generations may have in common. We varied the control condition in Study 1. In the pilot study participants in the control condition were asked to think of characteristics that overlapped between cats and dogs. It is possible that these categories would activate biospheric concerns, with animals being considered as part of the natural world (Stern & Dietz, 1994). In the main experimental studies participants were therefore asked to think of overlapping characteristics between two sporting activities: football and rugby, which were expected to be unaffected by environmental concerns.

Following the manipulation, participants were given brief information about global environmental change and were told, “Present day consumption is changing the climate and depleting natural resources. The consequences of environmental damage will fall upon future generations of people”. Participants then completed a product

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choice task (adapted from van der Werff, Steg & Keizer, 2013, 2014) in which they were asked to indicate their preference for one of two product options. One option was a sustainable choice, which was 10% more expensive than the other, unsustainable, option. A total of eight choices were offered. Items were adapted from van der Werff and colleagues original items, so as to include a range of low, mid and high price items. Specifically participants indicated whether they would choose the sustainable or the unsustainable option for *a pair of jeans, a pint of milk, a laptop, a deodorant, a light bulb, a bicycle, some detergent* and *a mobile phone*. For example, participants could choose between a laptop for £600 which is produced unsustainably, or a laptop for £660 that is produced sustainably. The dependent measure was the number of times the participant selected the sustainable option (M = 5.35, SD = 2.09)[1].

Results

It was expected that participants would display a heightened preference for sustainable products when they had first completed the social categorization task (vs. control). To test this hypothesis, an independent samples *t*-test was conducted. In line with predictions, participants in the experimental condition selected more sustainable products (M = 5.85 SD = 2.13) than those in the control (M = 4.85, SD = 1.95), t (78) = 2.19, p =.032, d = 0.49, 95% CI [0.04 to 0.93].

Study 2

Study 2 sought to replicate and extend the results of Study 1. While Study 1 focused specifically on sustainable purchasing preferences, Study 2 examined a broader range of pro-environmental intentions. Moreover, we also sought to confirm the process underlying the effect of the intervention on environmental outcomes. If our technique encourages pro-environmental responses *because* of its effects on temporal intergroup perception, a measure of the former should mediate the impact of the former on the latter. Study 2 tested this

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hypothesis. Specifically, we sought to demonstrate that our social categorization technique encourages environmental action because it makes individuals feel more similar to future generations and therefore like them more. We predicted and tested a serial mediational model in which the effect of the bias-reduction task on environmental outcomes would be explained by the sequential mediation of perceived similarity, and outgroup evaluation, in turn.

Methods

A total of 184 participants were recruited via a British online recruitment platform, Prolific Academic. One participant was removed from the final analyses for not completing the manipulation in full. The final sample consisted of 183 participants, 110 females and 73 males, aged between 18 and 71 (M = 30.15, SD = 10.70). Participants were randomly assigned to either the experimental (n = 91) or control condition (n = 92). The manipulations were identical to that in Study 1. Participants in the experimental condition listed five things that members of the present generation and members of future generations may have in common, while those in the control condition listed five characteristics shared between two irrelevant categories, football and rugby.

Participants then completed the dependent variables. We measured both intergroup and environmental outcomes in Study 2. To measure perceived similarity to the outgroup, participants completed an adapted IoS scale (Aron et al., 1992, Tropp & Wright, 2011) as used in the pilot study. Outgroup evaluation was measured with a feeling thermometer scale (Haddock, Zanna, & Esses, 1993). Feeling thermometers are also widely used in the intergroup relations literature to provide a global measure of group feelings (Lolliot et al., 2014). Participants were asked to indicate how warm (favorable), or cold (unfavorable) they felt towards people from future generations on a scale from 0 ° to 100 °. Participants were then presented with the same environmental information used in Study 1 and reported how likely it was that they would perform a number of environmental behaviors in the next year.

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The measure was adapted from Gifford and Comeau (2011). It consisted of 11 items which covered both residential and transportation behaviors. Sample items include: *Switch off lights when not in use, Set the thermostat at 20°C or lower in the winter, Buy local foods when possible, Wash and dry only full loads, Get around without a car (walk, bike, carpool) when possible*. Participants rated their intention to engage in each behavior on a 7-point scale (1 = *not at all likely*, 7 = *very likely*, α = .78).

Results

A series of independent samples *t*-tests were conducted to examine the direct effect of the differentiation-reduction task (vs. control) on each of the dependent variables. In line with predictions, individuals in the experimental condition reported significantly higher perceived similarity to the outgroup (M = 4.63, SD = 1.29), relative to the control (M = 4.24, SD = 1.25), $t(181) = 2.06$, $p = .041$, $d = .31$, 95% CI [0.01, 0.60]. Participants in the experimental condition also evaluated the outgroup significantly more positively on the feeling thermometer scale (M = 68.62, SD = 16.39), relative to the control (M = 62.35, SD = 16.76), $t(180) = 2.55$, $p = .012$, $d = .38$, 95% CI [0.09, 0.67][2] . Finally, pro-environmental behavioral intentions were also marginally significantly higher in the experimental condition (M = 4.76 = SD = 0.95) compared to the control, (M = 4.51, SD = 1.00), t (181) = 1.75, $p = .082$, d = .26, 95% CI [-0.03, 0.55].

A mediational analysis was then conducted with two serial mediators using Hayes (2013) PROCESS macro for SPSS (Model 6). Figure 2 shows the full coefficients for the model with experimental condition as the independent variable, and perceived similarity and outgroup evaluation as multiple mediators operating in sequence on the dependent variable, environmental behavioral intentions. The path coefficients indicate that the differentiation-reduction task exerted a significant effect on perceived similarity to the outgroup. Perceived similarity predicted evaluation of the outgroup, which was then positively associated with

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pro-environmental behavioral intentions. The mean estimate for the serial indirect effect of imagined contact on pro-environmental behavioral intentions was .18 (SE = 0.15), with a 95% confidence interval of .0037 to .0827. Since zero fell outside of this interval, it can be concluded that the effect of the differentiation-reduction task on pro-environmental behavioral intentions was explained by increased perceived similarity and improved outgroup evaluation, in turn. When including in the two mediators in the model, the direct effect of the task on pro-environmental behavioral intentions became non-significant (p = .224). Both specific indirect effects were also non-significant. That is, the effect of the intervention on environmental intentions through perceived similarity only (b = -.01, SE = .03, 95% CI [-.0677 - .0476), or through outgroup evaluation only (b = .05, SE = .03, 95% CI [-.0007, .1400]).

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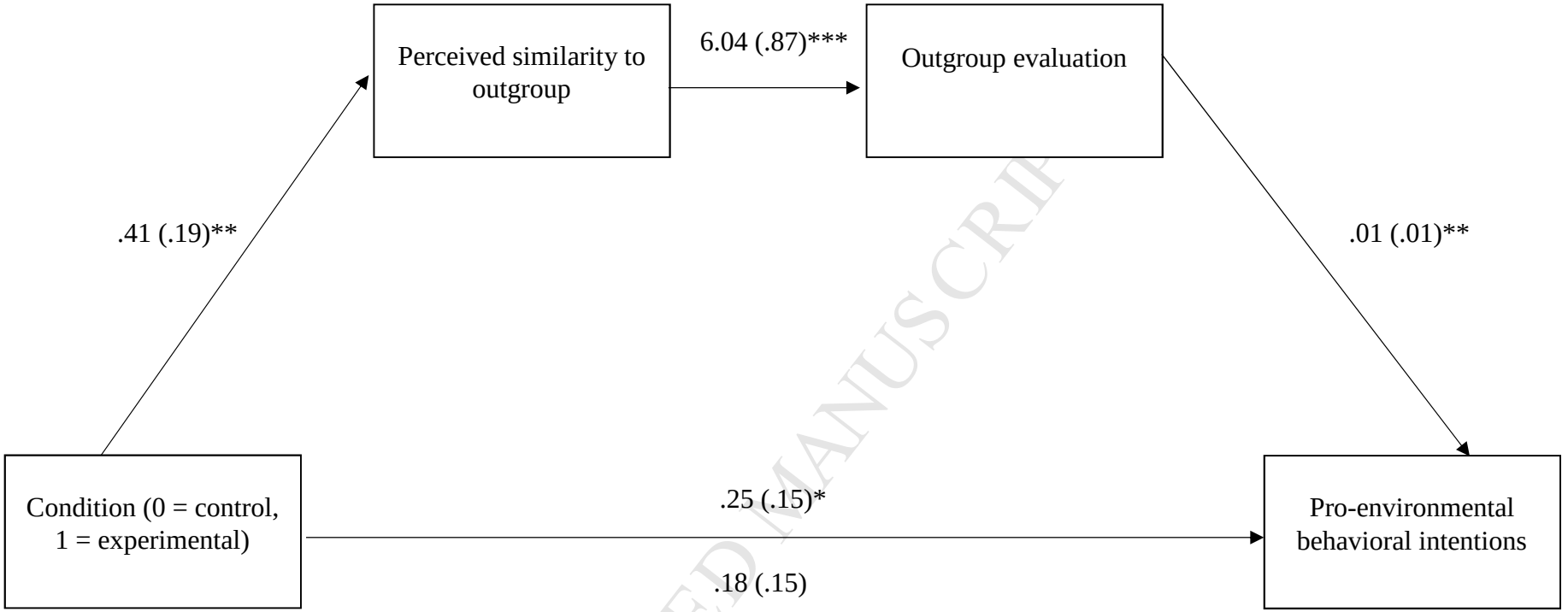

Figure 2. A serial mediation model tested in Study 2 in which the intervention (independent variable) exerts an indirect effect on pro-environmental behavioral intentions (dependent variable) through perceived similarity to the outgroup (Mediator 1) and outgroup evaluation (Mediator 2).

Note: Path estimates represent unstandardized coefficients. Standard errors presented in parentheses.

*$p < .10$ **$p < .05$ *** $p<.001$

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General Discussion

The conception of climate change as something that affects future generations of people renders it an intergroup issue. Drawing on a large literature on social categorization and intergroup behavior we expected that a technique designed to blur intergroup boundaries would increase regard for future generations and, in doing so, motivate more sustainable conduct. In line with predictions, we found that our intervention approach successfully increased perceptions of intergroup similarity, and in so doing, improved evaluation of the temporal outgroup. As a result of these changes in intergroup perception, individuals subsequently responded to a plea to protect the planet for future generations with heightened environmental preferences and intentions.

The present findings demonstrate how importing theoretical concepts from research on intergroup relations can enrich approaches to encouraging sustainable environmental conduct. Communications regarding the risks and implications of climate change are increasingly being utilized in order to encourage more sustainable conduct, and we know that the way in which these messages are framed can considerably alter their effects (Spence & Pidgeon, 2010). Communications regularly cite concerns about the consequences of climate change for future generations (Dessler & Parson, 2006). The present findings suggest that we may be able to more effectively encourage people to engage in sustainable behavior on behalf of future generations if we first overcome an ingroup-favoring bias. Specifically, practitioners and policy makers should consider designing climate change communication in a way that highlights and aids perceptions of temporal intergroup overlap. Framing the victims of climate change in a way that underscores shared goals and identities will increase their standing, and with that, our motivation to help them.

This research also makes a key theoretical contribution to environmental psychology. Specifically, the idea of expanding the boundaries of the traditional concept of intergroup

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relations to include a *temporal* dimension enables us to consider conflicting interests of groups who do not exist contemporaneously. As noted earlier, this temporal dimension is key to environmental issues, and as such our temporal intergroup relations model provides a conceptual bridge that opens a whole range of possibilities for future integrative research. For instance, what is unique about this intergroup context is that members of the outgroup are also our descendants. Research suggests that cognitive representations of one's self and close others are naturally interconnected (Aron et al., 1992). If the members of the temporal outgroup are framed in terms of a common group membership such as a family unit (e.g. '*our children'* or '*our grandchildren'*) it follows that they will be accorded the same positive evaluations and behaviors usually reserved for the ingroup. While we take a more depersonalized approach in the current investigation, future research should go on to empirically examine how framing future generations in terms of superordinate family groups may provide a complementary application of these principles.

We adopted a social categorization approach in this particular investigation. However, there are also other methods of reducing intergroup conflict. Having now created the theoretical and conceptual bridge between the intergroup relations and environmental domains, future research should go on to consider to how other bias-reduction techniques could be used to increase individuals sense of affinity with future generations. Another strategy for bringing the outcomes of future generations closer to oneself may involve mentally putting oneself 'in the shoes' of future generations; that is, perspective-taking. Adopting another's perspective and imagining how that person is affected by their situation has been shown to heighten perceptions of self-other overlap (Galinsky & Moskowitz, 2000) as well as produce feelings of empathy for outgroup members (Batson, 1991). These affective and cognitive processes enable corresponding improvements in both intergroup attitudes, and helping behavior toward the outgroup (Batson, 1991; Galinsky, Ku, & Wang, 2005).

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Similarly, although not necessarily conceived as an intergroup approach, some research suggests that when people reflect on the legacy they are leaving for future generations, they report greater concern for climate change, and are more willing to donate proceeds of their participation payment to pro-environmental causes (Wade-Benzoni, Tost, Hernandez, & Larrick, 2012; Zaval, Markowitz, & Weber, 2015).

Future research should also consider potential moderators of intervention efforts. Previous research has shown that feelings of affinity with future generations, or 'generative concern' is an important predictor of environmentally-friendly conduct (e.g. Wade-Benzoni, 2008; Jia et al., 2015; Matsuba et al., 2012; Urien & Kilbourne, 2011). In this research we provide an intervention capable of experimentally increasing regard for this group. Research should go on to consider how the impact of such interventions may be moderated by individuals' existing levels of generative concern, as well consideration of future consequences more broadly (Strathman, Gleicher, Boninger, & Edwards, 1994; see also Joireman, Van Lange, & Van Vugt, 2004). Encouragingly, more traditional implementations of interventions designed to reduce intergroup bias often find that individuals whose initial attitudes are least positive are most sensitive to intervention effects (e.g. Dhont & Van Hiel, 2009; Hodson, 2011).

There are some limitations to the present research that should be acknowledged. First, because our experimental paradigm was novel, effect sizes could not be estimated in advance. Post-hoc power analyses suggest the studies may be somewhat underpowered[3]. It is possible then that the effect size estimates provided here are inflated and future replications will be necessary to confirm the magnitude of the intervention effects. It will also be important for future research to examine the effects of our intervention approach on more direct measures of environmental behavior. In this investigation we measured individuals' self-reported intentions to engage in various pro-environmental behaviors. While this is a common

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approach, and behavioral intentions represent a proximal predictor of actual behavior (Ajzen, 1985, 1991; Ajzen & Fishbein, 1980), people sometimes fail to translate their intentions into action (leading to an 'intention-action gap', Sheeran, 2002). Similarly, the product choice task used in this investigation was based on hypothetical purchasing decisions, and was possibly low in ecological validity given that the difference in price between the sustainable and unsustainable option was held constant and was fairly minimal. It will be important for future research to confirm that the benefits of our intervention approach will translate into environmentally-responsible behavior when participants are presented with more complex and realistic choice options.

Finally, by way of a conclusion, it is worth noting that the theoretical advance offered here brings, for the first time, a range of social issues that have a temporal dimension within the scope of intergroup relations. As outlined in our introduction, environmental protection is the most obvious domain that has a core temporal component, but there are others including government decisions over monetary and fiscal policy, health and education. Forging the conceptual link between intergroup relations and environmental action may ultimately represent the first step in a broader range of theoretically crafted interventions that could significantly change the nature of social issues and policy debate.

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Notes

[1] A series of chi-squared tests were also conducted to test for an effect of condition on the likelihood of selecting the sustainable alternative for each of the 8 products separately. No significant effect of condition emerged at this level of analysis (*p*s >.10).

[2] The *df* for the analysis of outgroup evaluation is lower than that of the other dependent variables in Study 2 due to one case of missing data on the feeling thermometer scale.

[3] Because our experimental paradigm was novel, effect sizes could not be estimated. Post-hoc power was calculated as 0.53 for the product choice task in Study 1, and 0.41 for the environmental behavioral intentions measure in Study 2.

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Highlights

- Perceiving future generations as an outgroup may explain inaction on climate change
- Techniques designed in the realm of intergroup relations can reduce intergroup bias
- These techniques may provide a novel means to encourage more sustainable conduct.
- Two experiments support this conclusion
- Effects are mediated by changes in (temporal) intergroup attitudes

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