European Journal of Social Psychology, *Eur. J. Soc. Psychol.* **44**, 507–513 (2014)
Published online in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/ejsp.2040

Special issue article: The social psychology of climate change

Would you rule out going green? The effect of inclusion versus exclusion mindset on pro-environmental willingness

RACHEL I. MCDONALD[1,2]*, BEN R. NEWELL[2] AND THOMAS F. DENSON[2]
[1]Department of Psychology, University of Kansas, Lawrence, KS, USA; [2]School of Psychology, University of New South Wales, Sydney, NSW, Australia

Abstract

Two experiments demonstrate that participants' willingness to endorse adopting pro-environmental behaviors is influenced substantially by a decision-framing effect: the inclusion–exclusion discrepancy. Participants were presented with a list of 26 pro-environmental behaviors (e.g., take a shorter shower, buy local produce). In both experiments, participants asked to cross out the behaviors they would not be willing to engage in (exclusion mindset) generated 30% larger consideration sets than those asked to circle behaviors that they would be willing to do (inclusion mindset). Experiment 2 identified qualities of the behaviors that accounted for the differences in the size of consideration sets, namely effort and opportunity. The results suggest the counter-intuitive notion that encouraging people to think about what they would not do for the environment might lead them to do more. Copyright © 2014 John Wiley & Sons, Ltd.

When confronted with a complex environmental issue like climate change, individuals may be unsure about what they can do to reduce their own carbon footprint (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007). A brief internet search for the simple question "How can I be more environmentally friendly?" leads to numerous websites offering myriad suggestions. For example the site "50 ways to help the planet" (www.50waystohelp.com) has options ranging from "take a shorter shower" to "go vegetarian" to "telecommute." Although engaging in *all* of these behaviors might be desirable from an environmental perspective, a more realistic goal is to encourage people to consistently engage in as many high-impact pro-environmental behaviors as possible. But how can this goal best be achieved? In the current research, we tested the influence of one type of framing on people's willingness to engage in a range of individual pro-environmental behaviors. Although large-scale actions such as the introduction of emissions restrictions are necessary to mitigate the effects of climate change, individual behavioral change still plays a big role. Research suggests that household-level behavioral changes could result in a 7.4% decrease in national emissions in the United States within 10 years (Dietz, Gardner, Gilligan, Stern, & Vandenbergh, 2009).

Exclusion or Inclusion?

When faced with myriad recommendations about what to do about climate change, people are not likely to engage in all recommended behaviors for a variety of reasons, such as the difficulty of engaging in a specific behavior. Instead, they are likely to winnow down a large number of behaviors into a subset they are willing to consider (a consideration set). The process of winnowing down the behaviors is likely to occur in one of two ways. *Inclusion* is when a person reduces the size of the initial set by including in the consideration set only those options that surpass some threshold on a given criterion (e.g., desirability, cost, and practicality—cf. Tobler, Visschers, & Siegrist, 2012). In contrast, *exclusion* requires a person to exclude all of the options that fall short of the threshold.

In some situations, adopting either the inclusion or exclusion procedure will lead to the same consideration set. For example, if you were buying a new shower head and had a flow rate criterion of "less than 15 liters per minute," then it would not matter if you chose to *exclude* all shower heads with flow rates greater than 15 l per minute or *include* all those with flow rates lower than 15: The options in the final set would be the same. However, in many other situations, the nature of the criteria and thresholds are more ambiguous. For example, the perceived benefit of a given environmental behavior may vary according to the perceived cost or difficulty of engaging in the behavior as well as the perceptions that others are engaging in it. Such additional considerations may influence the establishment of criteria and the setting of thresholds. Thus, although logically exclusion and inclusion should be invariant procedures, their adoption can lead to large differences in the size of final consideration sets (e.g., Kogut, 2011; Yaniv & Schul, 1997, 2000; Yaniv, Schul, Raphaelli-Hirsch, & Maoz, 2002).

The standard finding is that exclusion produces a larger consideration set than inclusion. This pattern has been found with judgments regarding political candidates (Yaniv et al., 2002),

*Correspondence to: Rachel I. McDonald, Department of Psychology, University of Kansas, Lawrence, KS 66045, USA.
E-mail: rachel.mcdonald@ku.edu

Received 5 August 2013, Accepted 2 May 2014

entities deemed worthy of moral consideration (Laham, 2009), job candidates (Yaniv & Schul, 2000) and school-support programs (Kogut, 2011), among others. These findings suggest that a person viewing the "50 ways to help the planet" website who asks "which of these behaviors am I *not willing* to engage in?" (exclusion) will end up with a longer list of possibilities than one who asks "which of these behaviors am I *willing* to engage in?" (inclusion).

One account of why exclusion-derived-sets are larger is that the two procedures imply different types of status quo, which in turn lead to different selection criteria and thresholds (Yaniv & Schul, 2000). Under *inclusion* instructions, the status quo is one of inaction, an empty consideration set to which options must be added; under *exclusion*, the status quo is full engagement, a complete set of behaviors from which options must be eliminated. Several studies suggest that people have a strong bias to maintain the status quo (Kahneman, Knetsch, & Thaler, 1991; Samuelson & Zeckhauser, 1988) and that people feel more accountable for decisions that change the status quo rather than maintain it (Kahneman & Tversky, 1984). These biases toward maintaining the status quo or remaining with the default naturally give rise to the exclusion–inclusion discrepancy.

According to this account, people in the exclusion mindset face a tradeoff between maintaining the status quo and ruling out options they may find undesirable. In contrast, in inclusion mindsets, avoiding these same behaviors by not including them in the consideration set will maintain the status quo. Inclusion sets are thus smaller because status quo biases lead the threshold for acceptance to be higher: The higher the threshold, the fewer the options *included*, the smaller the departure from the status quo, and thus the lesser the accountability. Under exclusion, more options remain in the consideration set because the threshold for acceptance is lower (as exclusion is a departure from the status quo, evidence for exclusion needs to be extreme), thereby maintaining the "larger" status quo and avoiding feelings of accountability (Yaniv & Schul, 2000). Thus, status quo biases provide a compelling account of why thresholds differ in inclusion and exclusion mindsets.

The effects of inclusion and exclusion mindsets have some parallels with the well-established effects of default choices (Johnson & Goldstein, 2003; Park, Jun, & MacInnis, 2000; Pichert & Katsikopoulos, 2008). In default effects, an option is more likely to be chosen when it is the default and requires no action to choose. A classic example is rates of organ donation, which differ markedly in countries where donating is the default, rather than a choice that must be actively registered (Johnson & Goldstein, 2003). However, there are important differences between the effects of defaults and the inclusion/exclusion discrepancy. Default effects typically examine single, formalized choices, where people opt to be an organ donor or sign up to a green electricity plan, whereas the present study examines decisions about engaging in multiple, repetitive, individual pro-environmental behaviors on a regular basis, in which no option can be formally established as the default.

Knowledge of the effects of defaults allows us to nudge people toward more pro-environmental choices where these are formally made, such as offering a more efficient product as the standard. In contrast, the inclusion/exclusion discrepancy has the potential to shed light on ways of communicating with people about everyday environmental behaviors that may lower their carbon footprint. Appropriate framing could result in an increase in repetitive, individual pro-environmental behaviors in a similar manner to the way in which default effects increase uptake of pro-environmental options in formalized, single choice contexts. Examining the effects of inclusion/exclusion discrepancies in the environmental domain thus has the potential to contribute to our knowledge of behavior change communications, over and above what we know from the default literature.

In the context of pro-environmental behavior, inducing a larger consideration set may enhance pro-environmental behavior. A larger consideration set can be thought of as a larger subset of *intended* behaviors. Given that the correlation between intention and actual behavior is far from perfect (Bamberg & Möser, 2007), a larger set of intended behaviors is preferable because it raises the likelihood that at least one of those behaviors will be adopted. One potential caveat to this argument is that the longer list of activities generated via an exclusion mindset might lead to a "paradox of choice" whereby a person is overwhelmed with options and finds it harder to settle on a particular one. Although a popular notion in the consumer choice literature (e.g., Iyengar & Lepper, 2000), a recent meta-analysis suggests no overall relation between the number of available options (across a variety of contexts) and behavior (Scheibehenne, Greifeneder, & Todd, 2010). Thus, although large considerations sets might not hinder adoption of behaviors, they might, according to Scheibehenne et al., not help either. We note, however, that Scheibehenne et al. (2010) did not consider studies in which consideration sets were self-generated (e.g., via exclusion or inclusion) as a moderator in their analysis, so it remains plausible that increased uptake of behaviors can result from the active involvement in generating a larger consideration set.

Moreover, given that the behaviors we examine differ in context and time (e.g., installing energy-efficient light bulbs and ordering a vegetarian meal in a restaurant), it is unlikely that a larger consideration set will hamper behavior by generating competing intentions. In addition, once some behaviors from a consideration set have been engaged in, then there may be some spillover to other behaviors, and the potential for spillover could be greater the larger the consideration set (e.g., Evans et al., 2013; Thøgersen, 2004). Even if reverse spillover or licensing effects occur among some people (in which engaging in one pro-social behavior reduces the likelihood of engaging in subsequent behaviors; Merritt, Effron, & Monin, 2010), on average, a larger consideration set may still be associated with increased pro-environmental intentions and behavior.

In Experiment 1, we examined the effect of inclusion versus exclusion mindsets on willingness to engage in green behaviors. We confirmed that participants given an exclusion mindset retained a larger number of intended behaviors in their consideration sets than those given inclusion instructions. In our second experiment, we replicated the main finding of Experiment 1 and also identified properties of the pro-environmental behaviors that explain the discrepancy in rates of endorsement between the mindset conditions.

EXPERIMENT 1

Method

Participants and Design

A convenience sample of 798 introductory psychology students from the University of New South Wales (UNSW) participated as part of a course requirement. Each class of approximately 25 students was randomly assigned to inclusion ($n = 381$) or exclusion ($n = 417$) mindset conditions.[1]

Materials and Procedure

Participants were asked to complete a brief survey of environmental attitudes. They were presented with a sheet of paper containing a list of 26 pro-environmental behaviors. Given that many published measures of environmental behavior contain items that are not relevant either to (i) the Australian context or (ii) university students (e.g., Kaiser, 1998), we instead generated a list of pro-environmental behaviors relevant to the present context and population. These behaviors were generated following an email to members of the UNSW School of Psychology graduate student community asking them to suggest things they could do to help the environment. Examples included "eat two less meat-based meals per week" and "have shorter showers." Eliciting the initial list of behaviors in this way raised the probability of including activities that our target student population might actually consider engaging in themselves. The complete list is presented in Table 1, and it is evident that many of the behaviors suggested by our graduate students overlap with those examined in other studies (e.g., Bord, O'Connor, & Fisher, 2000; Tobler et al., 2012).

Mindset manipulation. Participants in the *inclusion mindset* condition were instructed to "please circle the items that you would be willing to engage in," whereas those in the *exclusion mindset* condition were asked to "please cross out the number of items that you would NOT be willing to engage in."

The dependent measure was the number of items endorsed. For those in the inclusion condition, this was operationalized as the number of items circled. For those in the exclusion condition, this was the number of items not crossed out.

Results

Participants in the exclusion condition ($M = 18.90$, $SD = 4.30$) endorsed willingness to engage in significantly more pro-environmental behaviors than those in the inclusion condition ($M = 12.81$, $SD = 4.86$), $F(1, 794) = 352.82$, $p < .001$, $\eta^2 = 0.31$. The percentages of participants in each condition that endorsed each pro-environmental behavior are presented in Table 1.

[1]Experiment 1 also examined the influence of normative information on willingness to engage in pro-environmental behaviors. A number of studies show that norm consistency improves pro-environmental attitudes and behavior relative to norm inconsistency (Cialdini, 2003). However, our manipulation, which highlighted that most people engage in many of the behaviors on the list, or that few people engage in them, had no main effect on the size of the consideration sets generated, nor did it interact with the effects of the inclusion/exclusion mindset. Owing to the absence of any effect of the manipulation, we do not discuss this aspect of the design further.

Discussion

Experiment 1 demonstrated a substantial inclusion–exclusion discrepancy on participants' willingness to engage in pro-environmental behaviors. On average, participants had over 30% more behaviors in their final consideration set following exclusion instructions than inclusion instructions. This result extends the inclusion–exclusion effect to a new domain and highlights how this simple manipulation can have a very large impact on the endorsement of pro-environmental behaviors.

EXPERIMENT 2

Although Experiment 1 showed a 30% larger consideration set in the exclusion mindset condition, a close examination of the individual behaviors presented in Table 1 shows wide variability in rates of endorsement. Some behaviors (e.g., turning off the computer overnight and becoming a vegetarian) showed almost no effect of framing on rates of endorsement. By contrast, other behaviors (e.g., donating to environmental groups) showed large framing effects. What is unclear from simply examining the size of the framing effect across behaviors is the extent to which various features of a behavior contribute to its differential endorsement across mindsets. For example, when under an inclusion versus exclusion mindset, are people more attuned to the financial cost of donating to environmental groups or to the perception that it is effortful to do so? The aim of Experiment 2 was to determine which features underlie the differential impact of framing across behaviors. In line with previous research examining the factors that underlie willingness to engage in pro-environmental behavior (e.g., Tobler et al., 2012), we asked participants to evaluate the behaviors on several dimensions: opportunity, motivation, effort, cost, pleasantness, and environmental benefit.

The distinction between an inclusion mindset and an exclusion mindset is thought to be a desire to minimize deviation from the status quo. Thus, it is logical that, when minimizing the number of behaviors to remove from one's consideration set (as in an exclusion mindset), one will have less stringent criteria for endorsing a behavior than when in an inclusion mindset. Thus, we predict that some behavioral features will be more predictive of behavioral endorsement under inclusion than exclusion mindsets.

Method

Participants and Design

Seventy-nine UNSW undergraduates participated in exchange for course credit. Participants were tested individually in the lab and randomly assigned to the inclusion ($n = 42$) or exclusion condition ($n = 37$).

Materials and Procedure

Participants were given the same list of 26 activities from Experiment 1 and were asked to circle (or cross out) those activities that they would (or would not) be willing to engage

Table 1. Percentage of participants in the inclusion and exclusion conditions endorsing each pro-environmental behavior

	Experiment 1		Experiment 2	
Behavior	Exclusion ($n = 443$)	Inclusion ($n = 356$)	Exclusion ($n = 37$)	Inclusion ($n = 42$)
Always properly disposing of products that can't be incinerated such as batteries and printer cartridges at specific recycling sites.	82	48	80	61
Riding a bike, walking, or taking public transport to Uni at least 3 days per week.	89	74	94	70
Always turning off tap when brushing teeth.	97	89	98	93
Only use energy-saving light bulbs.	85	61	90	59
Not littering.	98	89	96	93
Always using stairs instead of the elevator for up to 5 flights.	66	47	59	37
Eat two less meat-based meal per week.	61	41	49	33
Having a fuel-efficient car.	82	47	88	50
Regularly using energy-efficient appliances.	91	51	94	63
Regularly use a re-useable water bottle rather than purchasing disposable bottles.	93	82	90	76
Become vegetarian.	16	14	18	11
Joining a pro-environmental club or society.	39	13	39	13
Buying only locally produced food.	48	22	45	19
Regularly picking up other peoples' rubbish.	39	17	53	17
Catching water from leaky taps and using elsewhere.	68	30	69	37
Always turning off computer at night instead of leaving them in sleep mode.	89	81	82	79
Buying a double-sided printer.	82	40	94	48
Always hanging clothes out instead of using dryer.	88	74	94	76
Always download software and music instead of buying it on disc to reduce waste.	86	67	92	78
Selecting products with minimal packaging.	79	36	78	44
Donate to pro-environmental group.	59	22	59	26
Always buying recyclable products.	61	26	59	43
Regularly buy or donate second-hand clothes and products.	78	51	73	63
Have shorter showers.	86	62	84	61
Always turn appliances off at power point.	81	67	82	70
Only buying "green" airfares and concert tickets.	39	7	45	17

in. Following this, they were asked to rate each activity, regardless of whether it was contained in their consideration set (consecutively in random order) on the following dimensions: To what extent would you have the *opportunity* to engage in this behavior? To what extent would you be *motivated* to engage in this behavior? How *effortful* would it be for you to engage in this behavior? How much of a *financial cost* would you incur by engaging in this behavior? How *pleasant* would it be to engage in this behavior? How much do you think the *environment would benefit* if you engaged in this behavior? (1 = *not at all* to 5 = *very*).

Results

Replicating Experiment 1, participants in the exclusion condition ($M = 19.08$, $SD = 3.80$) endorsed willingness to engage in significantly more pro-environmental behaviors than those in the inclusion condition ($M = 13.50$, $SD = 3.95$), $F(1, 78) = 40.55$, $p < .001$, $\eta^2 = 0.35$. The percentages of participants in each condition that endorsed each pro-environmental behavior are presented in Table 1.

As in Experiment 1, there was considerable variability in the extent to which framing impacted rates of endorsement. To examine possible reasons for the differential impact of the framing on endorsement and because of the nested nature of our data, we ran a series of multilevel logistic regression models using HLM 7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). Each participant rated six attributes for each of the 26 behaviors. Our data were therefore nested within participants. For all models, restricted Penalised Quasi-Likelihood (PQL) estimation was used; Level 1 predictors were centered around the group mean; and Level 2 predictors were centered around the grand mean. All reported model statistics use robust standard errors. One participant had to be removed from these analyses owing to missing data.

We first ran six models (one model for each attribute: effort, opportunity, motivation, financial cost, pleasantness, and environmental benefit) predicting endorsement for the participants across the entire sample. These models contained only the Level 1 predictor (one model for each attribute) predicting endorsement. The resulting coefficients can be conceptualized as the zero-order relationship between each attribute and endorsement while accounting for the nested nature of the data.

$$Level\ 1\ Model: p(Endorsement\ of\ behaviors) = \gamma_{00} + \gamma_{10}(Attribute)$$

Results revealed that effort, motivation, financial cost, opportunity, pleasantness, and perceived environmental benefit were all significant predictors of endorsement at Level 1 (Table 2).

Next, we tested the extent to which each attribute would impact endorsement differently under inclusion and exclusion

Table 2. Multilevel models predicting endorsement of a behavior by perceptions of the behavior and inclusion–exclusion condition (Study 2)

	Environmental benefit		Effort		Financial cost		Motivation		Opportunity		Pleasantness	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Level 1												
Intercept γ_{00}	0.60 (0.11) $p < .001$	0.59 (0.11) $p < .001$	0.58 (0.11) $p < .001$	0.62 (0.11) $p < .001$	0.54 (0.10) $p < .001$	0.54 (0.10) $p < .001$	0.83 (0.15) $p < .001$	0.81 (0.15) $p < .001$	0.63 (0.11) $p < .001$	0.60 (0.11) $p < .001$	0.70 (0.13) $p < .001$	0.70 (0.13) $p < .001$
Perception of behavior γ_{10}	0.79 (0.06) $p < .001$	0.78 (0.06) $p < .001$	−0.52 (0.10) $p < .001$	−0.56 (0.05) $p < .001$	−0.24 (0.04) $p < .001$	−0.24 (0.04) $p < .001$	1.51 (0.09) $p < .001$	1.50 (0.09) $p < .001$	0.79 (0.06) $p < .001$	0.78 (0.05) $p < .001$	1.21 (0.08) $p < .001$	1.21 (0.08) $p < .001$
Level 2												
Inclusion/exclusion condition (cross-level interaction) γ_{11}		0.06 (0.06) $p = .28$		0.21 (0.09) $p = .02$		−0.04 (0.04) $p = .35$		0.08 (0.09) $p = .40$		0.15 (0.06) $p = .01$		−0.003 (0.08) $p = .97$

Model 1 tested the relation between the perceptions of the behaviors and endorsement of the behavior (i.e., the behavior was present in participant's consideration list). Model 2 tested whether this relation varies on the basis of whether participants were in the inclusion or exclusion condition (*inclusion* = 1; *exclusion* = −1). Level 1 variables were group-mean-centered, and the Level 2 variables were grand-mean-centered. The Level 1 degrees of freedom for perceptions of the behaviors were 1949 for model 1 and 1948 for model 2, and the Level 2 degrees of freedom for the cross-level effect was 1948. Standard errors are in parentheses.

mindsets.[2] These six models included each of the six attributes as a predictor at Level 1 and the experimental condition at Level 2 (coded *inclusion* = 1, *exclusion* = −1) as a predictor of the slope between each attribute and endorsement (i.e., a cross-level interaction). This analysis allowed us to see whether the relationship between each attribute and endorsement was stronger or weaker under inclusion or exclusion.

$$Level\ \ 2\ \ Model : \gamma_{10}(Attribute) = \gamma_{11}(Inclusion\text{-}Exclusion\ \ Condition)$$

Inspection of the cross-level interactions revealed that the relationships between effort and endorsement, and opportunity and endorsement differed as a function of inclusion versus exclusion mindsets. The other factors were equally predictive of endorsement in both inclusion and exclusion mindsets (Table 2). To break down the significant interactions, we examined the simple effects of effort and opportunity at Level 1 separately in the inclusion and exclusion conditions. Effort was more strongly associated with behavioral endorsement in the exclusion condition (intercept = 0.60, $\beta = -.83$, $SE = 0.13$, $df = 924$, $p < .001$) than the inclusion condition (intercept = 0.26, $\beta = -.35$, $SE = 0.13$, $df = 1024$, $p = .008$). In contrast, opportunity was more strongly associated with endorsement in the inclusion condition (intercept = 0.42, $\beta = .91$, $SE = 0.08$, $df = 1024$, $p < .001$) than the exclusion condition (intercept = 0.51, $\beta = .65$, $SE = 0.09$, $df = 924$, $p < .001$).

Discussion

Experiment 2 replicated the effect of inclusion/exclusion framing on rates of endorsement. Experiment 2 also demonstrated that although all rated attributes were related to behavioral endorsement in general, two attributes (opportunity and effort) showed differential relationships as a function of mindset. Specifically for opportunity, the data suggested that pro-environmental behaviors that people reported having fewer opportunities to engage in are more likely to be "left out" of choice sets under an inclusion mindset (not circled) but "left in" under an exclusion mindset (uncrossed). This finding provides some support for the assumption that inclusion/exclusion mindsets are driven by status quo biases: If people include or exclude behaviors in an attempt to maintain the status quo, their threshold for retaining a behavior in their consideration set should be more stringent in inclusion than exclusion mindsets. In contrast, perceived effort was more strongly associated with endorsement in the exclusion condition. This implies that, when people feel limited in the number of behaviors they can exclude (presumably owing to a desire to preserve the status quo), those behaviors high in perceived effort are those least likely to be endorsed.

[2]To explore the possibility that the mindset manipulation impacted ratings of the behaviors, we conducted *t*-tests to examine the ratings for mean differences according to condition, but no significant differences were found (ts = −1.491–0.069, ps = .140–.945). This indicates that the inclusion/exclusion instructions did not influence subsequent ratings of the behaviors on the various dimensions.

GENERAL DISCUSSION

We examined the effect of a relatively subtle manipulation on people's willingness to engage in pro-environmental behaviors. The manipulation of inclusion/exclusion mindset had a large effect on willingness to engage in a range of behaviors commonly targeted by environmental campaigns.

Inclusion Versus Exclusion

In both experiments, exclusion instructions led to 30% longer lists of intended behaviors than inclusion instructions. The size of this inclusion–exclusion discrepancy is consistent with other demonstrations in the literature (e.g., Kogut, 2011; Yaniv & Schul, 1997, 2000). In line with this prior research, the discrepancy effect observed in our data could be explained by participants' reluctance to change the status quo, and by the different thresholds for endorsement that status quo biases give rise to in the two procedures.

A corollary of this explanation is that the inclusion–exclusion discrepancy should be larger for some behaviors than others. For some behaviors regardless of the procedure, thresholds for endorsement will be surpassed. This should hold for behaviors at both extremes of a "willingness-spectrum" (i.e., things that a person would *never* consider doing or those that they would *always* be willing to do). For other behaviors, however—those that are positioned at some mid-point on this spectrum—the discrepancy should be larger (cf., Kogut, 2011; Yaniv & Schul, 2000).

Although we had no strong a priori hypotheses about which of our behaviors would be "extreme" or "middle" options, it is clear from Table 1 that we selected behaviors from the full range of this willingness spectrum. For example, well over 80% of participants were willing to "not litter" in both experiments under both inclusion and exclusion instructions. At the other end of the spectrum, a third or fewer of participants were willing to "become vegetarian" irrespective of the framing procedure. Experiment 2 shed light on the properties that determine the location of behaviors on this "willingness-spectrum" and the subsequent size of the framing difference. Under inclusion mindsets, opportunity was more strongly related to endorsing a behavior than in exclusion mindsets, whereas effort was more strongly related to endorsement in exclusion than exclusion mindsets. In contrast, financial cost, perceived environmental benefit, motivation, and pleasantness were equally predictive of endorsement in both conditions, indicating that these features were not major drivers of the different endorsement thresholds in inclusion versus exclusion conditions.

Limitations and Implications

A limitation of this research is that our primary dependent measure was one of willingness rather than actual behavior. Nonetheless, we argue that the simplicity (and subtlety) of the inclusion/exclusion mindset manipulation combined with the very large effect it has on participants' consideration sets has potentially important implications for improving the likelihood of engaging in environmentally friendly behaviors. Although intentions do not equal behavior, they are consistently correlated (Armitage & Conner, 2001), and thus, any manipulation that leads to such a large and consistent increase in intentions has great potential to also influence actual behavior.

In terms of the practical implications of the present findings, the results suggest that many current environmental appeals could be usefully re-framed to encourage greater rates of behavior change. Although counter-intuitive, the results suggest that rather than asking people to identify ways in which they *would* be willing to help combat climate change, environmental groups should be asking people to rule out the things they *won't* do. Use of this simple communication strategy may help reduce individual and household-level contributions to climate change. Specifically, the finding that the relationship between opportunity and endorsement is moderated by mindset suggests that exclusion framing may be especially helpful in encouraging engagement in behaviors perceived as inopportune.

Further studies focusing on actual behavior following self-generation of consideration sets might also shed light on the debate about choice-overload effects (e.g., Iyengar & Lepper, 2000; Scheibehenne et al., 2010). It may be that when greater numbers of options or behaviors are self-generated via exclusion—rather than presented passively as in most studies of the choice-overload effect—there is a greater potential for increased uptake of at least one of those behaviors. Likewise, although there is potential for licensing effects rather than the intended *positive* spillover from having a larger consideration set, the present studies show the potential for the subtle but powerful exclusion framing to position pro-environmental behavior as the status quo, rather than as a desired (but potentially distant) goal.

Conclusions

Many of us would probably like to reduce our carbon footprint and behave in a more pro-environmental way. However, actually engaging in the myriad actions prescribed by environmental campaigns can be challenging. The results of these studies suggest that (perhaps counter-intuitively) considering things that you are *not* willing to do might lead you to do more for the environment than focusing on what you *are* willing to do. The results highlight a simple communication strategy that may allow environmental groups and campaigners to encourage significant increases in pro-environmental behavior. Use of this subtle procedure may help reduce individual and household-level contributions to climate change.

ACKNOWLEDGEMENTS

This research was supported by *Discovery Project* and *DECRA* grants from the Australian Research Council to the third author and a *Future Fellowship* (FT110100151) and a *Linkage Project Grant* (LP120100224) from the Australian Research Council to the second author. We thank Chris Moore for help with data collection and Nida Denson for advice on the multilevel modeling for Experiment 2.

REFERENCES

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*, 471–499.

Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behavior. *Journal of Environmental Psychology*, *27*, 14–25.

Bord, R. J., O'Connor, R. E., & Fisher, A. (2000). In what sense does the public need to understand global climate change? *Public Understanding of Science*, *9*, 205–218.

Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, *12*(4), 105–109.

Dietz, T., Gardner, G. T., Gilligan, J., Stern, P. C., & Vandenbergh, M. P. (2009). Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions. *Proceedings of the National Academy of Sciences*, *106*, 18452–18456. DOI:10.1073/pnas.0908738106

Evans, L., Maio, G. R., Corner, A., Hodgetts, C. J., Ahmed, S., & Hahn, U. (2013). Self-interest and pro-environmental behaviour. *Nature Climate Change*, *3*, 122–125.

Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, *79*, 995.

Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives? *Science 302*, 1338–1339.

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). The endowment effect, loss aversion, and status-quo bias. *Journal of Economic Perspectives*, *5*, 193–206.

Kahneman, D., & Tversky, A. (1984). Choices, values and frames. *American Psychologist*, *39*, 341–350.

Kaiser, F. G. (1998). A general measure of ecological behavior. *Journal of Applied Social Psychology*, *28*, 395–422.

Kogut, T. (2011). Choosing what I want or keeping what I should: The effect of decision strategy on choice consistency. *Organizational Behavior and Human Decision Processes*, *116*, 129–139.

Laham, S. (2009). Expanding the moral circle: Inclusion and Exclusion mindsets and the circle of moral regard. *Journal of Experimental Social Psychology*, *45*, 250–253.

Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change*, *17*, 445–459. DOI:10.1016/j.gloenvcha.2007.01.004

Merritt, A. C., Effron, D. A., & Monin, B. (2010). Moral self-licensing: When being good frees us to be bad. *Social and Personality Psychology Compass*, *4*, 344–357. DOI:10.1111/j.1751-9004.2010.00263.x

Park, C. W., Jun, S. Y., & MacInnis, D. J. (2000.) Choosing what I want versus rejecting what I do not want: An application of decision framing to product option choice decisions. *Journal of Marketing Research*, *37*, 187–202.

Pichert, D., & Katsikopoulos, K. V. (2008). Green defaults: Information presentation and pro-environmental behaviour. *Journal of Environmental Psychology*, *28*, 63–73.

Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., Congdon, R. T., & du Toit, M. L. (2011). *Hlm 7: Hierarchical linear and nonlinear modeling*. Chicago, IL: Scientific Software International.

Samuelson, W., & Zeckhauser, R. (1988). Status-quo bias in decision making. *Journal of Risk and Uncertainty*, *1*, 7–59.

Scheibehenne, B., Greifeneder, R., & Todd, P. M. (2010). Can there ever be too many options? A meta-analytic review of choice overload. *Journal of Consumer Research*, *37*, 409–425.

Thøgersen, J. (2004). A cognitive dissonance interpretation of consistencies and inconsistencies in environmentally responsible behavior. *Journal of Environmental Psychology*, *24*, 93–103.

Tobler, C., Visschers V. H. M., & Siegrist, M. (2012). Addressing climate change: Determinants of consumers' willingness to act and to support policy measures. *Journal of Environmental Psychology*, *32*, 197–207.

Yaniv, I., & Schul, Y. (1997). Elimination and inclusion procedures in judgment under uncertainty. *Journal of Behavioral Decision Making*, *10*, 217–220.

Yaniv, I., & Schul, Y. (2000). Acceptance and elimination procedures in choice. Noncomplementarity and the role of implied status quo. *Organizational Behavior and Human Decision Processes*, *82*, 293–313.

Yaniv, I., Schul, Y., Raphaelli-Hirsch, R., & Maoz, I. (2002). Inclusive and exclusive modes of thinking: Studies of prediction, preference, and social perception during parliamentary elections. *Journal of Experimental Social Psychology*, *38*, 352–367.