

## Fast track report

# The moral circle as a common motivational cause of cross-situational pro-environmentalism

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### Abstract

*Public engagement in pro-environmental behavior and support for pro-environmental policy are essential for achieving sustainable living. We propose that the “moral circle” is a common motivational source for engagement in environmentally beneficial activities across situations and may be thus drawn upon to efficiently promote these activities. Study 1 established an association between chronic moral circle size and nine pro-environmental activities from different domains. Via experimental manipulation of the moral circle size, Studies 2a–d demonstrated its causal effect on intentions to engage in pro-environmental activities. Together, these studies offer an important initial demonstration of the beneficial consequences of more expansive moral circle in the domain of pro-environmentalism. Routes for expanding the moral circle and thus promoting pro-environmental activities are discussed. Copyright © 2012 John Wiley & Sons, Ltd.*

Environmental problems pose a global and increasing threat. In response, many governments are introducing policies aimed at reducing the negative impact of human activity on the environment (GEO4, United Nations Environmental Program, 2007). The success of such measures is largely dependent on public acceptance and support (e.g., Whitmarsh, Seyfang, & O’Neill, 2011). This support and public participation in conservation practices rely on individuals’ motivation to protect the environment.

A promising line of research within social and environmental psychology has focused on identifying broad personality characteristics that may act as common motivational roots of pro-environmental behavior. By identifying the psychological characteristics that motivate pro-environmental behavior in different domains, targeted interventions strengthening these motivations may efficiently promote a broad range of desired behaviors (e.g., Thørgensen & Ölander, 2006). Two motivational characteristics have received the majority of research interest: values and identity. A range of environmentally relevant values have been proposed, and their role in models predicting pro-environmental behavior has been well established (e.g., De Groot & Steg, 2007; Schultz & Zelezny, 1999; Stern, Dietz, Kalof, & Guagnano, 1995). Likewise, “green identity” has been found to predict various types of pro-environmental behavior, validating its role as a common motivational cause (e.g., Manetti, Pierro, & Livi, 2004; Whitmarsh & O’Neill, 2010). Thus, this approach has confirmed that common motivational roots of various pro-environmental behaviors do exist, and these may take the form of broad personal characteristics, such as values and identity.

It is less clear, however, whether such core aspects of the self-concept as values and identity may be changed by public campaigns and governmental policies. By definition, values are relatively stable personal priorities, which once formed, tend to endure over time (e.g., Rokeach, 1973; Schwartz, 1992). Moreover, values are systematically organized in a complex system such that changing a particular value also requires the re-organization of the other value priorities (Bardi, Lee, Hofmann-Towfigh, & Soutar, 2009). Thus, although value change is possible, it primarily occurs in response to a dramatic change in circumstances, such as socioeconomic transition (e.g., Inglehart, 1990) and life-changing events (Bardi et al., 2009). These psychological properties pose a challenge for promoting the endorsement of desirable pro-environmental values, or for changing existing values with negative effects on pro-environmental behavior (e.g., materialism; Kasser & Kanner, 2004). Likewise, attempts to change identity have been shown to trigger resistance (Reicher, 2004) and psychological reactance (Blanton & Christie, 2003). Thus, although pro-environmental values and identity have been shown to robustly predict pro-environmentalism, it remains less clear how the endorsement of these characteristics may be promoted in first place.

We propose that the “moral circle” (Singer, 1981) may represent a previously unidentified common motivational root of pro-environmental behavior. The moral circle denotes the set of entities considered worthy of moral regard and treatment. We suggest that the more natural entities people feel morally concerned for, the more motivated they would be to engage in activities aimed at protecting the environment and hence the

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welfare of these entities. In other words, expansive moral circles that incorporate many natural entities should be associated with cross-situational pro-environmentalism. Despite its relevance for environmental preservation, the moral circle concept has not been examined in relation to pro-environmentalism.

The effect of the moral circle on pro-sociality, however, has been robustly demonstrated (Laham, 2009; Reed & Aquino, 2003). Individuals with highly self-important moral identity exhibit a chronically expansive moral circle; these individuals tend to express more favorable attitudes and act more pro-socially toward members of various out-groups (Reed & Aquino, 2003). Furthermore, Laham (2009) has demonstrated that the moral circle can be expanded and contracted, and this has consequences for subsequent judgments of the moral worth of out-groups. Laham asked participants to either select from a list the entities that they considered worthy of moral regard (inclusion) or to exclude those that they did not consider morally worthy (exclusion). Participants in the exclusion condition retained larger set of entities than participants in the inclusion condition, replicating the well-known inclusion–exclusion discrepancy (IED) effect (e.g., Yaniv, Schul, Raphelli-Hirsch, & Maoz, 2002). Importantly, participants in the exclusion condition subsequently expressed stronger obligation to treat morally members of various out-groups than did participants in the inclusion condition. That is, the situationally induced moral circle size produced “spill-over” effects on morally relevant behavioral tendencies in the social domain. Together, this research established that the moral circle size influences pro-sociality. Although pro-environmentalism can sometimes align with pro-sociality (e.g., in preventing air pollution in populated areas), the pursuit of pro-environmental goals often requires restricting human activity (e.g., air travel) and sacrificing human interests (e.g., carbon emissions taxation). Therefore, it remains to be seen whether more expansive moral circle motivates pro-environmentalism in addition to pro-sociality.

The research in the social domain has also demonstrated that the moral circle may take the form of a stable personality characteristic (Reed & Aquino, 2003) akin to values and identity and as a malleable construct (Laham, 2009) unlike values and identity. Although the salience of values and identity may also vary in response to contextual factors (Lindenberg & Steg, 2007), its function is limited to highlighting the importance of pre-existing personal characteristics. By contrast, situationally induced expansion of moral circle size entails attribution of moral status to entities previously considered morally unworthy. Expanding the moral circle involves an increase in the number and diversity of the entities being granted moral status rather than simply enhanced attentiveness to those entities already considered morally worthy. This may have important implications: once a basis to attribute moral standing to an entity is identified, at least some individuals may gradually internalize the moral obligation felt toward that entity and chronically expand their moral circle. The moral circle expands both across human history (Singer, 1981) and an individual’s life course (Bloom, 2004). It is therefore likely that targeted efforts (e.g., public campaigns) may also trigger a similar process. The current research presents an initial attempt to test whether the moral circle is a suitable common motivational root to pro-environmental

activities across different domains. We predict that larger moral circles, whether chronic (Study 1) or induced (Studies 2a–d), will promote pro-environmentalism.

## STUDY 1

In this study, we tested whether individuals’ chronic moral circle size is associated with a range of pro-environmental activities. As discussed earlier, we expect that granting moral status to a greater number of natural entities would be positively associated with intentions to engage in environmentally beneficial activities and behavior.

## METHOD

Sixty-nine students from a British university (56 women;  $M_{\text{age}} = 26.01$  years,  $SD = 5.41$  years) completed the study. Answering the questionnaire took approximately 15 minutes to complete.

### Measures and Procedure

Participants were presented with a booklet containing a range of measures completed in a standard order.

#### *Moral Circle*

To measure participants moral circle size, they were presented with a list of 28 living and non-living entities (e.g., sea water, rocks, grass, turtle, polar bear) and with the following instruction: “When we think about the environment, we might feel a sense of moral obligation to protect and show concern for certain natural living and non-living entities (e.g., soil, animals, etc.). Below is a list of entities that naturally occur in the environment. Please circle those that you feel morally obliged to show concern for.” The number of entities circled from the list comprised the measure of the moral circle size.

#### *Moral Obligation Toward Natural Entities*

After completing the moral circle task, participants were asked to rate on a nine-point scale (1 = *absolutely no obligation*; 9 = *very strong obligation*) the degree to which they felt morally obligated to show concern for 13 living and non-living entities, none of which appeared on the list for the moral circle measure. The ratings for the 13 entities (Cronbach’s  $\alpha = .93$ ) were averaged and used as a measure of moral obligation.

#### *Money Allocation*

Participants were asked to imagine that as a charity director they had £10 million to distribute among three causes. The three causes were as follows: scholarships for students in the UK (i.e., the in-group), environmental protection via carbon emissions offsetting, and poverty alleviation in developing countries. Participants were asked what percentage of the £10 million they would allocate to each of the three causes.

The percentage allocated to carbon offsetting was the dependent measure.

#### *Money Donation*

Participants were presented with a scenario where they were approached by an environmental charity asking them to donate some money. They were asked to assume they had £100 remaining after covering all of their living expenses. The amount of money participants were prepared to donate was the dependent measure.

#### *Support for Policy*

Participants were asked to indicate their support for two policies that were supposedly considered for implementation by the UK government. The first concerned an increase in airport taxes to raise money for environmental protection projects. The increased taxes were expected to make flights unaffordable for a large proportion of the customers. However, the reduced number of flights and the investment in endeavors aimed at carbon emissions offsetting were expected to have beneficial effects on the environment.

The second policy concerned regulation of factory farms. It stipulated reduction of the animal density, which was supposed to result in substantial price increase of meat and dairy products. The policy was expected to improve animal welfare and enable the recovery of the surrounding ecosystems. Participants were asked to indicate their personal support for each of the policies on a nine-point scale (1 = *not at all*; 9 = *very strongly*).

#### *Intention to Engage in Pro-Environmental Behavior*

Participants were asked how often they intend to engage in each of four pro-environmental behaviors on a five-point scale (1 = *never*; 5 = *almost always*): unplugging or switching off at the socket electrical devices (e.g., stereo, TV) instead of leaving them on standby, putting on an extra blanket instead of turning up the heater when cold during the night, avoiding eating meat (for environmental reasons), and buying organic food.

## RESULTS AND DISCUSSION

An examination of the correlation coefficients between the moral circle size and each of the nine pro-environmental activities and behaviors revealed that an association indeed exists (Table 1); as predicted, the moral circle size was positively correlated with all measures of pro-environmentalism. Thus, the hypothesis that attributing moral status to a larger set of natural entities is associated with activities aimed at environmental preservation received initial support.

The correlation coefficients varied between .21 and .30, which is comparable with the strength of associations obtained in studies on pro-environmental values (De Groot & Steg, 2010) and green identity (Whitmarsh & O'Neill, 2010). An exception of this range was the strong association between the moral circle size and the moral obligation felt toward

natural entities ( $r = .61$ ). Because both constructs measure aspects of moral concern (scope and intensity, respectively), this correlation is not surprising. It is nevertheless informative as it reveals that individuals with more expansive moral circles also feel stronger moral obligation toward a different set of natural entities—a finding conceptually similar to those obtained in the social domain (Laham, 2009; Reed & Aquino, 2003).

The correlational nature of this study did not allow us to establish the direction of the relationship, namely whether a more expansive moral circle leads to greater pro-environmentalism. In the next series of studies, we experimentally manipulated the moral circle size to test whether it causally predicts pro-environmentalism. An additional limitation of the current study was that all measures were presented to participants at the same time, allowing them to guess the purpose of the study and provide socially desirable responses. This may have inflated the correlations between the moral circle and each of the pro-environmental activity measures. To rule out this possibility, in Studies 2a–d, we used a single measure of pro-environmental activity, with each measure tapping onto a different domain: moral obligation felt toward natural beings, support for policy, allocation of money, and pro-environmental behavior. To mask the link between the moral circle and the measures of pro-environmentalism, the studies were introduced to participants as pilot tests for two unrelated tasks.

## STUDIES 2A, 2B, 2C, AND 2D

The four studies test the general hypothesis that more expansive moral circle would result in stronger intention to engage in pro-environmental activity.

## METHOD

Data were collected at a British university during lecture classes or at the university cafeteria in exchange for chocolate. The four measures were drawn from the nine employed in Study 1. Thirty-four (33 women;  $M_{\text{age}} = 24.03$ ,  $SD = 6.38$  years) participants took part in Study 2a, which concentrated on moral obligation toward natural entities. In Study 2b, there were 49 participants (45 women;  $M_{\text{age}} = 21.96$ ,  $SD = 5.18$  years) who allocated a budget to three causes; the amount allocated to carbon offsetting was the dependent variable. In Study 2c, there were 38 participants (33 women;  $M_{\text{age}} = 22.53$ ,  $SD = 3.25$  years) who rated their support for increase in airport taxes to protect the environment. Last, in Study 2d, there were 69 participants (59 women;  $M_{\text{age}} = 24.12$ ,  $SD = 7.96$  years) who rated their intentions to unplug electrical devices instead of leaving them on standby as a form of pro-environmental behavior. In this study, participants were also asked to indicate on a five-point scale (1 = *very negligible*; 5 = *very significant*) how significant they thought the impact of this behavior is for the environment. We reasoned that people would engage in a behavior for pro-environmental reasons if they see that behavior as contributing to environmental preservation. Although

the pro-environmental relevance of the money allocation to carbon offsetting (Study 2b) and the policy proposal (Study 2c) is made explicit, unplugging electrical devices may not be perceived by everyone as an effective way to preserve the environment. We expect the effect of the moral circle on this behavior to be moderated by its perceived impact on the environment.

To experimentally manipulate the moral circle size, participants in all four studies were randomly assigned to the inclusion or exclusion conditions (cf. Laham, 2009). The instruction for drawing the moral circle in the inclusion condition followed *verbatim* the instruction used in Study 1, asking participants to circle those entities they feel morally obliged to show concern for. In the exclusion condition, the last sentence of the instruction was modified, asking participants to cross out those entities that they *do not* feel morally obliged to show concern for.

## RESULTS AND DISCUSSION

A prerequisite for testing whether the moral circle size causally predicts each of the pro-environmental activities was that participants in the exclusion condition retain a larger set of entities than participants in the inclusion condition. Independent samples *t*-test revealed that this prerequisite was clearly met in all

four studies ( $ps < .001$ ). Percentages of entities retained in the moral circle as a function of condition are displayed in Table 2.

For Studies 2a–c, we examined whether the moral circle drawn under the exclusion and inclusion instructions predicted pro-environmental behavior—indirect effect hypothesis. We performed a series of regression analyses and a bootstrapping procedure to test for the significance of the predicted indirect paths (Preacher & Hayes, 2004). The regression equations examined: the effect of the inclusion–exclusion manipulation (i.e., the IV; coded 0 = inclusion; 1 = exclusion) on each of the pro-environmental behaviors (i.e., the DVs; Step 1), the effect of the manipulation on moral circle size as the proposed mediator (Step 2), and the effect of the moral circle size on each of the pro-environmental behaviors while controlling for the manipulation (Step 3).

In Study 2d, we additionally tested whether the effect of moral circle on pro-environmental behavior is moderated by perceived impact on the environment—conditional indirect effect hypothesis. To test this hypothesis, we employed a bootstrapped moderated mediation approach (Preacher, Rucker, & Hayes, 2007). In addition to the three-step analysis, we included the interaction term between moral circle size and perceived impact, both centered on their respective means to avoid multicollinearity. The results for all four studies are presented in Table 3.

The inclusion–exclusion manipulation did not have a direct effect on any of the pro-environmental behaviors (Step 1;

Table 1. Mean ratings (and standard deviations) on each of the nine measures of pro-environmental activity and behavior, and correlation between each measure and the moral circle

Variable	<i>M</i>	<i>SD</i>	Correlation with moral circle size	<i>n</i>
Moral circle	11.19	6.99	–	69
Moral obligation	4.61	1.88	.61***	69
% of money allocated for carbon offsetting	31.93	13.40	.26*	68
Donated money	11.67	16.91	.29*	69
Support for airport taxes increase	4.84	2.00	.30*	68
Support for reduction of cow density in factory farms	5.65	1.96	.24*	69
Unplugging electrical devices	4.12	1.07	.27*	68
Putting an extra blanket	3.93	1.06	.29*	68
Avoiding eating meat	2.09	1.33	.21†	69
Buying organic food	2.66	1.22	.30*	68

Note: Bivariate Pearson correlation coefficients. The number of participants varies because of missing data.

\*\*\* $p < .001$ .

\* $p < .05$ .

† $p < .10$ .

Table 2. Percentage of entities (and standard deviations) in the moral circle as a function of condition

	Condition		Discrepancy	<i>t</i>	Cohen's <i>d</i>
	Inclusion	Exclusion			
Study 2a	40 (24)	75 (16)	35	5.09	1.77
Study 2b	32 (24)	73 (16)	41	7.05	2.31
Study 2c	39 (30)	70 (14)	31	4.19	1.34
Study 2d	37 (25)	74 (23)	37	6.49	1.58

Table 3. Regression analyses testing for an indirect effect of the inclusion–exclusion manipulation (the independent variable; IV) on moral circle (the proposed mediator) and pro-environmental activities as the dependent variables (DVs) in Studies 2a, 2b, and 2c

Predictors	Study 2a: moral obligation			Study 2b: % of money allocated for carbon offsetting			Study 2c: support for airport taxes increase			Study 2d: intentions to unplug electrical devices			
	B	$\beta$	<i>t</i>	B	$\beta$	<i>t</i>	B	$\beta$	<i>t</i>	B	$\beta$	<i>t</i>	
Step 1	IV on DVs	.08	.03	.16	3.08	.10	.71	−.46	−.11	−.66	.16	.08	.67
Step 2	IV on MC	9.90	.67	5.09***	11.57	.72	7.05***	8.87	.57	4.19***	10.39	.62	6.49***
Step 3	IV on DVs	−1.97	−.67	−4.37***	−7.15	−.24	−1.21	−1.49	−.35	−1.84 <sup>†</sup>	−.10	−.05	−.35
	MC on DVs	.21	1.04	6.80***	.88	.48	2.42*	.12	.43	2.22*	.03	.22	1.41
Test for moderation by perceived impact	IV on DVs										.00	.00	.00
	MC on DVs										.02	.16	1.19
Step 4	Impact on DV										.40	.42	3.89***
	MC × impact on DV										.03	.28	2.58*
	95% CIs obtained via bootstrapping	1.10 to 3.18			−1.73 to 22.69			−.47 to 2.51			.16 to 1.17		
	95% CIs for Studies 2b and c meta-analysis							03 to 1.11					
	$R^2$	.60			.12			.13			.27		

Note: The analysis of Study 2d contains an additional step testing for moderation by perceived impact of the effect of moral circle (MC) on pro-environmental behavior as the dependent variable. CI, confidence interval.

\*\*\* $p < .001$ .

\* $p < .05$ .

<sup>†</sup> $p < .10$ .

Table 3). In all four studies, the effect of the inclusion–exclusion manipulation on the moral circle was highly significant (Step 2). In Studies 2a–c, the moral circle size had a significant effect of on the respective pro-environmental activities (Step 3). A bootstrapping procedure revealed that the indirect path was significant in Study 2a (95% confidence interval (CI) between 1.10 and 3.18). In Studies 2b and 2c, however, the effect appeared to be marginally significant as the confidence intervals included the zero (95% CI between −1.73 and 22.69 for Study 2b, and 95% CI between −0.47 and 2.51 for Study 2c). To test whether the lack of significant effect was due to insufficient power, we conducted a meta-analysis by combining the data of Studies 2b–c and using the *Z* scores of their respective DVs (for a similar approach in the moral domain, see Schnall, Haidt, Clore, & Jordan, 2008). The bootstrapping procedure performed on the combined data set yielded significant results (95% CI between 0.03 and 1.11), confirming that the predicted indirect effect in Studies 2b–c is reliable. Together, the positive and significant indirect effects demonstrated that the inclusion–exclusion manipulation leads to different moral circle sizes, which in turn predicts moral obligation, support for policy, and money allocation for carbon offsetting as the outcome variables for Studies 2a–c, respectively. Thus, the causal link between the moral circle size and instances of pro-environmentalism was established.

What is also noticeable in Step 3 is the negative effect of the inclusion–exclusion manipulation when included together with the moral circle. This effect reached significance in Study 2a, marginal significance in Study 2c, and was non-significant in Studies 2b and 2d. The negative effect of the inclusion–exclusion manipulation when the moral circle is also included in the equation suggests that it may act as a suppressor of the moral circle effect on the DVs (MacKinnon, Krull, & Lockwood, 2000; Rucker, Preacher, Tormala, &

Petty, 2011).<sup>1</sup> This suppression effect is somewhat surprising considering that the moral circle was found to mediate the effect of inclusion–exclusion manipulation in past research (Laham, 2009; Study 2). However, although the obtained different types of indirect effects is potentially interesting for clarifying the IED effect (Yaniv et al., 2002), it is incidental for our argument. What was important for demonstrating causality in the current (Studies 2a–c) and in past research (Laham, 2009; Study 2) were the obtained significant indirect effects.

In Study 2d, an examination of Step 3 and the step including the interaction term showed that although the main effect of moral circle on intentions to unplug electrical devices was not significant (Step 3), the interaction between moral circle and perceived impact positively and significantly predicted the outcome variable. Simple slopes analyses (Aiken & West, 1991) revealed that intentions to unplug electrical devices was predicted by the moral circle size only for participants who believed that the behavior has a positive impact on the environment,  $B = .05$  ( $\beta = .43$ ),  $t(64) = 2.50$ ,  $p = .015$ , but not for those who believed that it does not have a positive impact,  $B = -.01$  ( $\beta = -.10$ ),  $t(64) = -.57$ ,  $p = .57$  (Figure 1). A bootstrapped test of the predicted mediated moderation also yielded significant results (95% CI between 0.16 and 1.17) supporting the hypothesized conditional indirect effect.

<sup>1</sup>To examine why the suppression effect occurred, we calculated the correlations between the moral circle size and the DVs for the inclusion and exclusion conditions separately, as recommended by Thompson and Levine (1997). The results revealed that the association between the moral circle and each of the three DVs was stronger in the inclusion than in the exclusion condition (.88 versus .66 for moral obligation, .50 versus .17 for money allocation, .38 versus .32 for support for policy, and .02 versus .30 for unplugging or switching off electrical devices). This may be due to a more deliberate approach adopted when deciding which entity to include in (versus exclude from) the moral circle, which may have reflected participants' pro-environmental stance (as measured by the DVs) more accurately.

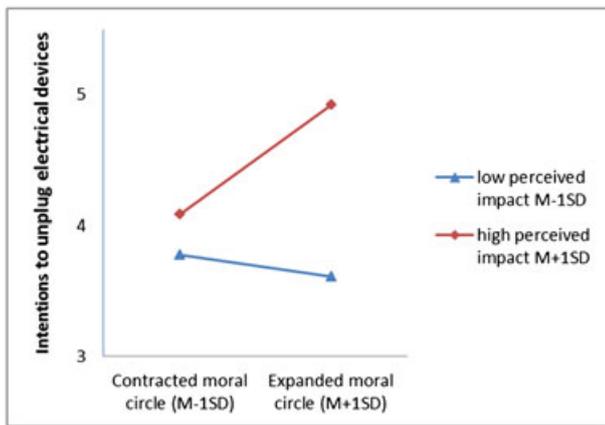


Figure 1. Moderation by perceived impact of the effect of moral circle on intentions to unplug electrical devices. Simple slopes are plotted 1 *SD* above and below the respective centered means of perceived impact and moral circle variables (see Aiken & West, 1991)

Taken together, the findings from the four studies demonstrated that the moral circle is a common motivational cause of cross-situational pro-environmentalism. More specifically, Study 2a demonstrated that a more expansive moral circle leads to a greater moral concern for natural entities, conceptually replicating the “spill-over” effect obtained in the social domain (Laham, 2009). Study 2b revealed that a more expansive moral circle leads to an increased preference to allocate money for carbon offsetting. Study 2c demonstrated that a more expansive moral circle leads to greater support for policy aimed at reducing environmental pollution. Finally, Study 2d showed that a more expansive moral circle is also predictive of intentions to engage in concrete pro-environmental behaviors. The significant moderation by perceived impact on the environment, however, emphasized the importance of clarifying for the public the environmental benefits of target behaviors in order to encourage public engagement in these behaviors.

## GENERAL DISCUSSION

In a series of five studies, we demonstrated a link between moral circle size and willingness to engage in a range of pro-environmental activities. Study 1 showed that a chronically expansive moral circle is positively associated with pro-environmental activities as diverse as money allocation to pro-environmental initiatives, support for environmentally beneficial policies, and intentions for energy saving and sustainable food consumption behaviors. Studies 2a–d established that the moral circle size is causally predictive of pro-environmental activities. Together, these studies provided converging evidence that the moral circle is a previously unidentified cause of pro-environmental activities, and thus may be utilized to efficiently promote these activities.

These findings suggest that in its function as a common cause of environmentally beneficial activities, the moral circle construct is comparable with pro-environmental values and identity. Although the literature on values and identity and their influence on pro-environmentalism is vast, psychological research on the content, scope, and consequences of the moral circle is currently limited. The unquestionable strength of

values and identity is their centrality in defining who we are. By virtue of reflecting the core of ourselves, these constructs are informative of our otherwise diverse, seemingly unrelated domain-specific behaviors. However, the centrality of values and identity to the self-concept also poses a challenge to interventions aimed at change, such as public campaigns. One advantage of the moral circle construct is its relative flexibility, which opens opportunities to instill desired change. As shown by the current and past research, the scope of entities granted moral status may simply depend on how people approach the task of demarcating their moral circle. It is also less likely that attempts to expand the moral circle would trigger feelings of treat, resistance, and psychological reaction: attributing moral status to a wider range of entities directs attention to the characteristics of these entities rather than to highly charged, essential characteristics of the self, as in the case of values and identity.

Currently, there is little research on what factors influence the moral circle size. However, Bloom, Pizarro, and colleagues (Bloom, 2004; Pizarro, Detweiler-Bedell, & Bloom, 2006) posit that reason, emotion, and empathy could be creatively utilized in expanding the moral circle. Future research can explore the positive influence of these factors and inform public campaigns aimed at expanding the moral circle and in turn promoting pro-environmental behavior. We recognize that the ultimate goal of such campaigns is not an ephemeral but an enduring commitment to a sustainable lifestyle. This may be expected to result from a chronically expanded moral circle. However, once presented with a basis on which to attribute moral standing to an entity, at least some individuals may internalize the moral obligation felt toward that entity and chronically expand their moral circle. Moral vegetarianism provides one example of such process of internalization, whereby concern for animals results in a long-term commitment to a meat-free diet (Rozin, Markwith, & Stoess, 1997). To the extent that avoiding meat consumption is a form of pro-environmental behavior, vegetarianism is an example of how the set of entities that people care for is linked to and may be called upon in promoting pro-environmentalism.

The current research is limited in several ways. It examined intentions to engage in pro-environmental activity rather than actual behaviors. Although intentions are generally predictive of behavior (Ajzen, 1991), costliness or difficulty may be an important factor that influences the intention–behavior link (Kaiser & Wilson, 2004) but becomes more apparent when actual engagement in the behavior is undertaken. Furthermore, the current research did not examine that the duration of the effect of situationally expanded moral circle is on pro-environmental behavior. Future research employing longitudinal design can help determine the degree to which expanding the moral circle brings about continuous engagement in pro-environmental behaviors of varied degrees of difficulty. Such findings may comprehensively inform the design of effective interventions promoting sustainable lifestyle. As a first step in this direction, the current research presents evidence that the moral circle is a previously unidentified source of motivation for pro-environmentalism. Furthermore, it suggests that our society, indeed our planet, could benefit from

people expanding the scope of entities that they consider worthy of moral concern.

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