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The Malleability of Environmentalism

Kimberly A. Wade-Benzoni

Min Li

Leigh L. Thompson

Max H. Bazerman

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The Malleability of Environmentalism

Kimberly A. Wade-Benzoni
Min Li
Duke University
The Fuqua School of Business
Durham, N.C. 27708

Leigh L. Thompson
Northwestern University
Kellogg School of Management

Max H. Bazerman
Harvard Business School
Harvard University

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Abstract

In this paper, we predict and find that self-perceptions of environmentalism are changed by subtle manipulations of context and, in turn, affect environmental behavior. In Study 1, we found that people exhibit greater positive assessments of their environmental behaviors (1) in the context of denying harm to the environment than in the context of claiming to help the environment, and (2) in situations where behaviors are evaluated subjectively than in situations where behaviors are evaluated more objectively. In Study 2, we explored the relationship between self-perceptions of environmentalism and environmental behaviors. Our data suggest that environmentally friendly behaviors may be promoted by leading people to perceive themselves as good environmentalists.

KEYWORDS = Environment, Environmentalism, Environmentalist, Identification, Identity, Self-concept

The Malleability of Environmentalism

Progress has been made in the past couple of decades in confronting environmental challenges worldwide. A growing number of individuals in the public and private sectors has taken great strides toward incorporating environmental considerations into their daily activities. Despite this progress, movement toward a sustainable future may be too slow. From a global perspective, the environment has continued to degrade during the past decade and significant problems remain.

The world is undergoing accelerating change, with environmental stewardship lagging behind economic and social development. Environmental gains from new technology are being overtaken by increasing population and economic growth. It is still possible, however, to slow down trends towards environmental degradation by shifting economic activity to a more sustainable pattern (U.N.E.P., 1999). A sustainable future will involve coupling technological advances with changes in human behavior, especially with respect to choices for levels and patterns of consumption. Thus, an important question for social science in attempting to understand these problems and formulate solutions is: What factors influence environmental behavior?

Behavior that affects the environment is presumably rooted in human values. Those who identify themselves as environmentalists value the condition of the environment. Like other social identities, environmentalism is a social category that represents an important, self-defining dimension for some people. Environmentalism involves advocacy of the preservation or improvement of the natural environment (Webster, 1990). Theorists have argued, however, that this definition and the term "environmentalist" and "environmentalism" are so broad that they are nearly meaningless (see Hoffman & Ehrenfeld, 1998). What does it mean when people say that

they are environmentalists or that they support environmentalism? In this paper, we examine the premise that self-perceptions of environmentalism are not stable, but rather they are strongly affected by contextual factors. In addition, to the extent that people identify with environmentalism, it is likely to affect their environmental behavior. Thus, our approach uses social cognition, self-concept, and identity theory to help explain environmental behavior.

Self-concept has long been a central concept in social psychology. It conventionally refers to all aspects of knowledge concerning who one is (Rhodewalt & Agustsdottir, 1986). More specifically, it is an organization of various identities and attributes, and their evaluations developed out of the individual's activities (Gecas, 1982). Social identity, derived from belonging to a particular group, gives structure and content to self-concept, and anchors the self to social systems (Banaji & Prentice, 1994). All individuals have a range of identities. According to social identity theory, different identities come into play over time and across situations, exercising priority but not negating the existence of other identities (Deaux, 1996). The identity that is most salient provides the individual with a guide for behavior (Markus, 1977; Turner, 1982), and the saliency of an identity depends on the context (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, McGarty, 1994).

Self-concept researchers appear to converge with the identity theorists on the notion of the self as containing a variety of representations. Different aspects of self exist under the more general umbrella of self-concept, but at any one moment, only a subset of the various representations is accessed and evoked to guide the individual's behavior. The concept that best represents this theorizing is the "working self-concept", or the "self-concept of the moment". The idea is that there is not a fixed or static self, but only a current self-concept constructed from one's social experiences (Markus & Nurius, 1986; Markus & Wurf, 1987; Rhodewalt, 1986,

Rhodewalt & Agustsdottir, 1986). Although core aspects of self are usually relatively unresponsive to changes, many other aspects of the self could become salient depending on the individual's motivational state or on the prevailing contextual factors (Markus & Wurf, 1987).

Both the self-concept and social identity play a role in people's environmentalism and environmentalist behavior. The process of identification begins with the application of a label to oneself, i.e., "I am an environmentalist," which involves the recognition that "environmentalism" is a characteristic shared by some number of people, and weaves this aspect (being an environmentalist) into one's self-concept. Because people identify with numerous social groups or categories, their self-identities contain other values that at times may conflict with environmentalism. For example, individualistic or social welfare (e.g., race relations, etc.) concerns may compete with environmental concerns. Consistent with the view on the salience of social context, we expect that some situations render the identity of environmentalism more accessible and/or desirable than others. Such situations increase an individual's identification with environmentalism in those contexts, and highlights the part of the self-concept as being an environmentalist.

In sum, our thesis is that self-identity and self-concept are not fixed, but rather are invoked in response to certain contextual and situational factors. We further contend that such malleable self-concept affects environmental behavior. This prediction is consistent with the research which shows that very small changes in the context of a decision can have major effects on judgments (Kahneman & Tversky, 1984; Kramer, Newton, & Pommerenke, 1993). We conducted a pair of experiments to address the malleability of environmental self-identity and explore its relationship to environmental behaviors.

Study 1

In our first study, we examined two factors that we believed would influence one's identification with environmentalism: (a) the extent to which an individual's self-concept is challenged or threatened and (b) the ambiguity of interpretation in the situation.

Threats to Self-perceptions

In the processing of self-relevant information, there are two key means by which people may come to have a distorted self-concept. The first is protection of self-image, which entails the avoidance of evidence that may threaten a self-evaluation. The second is embellishment of self-image, which involves the creation or exaggeration of evidence that may inflate a self-evaluation. This may be in the form of selective attention to favorable information and selective interpretation of information. Both mechanisms, avoidance and distortion, lead to self-evaluations that may be more positive than would be judged by an objective standard.

In this paper, we argue that people accept the state of the environment as a reference point. From this reference point, harm done to the environment is considered as a loss and improvement to the environment is regarded as a gain. Prospect theory demonstrates that, with regard to the reference point, losses loom larger than gains of the same magnitude (Kahneman & Tversky, 1979). Applied to the context of our research, environmental damage looms larger than improvement. Consequently, people care more about not being the cause of making the environment worse than about being responsible for making the environment better, and are more inclined to actively seek disassociation with environmental damage rather than pursue association with environmental improvement. As a result, if evaluations are viewed in terms of how much an individual contributes to the cause of environmental problems, people will react more strongly by rating themselves higher on environmental behaviors than if they are viewed in terms of how much an individual contributes to the resolution of environmental problems. Thus,

we expect people to develop stronger self-concept of environmentalism and exhibit greater positive assessments of their environmental behaviors in the context of denying harm to the environment (protection of self-image) than in the context of claiming to help the environment (embellishment of self-image) (Hypothesis 1).

Ambiguity of Interpretation

As a general rule, people desire to see themselves in a positive light, especially when it comes to comparing themselves to others. Some situations allow people to make more favorable comparisons than do others. One important situational factor that allows people to positively inflate their competence in a particular area is the degree of ambiguity in situations. For example, Dunning (1995) presented individuals with a number of positive traits (e.g., intelligent, competent, fast, etc.) and asked them to rate themselves on the traits relative to their peers. Most people tended to over-estimate their own abilities. Because of their subjective nature, these traits were highly ambiguous and therefore subject to many interpretations. When people were asked to define the traits, a strong self-enhancement bias emerged. That is, people tended to interpret traits in a fashion that was self-serving. For example, the person with chronically low grades in college courses but many varied life experiences interpreted intelligence to mean creativity and individualism. In contrast, the person with high college entrance test scores interpreted intelligence in terms of achievement in particular subject areas. The ambiguity in the interpretation of a given trait allowed people to maintain and enhance favorable perceptions of their own abilities.

A comparable argument was made by Allison, Messick, and Goethals (1989) and Schlenker, Weigold, and Hallan (1990), who suggested that the extent to which people can maintain unrealistically positive beliefs about themselves may be constrained to some degree by

the objectivity, credibility, and potential disconfirmability of those beliefs. For example, it is easier for people to maintain the view that they are more honest or fair than others than that they are a more witty conversationalist or more skillful than others at a particular activity such as racquetball or chess. Allison et al. (1989) tested this idea by comparing self-assessments of moral behavior with intelligence. They predicted and found that people have greater self-enhancement biases when evaluating their own moral behavior than when evaluating their own intelligence. They attributed this difference to intelligence being easier to evaluate on objective criteria than moral behaviors.

We propose that a similar process may operate in the perception of environmentally relevant actions. That is, self-ratings of environmentalism may depend on how much ambiguity surrounds the self-assessment. Specifically, people may maintain unrealistically positive beliefs about their environmentalism when their self-evaluation is difficult to disconfirm, but possess more realistic assessments of themselves when they are constrained by the objectivity of the evaluation. For example, assessments of more general beliefs such as one's awareness of, concern for, understanding of, and interest in environmental issues and problems are difficult to confirm or disconfirm. In contrast, beliefs about how well one does on specific activities such as recycling, donating money to environmental organizations, and using energy-saving light bulbs can be checked against objective measures. Thus, we predict that people will exhibit greater positive assessments of their environmental behaviors in ambiguous rather than concrete domains (Hypothesis 2).

Another way that people strengthen their perceptions of themselves as environmentalists is by making self-serving judgments of importance of environmentally relevant activities. Self-serving biases may cause individuals to believe that their positive contributions to environmental

issues are more important than the contributions of others. For example, an individual who puts a lot of effort into recycling, but is reluctant to take public transportation, may justify this decision by convincing him or herself that recycling is the most important aspect of addressing the environmental crisis. There is ambiguity as to which behaviors are the most important in reality. As individuals have the liberty to judge what they already do (perhaps what conveniently fits into their lives) as more important than behaviors that may represent inconvenient lifestyle changes, they are able to maintain a positive self-image as environmentally sensitive. Thus, we predict that there will be a positive relationship between self-ratings on environmentally relevant behaviors and assessments of the importance of the behaviors (Hypothesis 3).

Methods

Participants

One hundred and thirty-six graduate students at a major university participated in this study as part of a class exercise.

Procedures

Participants were asked to rate themselves relative to their classmates on a variety of environmentally relevant activities. Activities included both general items, such as awareness and understanding of environmental issues and problems, and specific items, such as recycling and taking public transportation. Items were presented to participants in a randomized order. The general items were used as a measure of conceptual or abstract environmental sensitivity and were open to wide interpretation. The specific items were used as a measure of concrete environmental sensitivity and were highly specific, allowing little interpretation. Participants were asked to indicate a percentage to describe their position relative to others in their class. For example, if they thought that all other classmates rated higher than themselves, they were

instructed to enter “0” as their percentage. If they thought they rated above all their classmates, they entered “100.” All numbers between “0” and “100” were acceptable responses, where higher scores represented higher environmental sensitivity. Thus, a score of “50” indicated that the participant thought s/he was about equal on average to his/her classmates.

Participants were randomly assigned to two conditions with exactly half of the participants in each condition. In the “claiming to help” context condition, items were presented in a manner such that participants rated themselves on how “good” they were relative to others. For example, participants rated themselves relative to others on “awareness of environmental issues.” In the “denying harm” context condition, items were presented in a manner such that participants rated themselves on how “not bad” they were relative to others. For instance, participants rated themselves on “lack of awareness of environmental issues.” Instructions to participants in the two conditions were created so that ratings in the two conditions were directly comparable. In both cases, a higher score indicated higher environmental sensitivity. The items in both conditions were the same except for the context. The questions used in each of the two conditions are provided in Appendix A.

Measures

Environmental sensitivity. Environmental sensitivity was reflected in two dimensions: (a) general or abstract environmental sensitivity, and (b) specific or concrete environmental sensitivity. The abstract environmental sensitivity consisted of the responses to the 5 general items out of the 15 questions (as indicated in Appendix A). The concrete environmental sensitivity consisted of the remaining ten specific items (see Appendix A).

Importance of activities. For each activity, there was a corresponding question that asked participants to rate the importance of the activity on a scale of one to five (“1” = extremely

important and “5” = totally unimportant). Paralleling the dimensions of environmental sensitivity and their respective measures, the importance of activities was composed of two dimensions (i.e., the importance of the general activities and the importance of the specific activities) and the activities described subdivided into general items and specific items as did the environmental sensitivity measures. The responses were reverse coded so that a greater score indicates a higher level of importance.

Results

One of the participants did not provide answers to some of the questions. That individual was dropped from the sample, leaving an effective sample size of 135.

To examine in a thorough way the conclusion that there are two dimensions (general and specific) of environmental sensitivity and two corresponding dimensions of importance of activities, we conducted a series of confirmatory factor analyses (CFA) using structural equation modeling (SEM) approaches and the software LISREL8 (Joreskog & Sorbom, 1996). The first two CFA models (Model 1 and Model 2) were models with one latent factor for the constructs of environmental sensitivity (ENV) and importance of activities (IMP) respectively. Another two CFA models with two latent factors (Model 3 and Model 4) were then developed to differentiate the two dimensions (general and specific) for environmental sensitivity (GenENV and SpeENV) and for importance of activities (GenIMP and SpeIMP) respectively. Finally, an overall model (Model 5) which encompasses the four latent factors – GenENV, SpeENV, GenIMP, SpeIMP was constructed. To realistically represent the relationship between the latent factors and their measurement items (indicators in the SEM term), in the overall model the four latent factors were correlated, and the error terms of the indicators which tapped the same activity were correlated too.

Maximum likelihood estimation method was used for all five models. To compare the models, we examined the “Goodness of Fit” statistics of each model. More specifically, we focused on several important model fit indices including Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Incremental Fit Index (IFI)¹, and we conducted chi-square difference tests for nested models. The model comparison results are presented in Table 1.

Insert Table 1 about here

For both ENV and IMP, the two-factor models proved to be a significant improvement from the one factor models in terms of all three model fit indices. For example, the two-factor model for ENV had a RMSEA of .07, indicating a reasonable fit, whereas the one-factor model had a RMSEA of .13, indicating an inadequate fit. The χ^2 difference test also confirmed that the two-factor models fit significantly better than the one-factor models. For instance, the chi-square difference between the one-factor IMP model and the two-factor IMP model is 88.21. With a degree of freedom of 1, the model improvement is highly significant ($p < .001$). The overall model with four latent factors fitted the data the best (RMSEA=.043, CFI=.97, IFI=.97), and it represented closely and realistically the design of our study, therefore we chose to present the overall model (see Figure 1) together with the parameter estimates and factor loadings (see Table 2).

Insert Figure 1 about here

¹ A significant chi-square indicates a significant difference between data and model. However, in the practice of SEM, exact fit is rare, and with large sample sizes the chi-square test usually turns out to be significant (Oort, Visser, & Sprangers, 2005). An alternative way is to look at RMSEA, CFI, and IFI. The rule of thumb for RMSEA is that a value below .08 is considered as a reasonable fit and a value below .05 a close fit. The rule of thumb for CFI and IFI is that a value above .90 indicates a good model fit.

Insert Table 2 about here

Further examination of the overall model showed that all the factor loadings were significant, and the reliability among the indicators for each latent factor was high ($\alpha=.89$ for GenENV, .76 for SpeENV, .86 for GenIMP, and .87 for SpeIMP). The comparison of the five models made it clear that we are dealing with two distinct constructs (environmental sensitivity and importance of activities), each of which has two distinct dimensions, the first referring to the general aspects and the second referring to the specific aspects of the construct.

Hypothesis 1 stated that people will develop stronger self-perceptions of environmentalism and exhibit greater positive assessments of their behavior in the context of denying harm to the environment than in the context of claiming to help the environment. Testing this hypothesis involved comparing the factor means of general environmental sensitivity (GenENV) and specific environmental sensitivity (SpeENV) across the two conditions. To this end, we first extended the overall model (Model 5) to an SEM model with mean structures.

To compare the means of the latent factors, we adopted the following logic. First, estimating latent means requires more than a single group. Group differences in the means of latent factors can be estimated if the latent variables are on the same scale in all groups (Joreskog & Sorbom, 1997, p. 299). This is the case in our study. Although factor means for one group cannot be determined in an absolute sense, they can be estimated relative to the factor means in the other group. In practical terms, we can specify the means of the latent factors to be zero in one group, and then estimate the means of the factors for the other group. The estimates are effectively the mean differences in the latent factors between the baseline and other groups, and

if they are significantly different from zero, we can conclude that the two groups differ in the means of the latent factors.

Maximum likelihood estimates for the model with mean structure are shown in Table 3. The two conditions differed significantly in GenENV, SpeENV, and GenIMP, the differences being 7.02, 4.99, 0.22, with standard errors equal to 3.36, 2.19, and 0.11 respectively. The factor means in condition 2 (denying harm) were significantly higher than those in condition 1 (claiming help). It seems that participants in the context of denying harm evaluated themselves as higher on environmentalism in both general and specific terms than those in the context of claiming help. These results provided strong support for Hypothesis 1.

Insert Table 3 about here

Hypothesis 2 postulated that people will exhibit greater positive assessments of their environmental behaviors in ambiguous rather than concrete domains. Testing this hypothesis involved comparing the factor means of GenENV and SpeENV. We extended the two-factor model of environmental sensitivity (Model 2) to include mean structure, and conducted analyses by comparing an unconstrained model (initial model) with a constrained model. The constraint imposed on the initial model was that the factor means of GenENV and SpeENV were equal. The rationale behind this approach is that, by comparing the initial and constrained models, we can assess whether constraining the factor means to be equivalent is consistent with the data. To the extent that the constrained model fits more poorly than the unconstrained model, the constraints will be judged as inappropriate for the data. A χ^2 difference test was conducted and it yielded significant results ($\chi^2_{\text{difference}}(1) = 4.31, p = .0038$). A similar procedure was carried out for importance of activities, which also yielded significant results ($\chi^2_{\text{difference}}(1) = 14.31,$

$p < .001$), as shown in Table 4. These results indicated that participants perceived themselves as higher in environmentalism in the ambiguous than in the concrete domains. Accordingly, they also attached more importance to the activities in the ambiguous domain than in the concrete domain. Thus, Hypothesis 2 received strong support.

Insert Table 4 about here.

To examine the relationship between self-ratings on environmental behavior and assessment of the importance of the behaviors (hypothesis 3), we looked at the estimated variance-covariance and correlation matrices of the four latent factors in the overall model (refer to Table 2). The correlation between GenENV and GenIMP was high and significant (.65, $p < .001$), so was the correlation between SpeENV and SpeIMP (.61, $p < .001$), indicating that there were strong positive relationships between self-ratings on environmentally relevant behaviors and assessments of the importance of the behaviors in both general terms and specific terms. Therefore, Hypothesis 3 was supported.

Discussion

Our results suggest that judgments of self-perceived performance on environmental behaviors may depend on the two factors explored in this study: threats to self-concept and disconfirmability. Self-ratings of environmental behavior were higher in the “denying harm” context condition than in the “claiming to help” context condition, indicating a greater propensity to deny harm to the environment than to claim good. This effect suggests that not contributing positively to environmental efforts does not threaten self-image, as much as contributing negatively does. In other words, it does not bother people not to be part of the solution as much as it bothers them to be considered part of the problem (or more part of the problem than others).

The implications of this finding for promoting environmentally friendly behaviors are potentially troubling. When assessing their own behavior, people strive for internal consistency (Cialdini, 2000, p. 54). People may think about their decisions in a manner that allows them to believe that their behavior is not incompatible with the belief that one should not contribute to environmental degradation (at least not more than others do on average), when in reality their behavior is inconsistent with that belief. In addition, people are less motivated to modify their behavior if they believe that they are not part of the problem since blame can be placed elsewhere.

Results also indicated that people exhibit greater positive assessments of their environmental behaviors in abstract than in concrete domains. We argue that the difference in ratings between the two domains is due to the ambiguity associated with the abstract measure of self-assessments of environmental behavior and the lack of ambiguity characteristic of the concrete measure. There is “more room” for the inflation of positive self-assessments when the rating on the behavior is difficult to confirm or disconfirm. The abstract measure allows people leeway for inflated self-ratings since it is difficult to test the rating against some objective standard.

The significant and positive correlation between self-ratings on environmentally relevant behaviors and judgments of the importance of those activities suggests a self-serving tendency for people to believe that activities on which they are doing well relative to others are important, and the ones on which they are not doing well are less important, thus protecting self-image and justifying continuing current behavior. An alternative explanation for the result is that people try to do well on the activities that they consider more important. We cannot determine from the

research conducted here which of these alternative explanations may be responsible for this relationship.

In study 2, we begin to explore how self-concept as an environmentalist may be related to actual environmental decisions and behaviors.

Study 2

Study 1 suggested that to the extent that the situation provided ample opportunity for the self-serving interpretation of environmental behaviors and beliefs, and people's self-identities associated with environmentalism were threatened, greater self-ratings of environmentalism were asserted. Our results indicate that with respect to environmental self-assessments, people's self-identities and self-concept are highly malleable and more or less salient at any one time. This represents both an opportunity and concern for the social scientist interested in change.

We hypothesized earlier that to the extent that people identify themselves with environmentalism and having a working self-concept of being an environmentalist, they will be more likely to engage in environmentally-friendly behaviors. However, we did not test this assumption in study 1. The purpose of study 2 was to directly test this assumption. In study 2, we directly manipulated people's self-perceptions by leading some individuals to regard themselves as strong environmentalists, while others were led to believe that they were, at best, weak environmentalists. We used a methodology borrowed from Salancik & Conway (1975) and Chaiken & Baldwin (1981) in which people were led through a self-perception mechanism to view themselves to be either strong or weak environmentalists.

We predicted that those who strongly identified themselves as environmentalists would, when provided with an opportunity, engage in more environmentally friendly behaviors than those who did not strongly identify themselves as environmentalists. Our prediction was based

on the principle that once self-identities are invoked, people act to maintain them. Our prediction was consistent with the research on self-verification, which suggests that people have a desire to maintain a particular view of themselves (Swann & Gilbert, 1990).

In study 1, we found that self-evaluations of environmental behaviors can be manipulated. We further contend that the manipulable self-concept is related to actual environmental behaviors. Salancik & Conway (1975) conducted experiments in which the availability of information to individuals was manipulated to examine the effect of such information on individuals' perceptions and judgments. For example, in one experiment, participants were asked to indicate whether statements of religious behavior applied to them or not. It was found that participants for whom pro-religious behaviors were made salient were more positive about being religious than were participants for whom anti-religious behaviors were made salient. The results of these experiments suggested that individuals use immediately available information to derive judgments when the information is both salient and relevant to their judgments. Similarly, Chaiken & Baldwin (1981) found that when pro-ecology behaviors were made more salient to people, they expressed more positive attitudes toward being an environmentalist.

Consistent with these findings, we argue that the self-conception of being an environmentalist can be influenced by immediately available information. We suggest that self-concept as an environmentalist is not stable within individuals. Rather, it depends on what is salient to the individual at the moment when she or he is required to assess her or himself. In other words, the social situation and contextual factors are critical in deciding the content of the working self-concept. Thus, we predict that individuals will respond more positively to

environmentalism if the information immediately available to them indicates that they are exhibiting more environmentally conscious behaviors (Hypothesis 4).

Manipulable self-concept is important if it in turn is related to the behavior of the individual. We argue that the self-conception of being an environmentalist is related to environmentally relevant behaviors. Salancik & Conway (1975) and Chaiken & Baldwin (1981) do not extend their research to include how manipulated information availability affects actual behavior. For example, in Salancik & Conway's study, one might ask if the participants who responded more favorably to being religious subsequently attended church or read the Bible more regularly than those who responded less favorably. As part of our research, we included behavioral measures to investigate how the self-concept that has been manipulated is related to actual behavior. This is important to explore because of the possibility that behavior can be changed via the manipulation of self-concept, and this could in practice effectively induce more environmental friendly behavior.

People try to make sense of the world by looking for consistency among their own experiences, beliefs, and actions. Perceived inconsistency between beliefs and behaviors sets up an unpleasant internal state -- cognitive dissonance -- which people try to reduce (Festinger, 1957). Cognitive dissonance triggers a general tendency to restore cognitive consistency. Thus, it might be expected that individuals with a more positive self-concept of environmentalism would exhibit more environmentally conscious behavior (Hypothesis 5).

Methods

Participants

Two hundred and five graduate students at a major university participated in this study. They were entered in a lottery to win \$250 for their participation.

Procedures

Participants responded to a self-explanatory questionnaire. They were given a list of thirteen behaviors relevant to the environment and were asked to place a checkmark next to each statement that was true for them. Participants were randomly assigned to one of two conditions. In one condition, the statements indicated that the behaviors were done sometimes or occasionally. For example, items included "I occasionally understand environmental issues and problems" and "I occasionally donate money to help environmental causes." In the second condition, the statements indicated that the behaviors were done frequently or usually. For example, items included "I usually understand environmental issues and problems" and "I usually donate money to help environmental causes." Since it was easier for participants to check the activity in the first condition than in the second condition, it was expected that participants would indicate that a statement was true for them more frequently in condition 1 than in condition 2. The logic of this manipulation was that when participants are checking items more frequently, the information immediately available to them suggests that they are relatively better environmentalists compared with the other condition where they are checking activities less frequently. Items were presented to participants in a randomized order. Appendix B lists the items for each condition.

Measures

Environmentalism. Participants were asked seven questions to determine their perceived environmentalism. An 11-point plus-minus scale (-5 to 5) was provided for responses to the first three questions. The first question was, “To what extent do you consider yourself to be favorable or unfavorable toward environmentalism?” End labels for the scale were “extremely unfavorable” and “extremely favorable.” The second question was, “To what extent do you consider yourself to be an ‘environmentalist’?” with end labels of “not at all” and “very much so.” The third question was, “To what extent do you consider the environmental movement in society important?” with end labels of “not at all important” and “very important.”

For question four, participants were asked to indicate the extent to which they considered themselves environmentally focused relative to their classmates by providing a percentile to describe their positions relative to their classmates. For example, if they considered themselves less environmentally focused than all their other classmates, then they entered “0” as their percentile. If they thought that half their classmates were more environmentally focused and half were less environmentally focused, they entered “50” as their percentile. If they thought that they were more environmentally focused than all their classmates, they entered “100.” Thus, a lower score indicated less environmentally focused and a higher score indicated more environmentally focused.

For the final three questions, participants were asked to fill out semantic differential scales in response to the statement, “I personally feel that being an environmentalist is . . . “ The scales included bad/good, harmful/beneficial, foolish/wise.

Environmental behaviors. Participants were asked if, in the event that they won the lottery, they would like to pre-commit a portion (or all) of the money as a donation to an organization that benefits the environment (such as Sierra Club or Greenpeace). If they answered

“yes,” they were asked how much of the \$250 they would like to donate. Participants were also asked if they would like their name to be given to the Environmental Club for future contacts and information. Finally, they were asked if they would be willing to make phone calls to raise money for environmental issues, and if so, how many hours of time they would contribute.

Note that participants believed that they would really be engaging in these behaviors (i.e., the person that won the lottery did pre-commit a portion of the lottery money to an organization that benefits the environment and did, in fact, donate a portion of it to that organization after winning the lottery). This behavioral measure can be compared to that of fund raising campaigns for public radio, for example, where they ask for pledges from listeners and then collect the money later. At the time that pledges are made, people are not actually paying the money, but they intend to follow through with their pledge and make a donation (and nearly always do).

Manipulation check. The frequency with which participants indicated that statements were true for them served as a manipulation check for self-concept of being an environmentalist. Thus, it was expected that participants would indicate that a statement was true for them more frequently in condition 1 (where the activities were done “occasionally” and it was easier for the statement to be true for them) than in condition 2 (where the activities were done “usually” and it was harder for the statement to be true for them).

Results

Four participants did not provide complete answers to the questionnaire. They were deleted from the sample, leaving us with 202 effective responses for our analysis.

We calculated the sum of the total number of endorsed items for each participant and ran a t-test to compare the means of the total number of endorsed items between the two conditions (occasionally/easy vs. usually/hard). The t-test showed the mean of condition 1 is significantly

higher than that of condition 2 (see Table 5), indicating that participants in the occasionally/easy condition endorsed a significantly greater number of items than participants in the usually/hard condition. Therefore the manipulation was effective.

Insert Table 5 about here

Hypothesis 4 stated that individuals will exhibit a more positive self-conception of environmental identity if the information immediately available to them indicates that they are exhibiting more environmentally conscious behaviors. Hypothesis 5 further predicted that self-concept of environmentalism would be related to environmentally relevant behaviors. To test these two hypotheses, we first conducted a two-factor CFA model to establish the validity of the measures we used in the study. The CFA model consisted of two constructs: environmentalism (ENV) and environmental behavior (E-BEHA). The first seven questions provided indicators for the latent factor ENV. As mentioned before, questions 1 to 3 asked participants on a 11-point plus-minus scale the extent to which they consider themselves favorable toward environmentalism, consider themselves environmentalists, and consider the environmental movement in society important. To some degree these questions tapped participants' self-evaluation of environmentalism, therefore the error terms of these three indicators were allowed to correlate in the CFA model. In question 4, participants rated themselves on how environmentally focused they were relative to their classmates using a percentile. Questions 5a to 5c asked participants their attitude toward being an environmentalist on three differential scales (bad/good, harmful/beneficial, foolish/wise), which were coded from 1 to 5. Similarly, the error terms of these three indicators were correlated. Overall, the seven indicators showed high reliability ($\alpha=.86$). The indicators for the second latent factor – E-BEHA – however did not show

high reliability ($\alpha=.03$). An examination of the scale of the indicators revealed that the problem resulted from the obvious difference in the respond mode – yes/no response mode for questions 6 (donation), 8 (name giving), and 9 (time contribution) versus numeric response mode in different units for questions 7 (donation amount in dollars) and 10 (hours committed). We chose the questions with yes/no answers as the indicators for E-BEHA because the responses to these questions showed reasonably high liability ($\alpha=.5$) as compared to the questions with numeric response mode which had a much lower reliability ($\alpha=.02$).

The two-factor CFA model is consistent with the data. All the factor loadings were significant, and the goodness-of-fit indices indicated a reasonable fit (RMSEA=.085, CFI=.98, IFI=.98). The parameter estimates and factor loadings were reported in Table 6 and the model was presented in Figure 2.

Insert Table 6 about here

Insert Figure 2 about here

Following the same procedure applied in study 1, we extended the two-factor CFA model to include factor mean structure so as to examine whether the average level of environmentalism differs across the two experimental conditions. The maximum likelihood estimates for the model is shown in Table 7. The mean of ENV in the usually/hard manipulation condition was significantly lower than that in the occasionally/easy manipulation condition (mean difference = -0.47, standard error = 0.20). This result shows that when the information immediately available to participants indicates that they exhibit environmentally conscious behaviors, participants tend to evaluate themselves as higher on environmentalism. In contrast, when the immediately available information suggests that participants do not frequently demonstrate environmentally

conscious behaviors, they evaluate themselves as lower on environmentalism. Thus, Hypothesis 4 was supported.

Insert Table 7 about here

In the two-factor CFA model, the estimated correlation between the two latent factors ENV and E-BAHV was positive and statistically significant, indicating that self-concept of environmentalism was related to environmentally relevant behaviors. More specifically, individuals with more positive self-perceptions of environmentalism exhibited more environmentally conscious behavior, providing support for Hypothesis 5.

It should be noted that the mean of E-BEHAV did not differ across conditions (mean difference = -.02, standard error = 0.05). This non-significant result could be caused by the imperfect measures of environmental behavior. Recall that the reliability of the three measures of environmental behavior was 0.5. The three activities described in the items – donating a portion of the money (if win) to an environmental organization, giving own name to the environmental club for future contacts and information, and contributing time to make fund-raising phone calls – might not be representative of the environmental activities that are typically available and appealing to students.

Discussion

The results suggest that self-conceptions of environmentalism is not stable within individuals. Instead, they are manipulable. Depending on information immediately available to them, people may consider themselves more or less environmentalists and more or less favorable toward environmentalism. The finding that self-concept of being an environmentalist can be

manipulated is important since, as suggested by our results, these self-conceptions may in turn be related to actual environmental behavior.

Our research was based on the principle that self-concept and identities are highly malleable and, through the manipulation of various contextual cues, may be more or less salient to people. It is rather remarkable that a mere change in the wording of an item concerning environmentalism was powerful enough to alter self-concept and self-identities concerning environmentalism. More striking and important, however, is that this changeable self-concept was related to actual behavior.

The fact that a simple manipulation can boost people's self-concept as an environmentalist provides an easy and practical way to induce environmentalism. In our study, participants who were given the statements of conducting an easy action (i.e., occasionally) checked the statements "true" more frequently, which gave them the impression that they are good environmentalists. This self-concept is ultimately associated with more environment-friendly behavior. Similarly, public campaigns for environmental awareness and actions could set a "lower bar" for being an environmentalist by acknowledging low-level pro-environmental activities so that more people can identify themselves with environmentalism, and thus be more willing to contribute to the campaign. On the other hand, however, individuals who become satisfied with a low level of pro-environmental activity might not pursue more committing endeavors when much higher levels are needed in order to preserve the environment from further degradation. To balance this potential negative effect, we suggest that environmental campaigns can use different methods when they target different groups of people who vary on their initial levels of environmentalism.

General Discussion

Our main findings may be summarized as follows: In our first study, we found that self-concept of being an environmentalist depends on at least two factors. The first factor is whether the same objective evaluation is considered in terms of denying harm to the environment or in terms of claiming to help the environment. The second factor is the extent to which the self-evaluation is constrained by objectivity, credibility, and potential disconfirmability. In addition, we found a positive correlation between self-ratings on environmentally relevant activities and assessments of the importance of those behaviors.

We not only examined factors that influence self-assessments of environmental behavior, but also looked at the question of how changes in behavior that benefit the environment may be promoted. The results of our second study suggest that manipulable environmental identity and self-concept of being an environmentalist may be related to actual environmental decisions. In light of our results that suggest that environmentally beneficial behaviors are associated with positive environmental self-concept and that this self-concept is manipulable, an effective strategy for promoting environmentally beneficial behaviors may be to attempt to influence self-concept of environmentalism by using information suggesting that people are good environmentalists.

In addition to offering insight into the poorly understood construct of environmentalism and how it relates to behavior, the two studies presented in this paper contribute to the literature on social identification by (1) identifying additional factors that influence the saliency of a particular social identity and, perhaps more importantly, (2) investigating behavioral consequences of social identification.

There are several limitations to our study. First, the wording of the items in the “denying harm” context start with “Neglecting to” or “Lack of.” The negative connotation in the item

wording might make participants more likely to deny the action, and thus to rate themselves as somewhat better than their classmates. This possible effect of the wording might explain some of the hypothesized and obtained difference in self-assessments between the two conditions.

Second, the behavior measures we developed in study 2 did not fully capture the construct of environmentalist behavior; they are actually self-ratings of behavior, not observed behavior.

Future research should focus on developing more precise measures for environmental behavior by observing the actual behavior.

Our results suggest certain policy and social change implications. Both studies provided ways in which environmentalist self-concept can be effectively induced in people. Consider, for example, certain campaigns designed to encourage people to recycle or donate money to environmental causes. Our analysis points to both the beneficial and potentially dark consequences of the manipulation. Providing easy standards for being an environmentalist could open the door to a wider audience to contribute to the environmental cause, but at the same time caution should be advised not to unwittingly lead people to regard themselves as weak or non-environmentalists. As we illustrated before, the potential dark side is that some individuals might become satisfied too easily with their low-level pro-environmental activities and cease their efforts too willingly when much higher level of environmental actions are needed.

Environmental campaigns thus need to differentiate the groups they are targeting, and use different strategies for the general public as compared to established environmentalist groups.

As environmental issues become more pervasive and potentially catastrophic, they also become increasingly of interest and relevance to individuals, organizations, and societies alike. Environmental problems and their solutions are rooted in the values, decisions, and actions of people. Social identification addresses the question of the link between the individual and society

in fundamental ways (Deaux, 1996). Similarly, environmentalism ties individual beliefs, decisions, and behaviors to collective changes in the world. The context in which we chose to study our ideas about the effect of social identification on decision making is timely in light of worldwide environmental changes currently taking place. In our efforts to better understand the cognitive and social psychological factors that affect environmental decisions, we hope to shed light on how human behavior can be changed to promote a more sustainable future.

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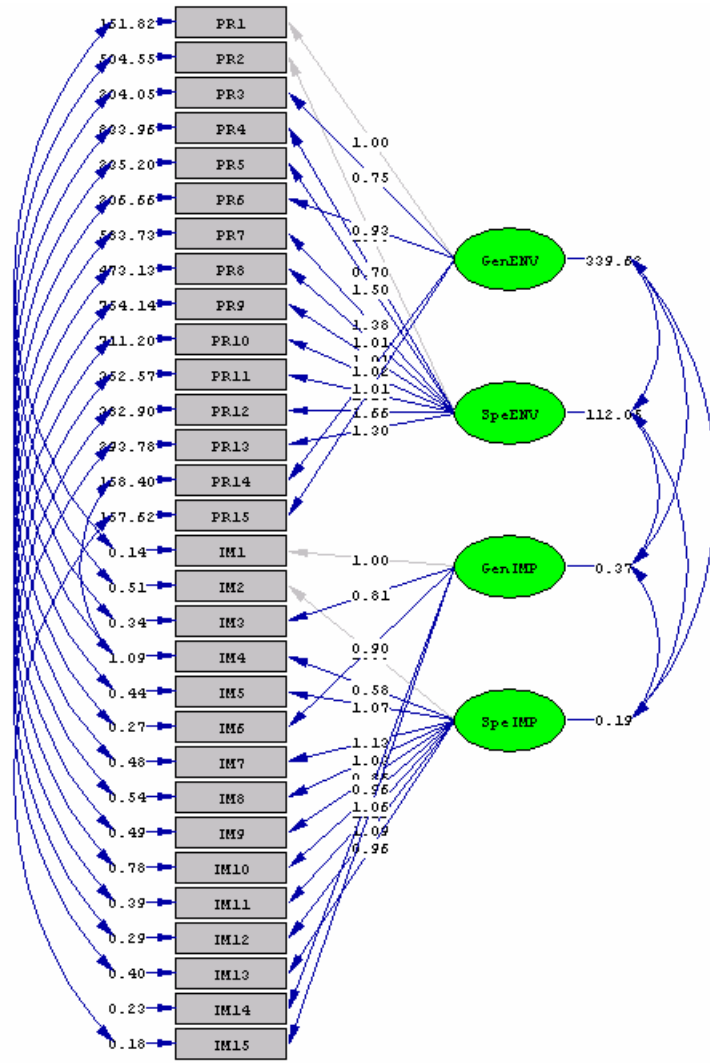
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Table 1: Results of the CFA Model Comparison – Study 1

	Model 1	Model 2	Model 3	Model 4	Model 5
# of latent factors	1	1	2	2	4
Latent factors	ENV	IMP	GenENV SpeENV	GenIMP SpeIMP	GenENV, SpeENV GenIMP, SpeIMP
Goodness of fit indices					
<i>RMSEA</i>	0.13	0.13	0.07	0.07	0.043
<i>CFI</i>	0.90	0.90	0.96	0.97	0.97
<i>IFI</i>	0.90	0.90	0.96	0.97	0.97
χ^2	227.57	227.57	146.93	139.36	531.23
<i>degrees of freedom (df)</i>	90	90	89	89	384
χ^2 difference test	χ^2 difference		df	p-value	
Model 1 vs. Model 3	80.64		1	<.001	
Model 2 vs. Model 4	88.21		1	<.001	

Figure 1: The Four-Factor CFA Model (Model 5) – Study 1



Chi-Square=512.17, df=410, P-value=0.00043, RMSEA=0.043

Note: The circles represent the latent factors and the squares represent observed variables (i.e., indicators). Abbreviation: GenENV – general environmental sensitivity; SpeENV – specific environmental sensitivity; GenIMP – importance of activities in the general domain; SpeIMP – importance of activities in the specific domain; PR_i – percentile rating of question i; IM_j – importance rating of the activity described in question j.

Table 2

Parameter Estimates and Factor Loadings in the Overall Model (Model 5) – Study 1

Parameter	GenENV		SpeENV		GenIMP		SpeIMP	
	Est.	SE	Est.	SE	Est.	SE	Est.	SE
<i>Factor Loadings</i>								
PR1	1							
PR3	.75	(.08)						
PR6	.93	(.09)						
PR14	1.02	(.09)						
PR15	1.01	(.09)						
PR2			1					
PR4			.70	(.25)				
PR5			1.50	(.31)				
PR7			1.38	(.33)				
PR8			1.01	(.26)				
PR9			1.01	(.29)				
PR10			.80	(.27)				
PR11			1.23	(.28)				
PR12			1.66	(.35)				
PR13			1.30	(.28)				
IM1					1			
IM3					.81	(.10)		
IM6					.90	(.09)		
IM14					.96	(.09)		
IM15					1.06	(.09)		
IM2							1	
IM4							.58	(.20)
IM5							1.07	(.21)
IM7							1.13	(.21)
IM8							1.03	(.21)
IM9							.86	(.22)
IM10							.86	(.22)
IM11							1.29	(.22)
IM12							1.09	(.19)
IM13							.96	(.19)
<i>Variances & Covariances</i>								
	GenENV		SpeENV		GenIMP		SpeIMP	
	Est.	SE	Est.	SE	Est.	SE	Est.	SE
GenENV	339.62	(59.82)						
SpeENV	132.54	(33.66)	112.05	(43.25)				
GenIMP	7.31	(1.40)	2.59	(.85)	0.37	(.06)		
SpeIMP	4.43	(1.11)	2.81	(.93)	0.19	(.04)	0.19	(.06)
<i>Correlation</i>								
	GenENV	SpeENV	GenIMP	SpeIMP				
GenENV	1							
SpeENV	.68***	1						
GenIMP	.65***	.40***	1					
SpeIMP	.55***	.61***	.72***	1				

***p<.001

Table 3
Maximum Likelihood Estimates for Latent Factors with Mean Structure – Study 1
(solution standardized to common metric)

Factor Loadings				
<i>Indicators</i>	<i>Factors</i>			
	GenENV	SpeENV	GenIMP	SpeIMP
PR1	.82			
PR3	.69			
PR6	.76			
PR14	.82			
PR15	.82			
PR2		.41		
PR4		.25		
PR5		.72		
PR7		.50		
PR8		.43		
PR9		.34		
PR10		.29		
PR11		.57		
PR12		.66		
PR13		.61		
IM1			.85	
IM3			.64	
IM6			.72	
IM14			.77	
IM15			.83	
IM2				.52
IM4				.24
IM5				.58
IM7				.58
IM8				.52
IM9				.47
IM10				.38
IM11				.67
IM12				.66
IM13				.55

Factor Covariance Matrices²								
	Condition 1: Claiming Help				Condition 2: Denying Harm			
	1	2	3	4	1	2	3	4
1. GenENV	1.27				.73			
2. SpeENV	.8	1.14			.54	.86		
3. GenIMP	.81	.33	1.2		.47	.42	.80	
4. SpeIMP	.73	.68	.87	1.13	.35	.53	.56	.88

Factor Means					
		GenENV	SpeENV	GenIMP	SpeIMP
Condition 1: Claiming Help		0	0	0	0
Condition 2: Denying Harm	Est. (SE)	7.02 (3.36)	4.99 (2.19)	.22 (.11)	.09 (.09)
	<i>t</i>	2.09	2.28	2	1.04

² The covariance matrix was reported for both conditions because in the model only the factor loadings and the means of the indicators were assumed to be invariant, but the covariance matrix was allowed to differ.

Table 4
Chi-square Difference Test between Unconstrained and Constrained Models – Study 1

	Environmental Sensitivity		Importance Rating	
	<i>Unconstrained Model</i>	<i>Constrained Model</i>	<i>Unconstrained Model</i>	<i>Constrained Model</i>
χ^2	170.39	174.7	153.05	167.36
<i>df</i>	102	103	102	103
χ^2 difference	4.31		14.31	
<i>df</i> difference	1		1	
<i>p-value</i>	.038		.00016	

Table 5
Manipulation Check (t-test) for Study 2

Condition	Observation	Mean	Stand error	Standard deviation
1 (occasionally/easy)	103	8.94	.216	2.19
2 (usually/hard)	99	5.78	.245	2.44
combined	202	7.39	.197	2.80
difference		3.16	.326	

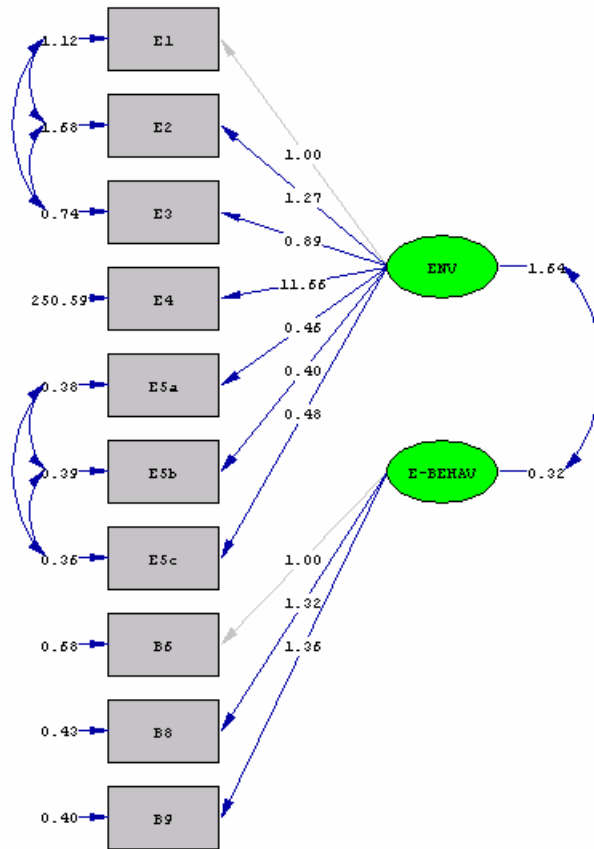
t = 9.706
degrees of freedom = 200
p = .0000

Table 6
Parameter Estimates and Factor Loadings in the Two-factor CFA Model – Study 2

Parameter	ENV		E-BEHAV		
	Est.	SE	Est.	SE	
<i>Factor Loadings</i>					
E1	1				
E2	1.27	(.12)			
E3	.89	(.07)			
E4	11.66	(1.33)			
E5a	.46	(.05)			
E5b	.40	(.05)			
E5c					
B6			1		
B8			1.32	(.19)	
B9			1.36	(.09)	
<i>Variances & Covariances</i>					
		ENV		E-BEHAV	
		Est.	SE	Est.	SE
	ENV	1.64	(.29)		
	E-BEHAV	.5	(.10)	.32	(.08)
<i>Correlation</i>					
		ENV	E-BEHAV		
	ENV	1			
	E-BEHAV	.69***	1		

***p<.001

Figure 2: The Two-Factor CFA Model – Study 2



Chi-Square=68.68, df=28, P-value=0.00003, RMSEA=0.085

Note: The circles represent the latent factors and the squares represent observed variables (i.e., indicators). Abbreviation: ENV – environmentalism; E-BEHA – environmental behavior; E_i – environmentalism measurement item i ; B_j – environmental behavior item j .

Table 7
Maximum Likelihood Estimates for Latent Factors with Mean Structure – Study 2
(solution standardized to common metric)

Factor Loadings				
<i>Indicators</i>	<i>Factors</i>			
	ENV		E-BEHAV	
E1	.78			
E2	.80			
E3	.79			
E4	.68			
E5a	.68			
E5b	.62			
E5c	.70			
B6			.48	
B8			.54	
B9			.53	

Factor Covariance Matrices				
	Condition 1: occasionally/easy		Condition 2: usually/hard	
	1	2	1	2
1. ENV	1.29		2.04	
2. E-BEHAV	.19	.08	.22	.033

Factor Means				
	Est. (SE)	ENV	E-BEHAV	<i>t</i>
Condition 1: occasionally/easy		0	0	
Condition 2: usually/hard		-.47 (.20)	-.02 (.05)	
		-2.38	-.52	

Appendix A

Environmental Behaviors – Items for Study 1

“Claiming to Help” Context:

- (1) Seeking information on environmental issues/problems:
- (2) Using an alternative, energy-efficient form of transportation (such as bicycling, walking, buses, or trains) instead of driving or riding in a car:
- (3) Supportive of addressing environmental issues/problems:
- (4) Eating low on the food chain (more vegetarian, less meat):
- (5) Buying recycled products:
- (6) Understanding of environmental issues/problems:
- (7) Car-pooling:
- (8) Avoiding buying new products (such as clothing or furniture) by restoring old items, borrowing, or buying used items:
- (9) Refraining from using air-conditioning (in car or home):
- (10) Turning off the lights when you leave a room:
- (11) Avoiding the use of disposable goods (such as paper & plastic utensils, plates, cups, and grocery bags):
- (12) Recycling:
- (13) Avoiding products with excessive packaging by buying in bulk quantities:
- (14) Interest in environmental issues/problems:
- (15) Awareness of environmental issues/problems:

*Note: The general items are 1, 3, 6, 14, and 15. The specific items are 2, 4, 5, 7, 8, 9, 10, 11, 12, and 13.

(Appendix A continued)

“Denying Harm” Context:

- (1) Neglecting to seek information on environmental issues/problems:
- (2) Neglecting to use an alternative, energy-efficient form of transportation (such as bicycling, walking, buses, or trains) instead of driving or riding in a car:
- (3) Unsupportive of addressing environmental issues/problems:
- (4) Neglecting to eat low on the food chain (more vegetarian, less meat):
- (5) Neglecting to buy recycled products:
- (6) Lack of understanding of environmental issues/problems:
- (7) Neglecting to car-pool:
- (8) Neglecting to avoid buying new products (such as clothing or furniture) by restoring old items, borrowing, or buying used items:
- (9) Neglecting to refrain from using air-conditioning (in car or home):
- (10) Neglecting to turn off the lights when you leave a room:
- (11) Neglecting to avoid the use of disposable goods (such as paper & plastic utensils, plates, cups, and grocery bags):
- (12) Neglecting to recycle:
- (13) Neglecting to avoid products with excessive packaging by buying in bulk quantities:
- (14) Lack of interest in environmental issues/problems:
- (15) Lack of awareness of environmental issues/problems:

*Note: The general items are 1, 3, 6, 14, and 15. The specific items are 2, 4, 5, 7, 8, 9, 10, 11, 12, and 13.

Appendix B

Manipulation – Study 2

Place a checkmark in the blank adjacent to each statement that is true for you:

- (1) I [usually/occasionally] understand environmental issues and problems: _____
- (2) [I often/On occasion I] car-pool to help minimize pollution and the use of fossil fuel: _____
- (3) I am [usually/sometimes] interested in environmental issues and problems: _____
- (4) I [very frequently/occasionally] use alternative, energy-efficient forms of transportation (such as bicycling, walking, buses, or trains) instead of driving or riding in a car to minimize the impact on the environment: _____
- (5) I [always/occasionally] turn off the lights when leaving a room to save energy: _____
- (6) I [frequently/occasionally] seek information on environmental issues and problems: _____
- (7) I [consistently/occasionally] support addressing environmental issues and problems: _____
- (8) I am [always/occasionally] aware of environmental issues and problems: _____
- (9) [I consistently/On occasion, I] recycle (paper, plastic, glass, metal) to minimize garbage and the use of raw materials: _____
- (10) I [usually/occasionally] donate money to help environmental causes: _____
- (11) I [very often/sometimes] re-use grocery bags for other purposes: _____
- (12) [I always/Sometimes, I] carry my own cup to avoid using disposables: _____
- (13) I [very frequently/occasionally] turn down the heat to save energy: _____

*Note: Brackets indicate manipulation.

**Note: In the "occasional" condition participants were given the following instructions:
"You should consider the above behaviors true for you if you do them at least occasionally. That is, if any of the above behaviors are true for you more than occasionally, you should place a check in the adjacent space."