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Van der Werff, Ellen; Steg, Linda; Keizer, Kees

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I Am What I Am, by Looking Past the Present: The Influence of Biospheric Values and Past Behavior on Environmental Self-Identity

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Ellen Van der Werff¹, Linda Steg¹,
and Kees Keizer¹

Abstract

A strong environmental self-identity increases the likelihood of a wide range of proenvironmental actions. But which factors influence identity and can we strengthen it? We propose that the environmental self-identity depends on biospheric values and on past behavior and that the strength of one's environmental self-identity can be changed somewhat by reminding people of their past environmental behavior. We tested our model in a series of studies and show that biospheric values and past environmental behavior influence the environmental self-identity, which is in turn related to subsequent environmental judgments and intentions. Furthermore, we found that although the strength of the environmental self-identity changed when we reminded people of their past environmental actions, biospheric values remained an important predictor of self-identity, suggesting that the environmental self-identity has a stable core. Our results further suggest that environmental-friendly behavior can be promoted by reminding people of their past proenvironmental actions as this will strengthen one's environmental self-identity.

¹University of Groningen, The Netherlands

Corresponding Author:

Ellen Van der Werff, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands.

Email: ellen.van.der.werff@rug.nl

Keywords

environmental self-identity, biospheric values, proenvironmental behavior, positive spillover

Human actions are a major contributor to environmental problems (IPCC, 2007). To promote proenvironmental actions, it is essential to understand which factors affect such actions and how these factors can be influenced. Several scholars consider self-identity as an important predictor of proenvironmental actions. Self-identity is generally defined as the label used to describe yourself (Cook, Kerr, & Moore, 2002). It is the salient part of the self-concept that relates to a particular behavior (Conner & Armitage, 1998). Studies have shown a relationship between specific types of self-identity and identity-related environmental intentions and actions, including recycling (Nigbur, Lyons, & Uzzell, 2010), environmental activism (Fielding, McDonald, & Louis, 2008), and the purchase of genetically modified food (Cook et al., 2002). Specific self-identities (e.g., a recycling identity) were thus found to be related to specific behaviors (such as recycling). Recent research suggests a more general environmental self-identity can be distinguished as well that predicts a range of environmental actions rather than specific behaviors only. Whitmarsh and O'Neill (2010), for example, found that the green identity is related to water and domestic energy conservation, waste reduction, and eco-shopping. Whereas a specific identity is likely to be more strongly related to that specific behavior than a general identity, a general environmental self-identity (such as the green identity) may provide a more efficient instrument for explaining and promoting proenvironmental behavior because it is likely to be related to a wide range of judgments, intentions, and behaviors rather than merely one specific type of proenvironmental action.

Environmental Self-Identity

We define the environmental self-identity as the extent to which you see yourself as a person whose actions are environmental friendly. It prescribes a course of action that is compatible with a sense of who you are, and as such promotes proenvironmental actions (cf. Clayton & Opatow, 2003). Hence, people with a strong environmental self-identity will more strongly see themselves as an environmental-friendly person and be more likely to act in line with this identity. But which factors influence a general environmental self-identity? Moreover, how can we strengthen the environmental

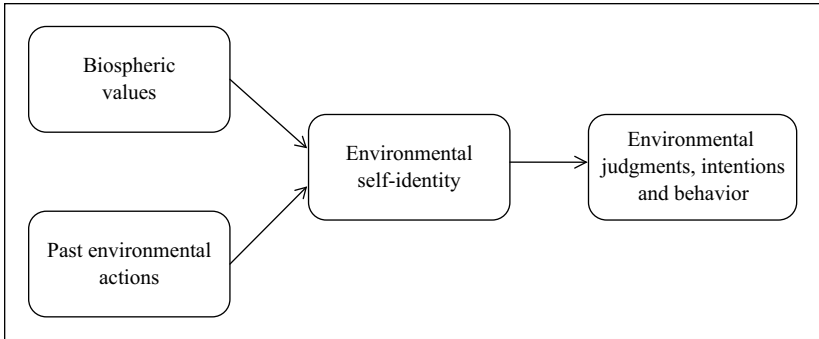


Figure 1. The relationship between biospheric values, past environmental actions, environmental self-identity, and future environmental judgments, intentions, and behaviors.

self-identity, and will this indeed increase the likelihood of further proenvironmental actions? We propose that the environmental self-identity depends on biospheric values and thus has a stable core. This is important as this implies that the environmental self-identity is likely to affect a range of proenvironmental actions, now as well as in the future. In addition, we hypothesize that environmental self-identity depends on past behavior, which implies that it can be changed to some extent by making people's past proenvironmental actions salient. In sum, we will test the model shown in Figure 1. We elaborate on our reasoning below.

Biospheric Values and Environmental Self-Identity

Values are desirable and transsituational goals that vary in importance and serve as a guiding principle in one's life (Schwartz, 1992). They are likely to develop early in life (Stern, Dietz, & Guagnano, 1995). Values are abstract and general and remain stable over time (Feather, 1995; Stern, 2000). Biospheric values are particularly important for understanding and predicting environmental behavior (Steg & De Groot, 2012). People who strongly endorse biospheric values care for nature and the environment as such and more strongly base their judgments and decisions to engage in particular actions on the consequences of their behavior for nature and the environment. The stronger people endorse biospheric values, the more environmental friendly they judge and act (e.g., Schultz & Zelezny, 1998; Steg

& De Groot, 2012). Although we hypothesize that biospheric values influence one's environmental self-identity, values and self-identity may not always be consistent. Indeed, biospheric values can be a guiding principle in your life, but this does not necessarily mean that you see yourself as the type of person who acts environmental friendly because under certain circumstances, your behavior may not be in line with your values. For example, you can strongly value the environment, but if you always go to work by car instead of by bike because you live far from your work, you may not see yourself as an environmental-friendly person. Similarly, you may have strong biospheric values but think that technological solutions are sufficient to solve environmental problems, or that industry or the government is responsible to solve these problems. Therefore, you may have strong biospheric values while not actually engaging in certain environmental-friendly actions, and hence not see yourself as a person who acts proenvironmentally, which implies that your environmental self-identity is not very strong. However, if someone does express one's values in another way, that person may still develop an environmental self-identity. This implies that, in theory, people can have strong biospheric values, but not an equally strong environmental self-identity. Many people endorse biospheric values, but only for a minority, being environmental friendly is part of their identity (Biel, Dahlstrand, & Grankvist, 2005).

Relationship Between Biospheric Values and Environmental Self-Identity

However, despite possible divergence between biospheric values and environmental self-identity, we do expect that biospheric values influence the environmental self-identity. Values reflect what people find important in their lives and as such affect how people want to see themselves (i.e., their ideal selves), what type of person they want to be, as well as how they actually see themselves. This implies that values are likely to influence one's self-identity. Those who strongly care for nature and the environment are more likely to see themselves as the type of person who acts environmental friendly and to act accordingly. Theoretically, it is not likely that self-identity influences values. Most importantly, values are believed to develop early in life and to remain stable across time, whereas self-identity is likely to change more easily (e.g., via past behavior; for example, Hitlin, 2003; Lee, Piliavin, & Call, 1999). Hence, in line with previous studies (see Steg & De Groot, 2012, for a review), we propose that values affect behavior indirectly, via the environmental self-identity.

A study by Hitlin (2003) provides initial evidence for the proposition that values are related to identity: He found that the strength of volunteer identity was predicted by self-transcendent values, reflecting universalism and benevolence values. People with strong self-transcendent values had a stronger volunteer identity than those with weaker self-transcendent values. However, it is not clear whether the same is true for biospheric values and environmental self-identity. More importantly, Hitlin did not test whether identity in turn predicts future judgments, intentions, and actions. We propose that biospheric values influence environmental self-identity, which in turn influences environmental judgments, intentions, and behavior.

Being influenced by values suggests that environmental self-identity is (somewhat) stable over time and place because values are considered to be relatively stable in time (Feather, 1995; Schwartz, 1992). However, as described above, we propose that despite this, environmental self-identity is also susceptible to change, as we expect that identity also depends on past behavior. Past behavior may be a promising route to influence the environmental self-identity, for example, by persuading people to perform a certain behavior or by reminding them of past environmental actions.

Past Behavior and Environmental Self-Identity

Besides being influenced by values and thus relatively stable, we expect that environmental self-identity can also be changed because it is influenced by past behavior. More specifically, the more often individuals acted environmental friendly in the past, the more likely it is that they will perceive themselves as environmental-friendly persons. We propose that this effect of previous environmental actions on environmental self-identity is not dependent on the strength of one's biospheric values. The influence of past behavior on environmental self-identity may be explained by self-perception theory, which states that "individuals come to know their own internal states by inferring them from observations of their own overt behaviour" (Bem, 1972, p. 2). Research on self-perception theory mostly focused on attitudes rather than self-identity; however, we expect a similar process for the relationship between past behavior and self-identity. If environmental self-identity is influenced by past (pro)environmental behavior, it should be possible to change the strength of one's environmental self-identity by making people aware or reminding them of their past behavior.

We propose that the more environmental-friendly individuals' (perceptions of their) past behavior, the stronger their environmental self-identity, which in turn influences their future environmental actions. There is some

initial empirical evidence that past behavior indeed influences self-identity and that self-identity in turn influences behavior (Charng, Piliavin, & Callero, 1988; Lee and colleagues, 1999). For example, Lee et al. (1999) found that past behavior as a blood donor was a significant predictor of one's blood-donor identity. The identity as a blood donor in turn influenced the intention to donate blood. However, these results are based on correlational data, so it is difficult to draw causal conclusions. Maybe people started to donate blood because they had a strong identity in the first place. In addition, these studies focused on how a specific identity influenced specific behavior related to that identity. Can we replicate these findings when focusing on the more general environmental self-identity? Importantly, we propose that specific past proenvironmental behaviors influence one's general environmental self-identity and that this general environmental self-identity will in turn influence a range of (other) proenvironmental judgments, intentions, and behaviors. This suggests that environmental self-identity may be an important factor in promoting positive spillover from one environmental-friendly behavior to another. For example, adopting a fuel-efficient driving style may strengthen environmental self-identity, which in turn can promote environmental-friendly food purchases.

Within the environmental domain, there is some initial evidence that making people's past environmental behavior salient influences future environmental judgments, intentions, and actions. Cornelissen, Pandelaere, Warlop, and Dewitte (2008) asked participants to report the frequency in which they engaged in proenvironmental actions. One group received a list of proenvironmental behaviors, which many people engage in, whereas others received a list of behaviors that are rarely conducted. Participants who were asked to report the frequency of common proenvironmental behaviors acted more environmental friendly in subsequent tasks than participants who reported the frequency of less common behaviors. In addition, in one of their studies, they found that the manipulation of the salience of past behavior had an effect on participants' attitudes, their sense of moral obligation and the extent to which they indicated to take environmental considerations into account in their purchase decisions (which they labelled as self-perception¹). However, they did not test whether these variables are in turn related to proenvironmental actions and whether they mediate the relationship between past behavior and subsequent proenvironmental actions. Therefore, the question remains whether the effects of the salience of past behavior on future actions were due to changes in the strength of one's environmental self-identity. Our study will address this issue.

Aim of Current Article

The aim of this article is to study whether environmental self-identity is influenced by biospheric values and by past behavior, and thus consists of a more stable part (as it is influenced by values) and of a part that can be influenced (via past behavior). More specifically, we test the model shown in Figure 1. Some studies provide initial evidence for parts of this model. However, in this article, we aim to integrate these lines of research and test the full model in the environmental domain. We always measured values at least 1 week before the main study to ensure that our measure of values did not influence the other measures in the study. We hypothesized that values and past behavior both uniquely contribute to the explanation of environmental self-identity. Moreover, we hypothesized that the relationships between values and environmental judgments, intentions, and behavior; and between past behavior and subsequent environmental judgments, intentions, and actions were mediated by environmental self-identity. To test the robustness and validity of our findings, we included different indicators of environmental judgments, intentions, and behavior in our studies. In addition, to test whether environmental self-identity may be an important factor in explaining positive spillover, we included environmental judgments, intentions, and behaviors as dependent variables that differ from the measures or manipulations of the salience of past behavior.

We tested our model and hypotheses in a series of studies. In the first study, we tested the full model in a correlational design. In the second study, we tested whether environmental self-identity changes after a strong manipulation of environmental self-identity in which we reminded people of their past environmental actions and provided them with feedback on the implications of their responses for their self. In addition, we tested whether biospheric values are still related to environmental self-identity after such a strong manipulation. This allowed us to test whether values are the stable core of environmental self-identity and whether environmental self-identity is thus only somewhat malleable. In Study 3, we tested our full model in an experimental design, using a more subtle manipulation of the environmental self-identity, that is, we only reminded people of their past environmental actions. As an explicit measure of the environmental self-identity may influence responses on a subsequent behavioral variable, we conducted Study 4, in which we tested whether the (subtle) manipulation of the salience of past behavior influences future environmental actions.

Study 1

The aim of Study 1 was to test the ecological validity of our model by studying the full model in a representative sample of the Dutch population. In addition, Study 1 aimed to test whether environmental self-identity may be an important factor in explaining positive spillover effects. Therefore, we selected two clearly distinct environmental behaviors to test whether past behavior in one domain influences future behavior in another domain via one's environmental self-identity.

We first studied the relationship between biospheric values and past environmental behavior and environmental self-identity, to test whether environmental self-identity is somewhat stable but can also be changed. More specifically, we tested whether a fuel-efficient driving style and values measured at Time 1 are related to environmental self-identity 1 year later. Second, we tested whether environmental self-identity in turn is related to future environmental-friendly intentions, namely, the intention to reduce meat consumption. Finally, we tested whether the relationships between values and intention and between previous behavior (i.e., fuel-efficient driving style) and intention were mediated by environmental self-identity.

Method

Participants and procedure. Two questionnaires were distributed door-to-door in a municipality in the north of the Netherlands in 2010 and 2011. The first questionnaire was completed by 468 respondents (a response rate of 54%). In total, 229 females and 233 males participated in the study, 6 participants did not indicate their gender. Age ranged from 18 to 89 ($M = 52$, $SD = 14.7$). The questionnaire included questions on values and energy consumption, including questions on one's driving style.

One year later, we returned and asked all households who participated in the first study to fill out the second questionnaire. Of the 468 original participants, 335 filled out the second questionnaire as well (72%). The participants who filled out the second questionnaire did not differ from the participants who did not fill out the second questionnaire in the two independent variables, that is, the strength of their biospheric values, $t(460) = .83$, $p = .41$, and driving style, $t(415) = .20$, $p = .84$, did not differ significantly. Among other things, this questionnaire included measures of environmental self-identity and intentions to engage in proenvironmental actions. Although we stressed that the questionnaire should be completed by the same person who filled in the first questionnaire, this appeared not always to be the case. When we

checked the age and gender of participants, it appeared that 103 questionnaires were filled out by a different household member or did not yield sufficient information to check whether it was completed by the same person (as gender or age was not indicated); we excluded these cases from the data analyses. Hence, the resulting data set comprised 232 people, of which were 144 men and 88 women. Average age was 56 ($SD = 12.8$). Again, the strength of biospheric values and driving style did not differ from the participants who only filled in the first questionnaire ($ps > .10$).

Questionnaire 1 (2010)

Values. Participants first filled in a brief value questionnaire measuring their altruistic, egoistic, biospheric, and hedonic values (Steg, Perlaviciute, Van der Werff, & Lurvink, 2012). The questions were based on Schwartz's value scale (1992). Biospheric values were measured with four items ("Respecting the earth: harmony with other species," "Unity with nature: fitting into nature," "Protecting the environment: preserving nature," and "Preventing pollution: protecting natural resources"). Participants rated the importance of each value item as a guiding principle in their life on a scale ranging from -1 (*opposed to my values*), 0 (*not important*) to 7 (*extremely important*). The internal consistency of the biospheric value scale was high ($\alpha = .86$). We calculated the mean score of the four value items ($M = 4.79$, $SD = 1.26$).

Driving style. Driving style was measured with one item "How often do you consistently drive in a fuel-efficient way (look ahead, anticipate traffic, brake carefully, and shift to a higher gear as soon as possible)?" Scores could range from 1 (*never*) to 7 (*always*; $M = 5.43$, $SD = 1.38$). Participants could also indicate whether they never drive or do not have a driver's license; these respondents were excluded from the analyses. The remaining sample size was 209.

Questionnaire 2 (2011)

Environmental self-identity. In line with our definition of environmental self-identity, our measure of environmental self-identity focused specifically on whether people saw themselves as a person whose actions are proenvironmental. The following three items were used to measure environmental self-identity: "Acting environmental friendly is an important part of who I am"; "I am the type of person who acts environmental friendly"; "I see myself as an environmental-friendly person." These items were adapted from previous research (e.g., Fielding et al., 2008; Terry, Hogg, & White, 1999). Respondents rated each item on a 7-point scale, ranging from *totally disagree* to

Table 1. Correlations Between Biospheric Values, Driving Style, Environmental Self-Identity, and Intention to Reduce Meat Consumption.

	Biospheric values	Driving style	Environmental self-identity
Driving style	.14*		
Environmental self-identity	.31**	.38**	
Intention to reduce meat consumption	.27**	.17**	.44**

* $p < .05$. ** $p < .01$.

totally agree. We computed the mean score on these items; Cronbach’s alpha for this scale was .95 ($M = 4.88$, $SD = 1.28$).

Intention to reduce meat consumption. We asked participants whether they intend to reduce their meat consumption, with three items (“I will probably eat less meat,” “I intend to eat less meat,” “I will reduce my meat consumption”) that were rated on a scale from 1 (*totally disagree*) to 7 (*totally agree*). Mean scores were computed; Cronbach’s alpha was .92 ($M = 3.69$, $SD = 1.53$).

Results

To test whether biospheric values and environmental self-identity are not only theoretically distinct concepts but can also be distinguished empirically, we performed a confirmatory factor analysis (via the multiple group method, a simple and effective type of confirmatory factor analysis; for example, Nunnally, 1978; Stuive, 2007; Stuive, Kiers, Timmerman, & Ten Berge, 2008). The results of this confirmatory factor analysis show that biospheric values and environmental self-identity can indeed be distinguished empirically.

Table 1 shows that all variables were positively correlated. A regression analysis revealed that our first hypothesis was supported: Past behavior (one’s driving style) as well as biospheric values significantly predicted environmental self-identity 1 year later, $R^2 = .21$; $F(2, 200) = 26.27$, $p < .001$, $f^2 = .27$: the stronger participants endorsed biospheric values ($\beta = .26$, $p < .001$) and the more fuel-efficient participants’ driving style ($\beta = .34$, $p < .001$), the stronger their environmental self-identity 1 year later (see Figure 2). In addition, at the prompting of a reviewer, we ruled out the possibility of a significant values by past behavior interaction as a significant predictor of identity and intentions ($ps > .10$).

As expected, environmental self-identity in turn predicted the intention to reduce meat consumption, $R^2 = .19$; $F(1, 193) = 46.40$, $p < .001$. The stronger

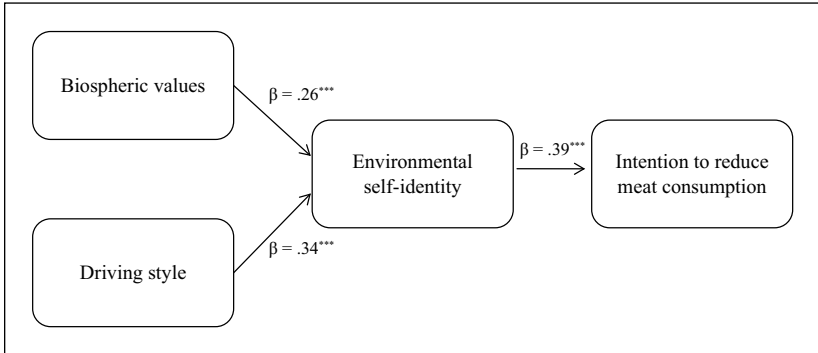


Figure 2. The relationship between biospheric values, past driving style, environmental self-identity, and intention to reduce meat consumption.

Note: Betas in the model reflect tests of the full model, these may slightly differ from the betas of the separate hypotheses.

*** $p < .001$.

the environmental self-identity, the stronger the intention to reduce meat consumption ($\beta = .44, p < .001$).

Next, we tested whether identity mediated the relationship between values and future intentions and between past behavior and future intentions. Values and past behavior significantly predicted the intention to reduce meat consumption, $R^2 = .09$; $F(2, 192) = 9.68, p < .001$. The stronger the biospheric values, the stronger the intention to reduce meat consumption 1 year later ($\beta = .26, p < .001$). In addition, the more fuel-efficient participants' driving style, the stronger their intention to reduce meat consumption ($\beta = .14, p = .05$). In line with our hypothesis, environmental self-identity mediated the relationship between values and intention to reduce meat consumption and mediated the relationship between past behavior and intention to reduce meat consumption. The 95% bootstrap confidence interval for the indirect effect of values on intention via environmental self-identity ranged from .034 to .189. The effect of values on intention significantly reduced ($\beta = .17, p = .01$) when identity was included in the model as well ($\beta = .39, p < .001$). The 95% bootstrap confidence interval for the indirect effect of past behavior on intention via environmental self-identity ranged from .076 to .220. The effect of past behavior on intention became nonsignificant ($\beta = .00, p = .97$) when identity was included in the model.

Discussion

In Study 1, we found support for our model (Figure 1): Values as well as previous behavior were related to environmental self-identity. That is, the

more fuel-efficient one's driving style and the stronger one's biospheric values, the stronger their environmental self-identity 1 year later. Importantly, in line with our hypothesis, values and past behavior uniquely contributed to the prediction of environmental self-identity. Environmental self-identity was in turn positively related to a different indicator of environmental behavior, namely, the intention to reduce meat consumption, suggesting that environmental self-identity may indeed be an important factor in explaining positive spillover between environmental behaviors. As expected, the relationships between past behavior and intention, and between values and intention were mediated by environmental self-identity. These results provide initial support for our hypothesis that past behavior influences environmental self-identity, but that biospheric values also significantly predict environmental self-identity when past behavior is controlled for. Moreover, we found that environmental self-identity in turn promotes other future environmental-friendly intentions. However, Study 1 is based on correlational data so we cannot draw definite conclusions on causal relationships. Therefore, in Study 2, we used an experimental research design to test whether the environmental self-identity can be strengthened. In addition, we tested whether biospheric values still influence environmental self-identity after such a manipulation.

Study 2

The aim of Study 2 was to test whether environmental self-identity can be strengthened and to test whether values still influence environmental self-identity after this manipulation, to examine whether environmental self-identity is somewhat stable but can also be changed. In this study, we used a strong manipulation of environmental self-identity: We not only reminded people of their past environmental actions but also provided them with feedback on whether they are an environmental-friendly person. We thus provided them with feedback in which we linked their past behavior to their self-identity. If values still influence environmental self-identity after such a strong manipulation of identity, this clearly supports our hypothesis that values are a stable factor influencing identity and that environmental self-identity can be changed only somewhat, as values remain a predictor of self-identity.

Method

Participants and procedure. Data were collected via two online questionnaires. Participants were invited to participate in the study via email. The

first questionnaire included a value scale. One week later, participants were invited to fill in the second questionnaire, which included the manipulation and measures of environmental self-identity. In total, 50 participants filled in both questionnaires. Age ranged from 18 to 65, and 56% of the sample was male.

Materials

Manipulation. We reminded people of their past environmental behavior and provided them with feedback on the implications for one's identity by means of the hidden self-procedure (Spanos, Radtke, & Bertrand, 1984). The hidden self-procedure is a test that consists of questions on how often people perform certain behaviors, after which feedback is given that the test shows that they are a specific type of person. In our version of the test, we asked participants to indicate how often they engage in different proenvironmental behaviors. For half of the participants, the questions were phrased extremely, for example, "I always buy an environmental-friendly product, regardless of the price or effort"; "I only buy organic products." The other half of the participants indicated how often they perform the same proenvironmental behaviors, but the questions were phrased less extremely, for example, "I sometimes buy an organic product"; "If the price is equal I rather buy an organic product than a non-organic product." Participants answered on a scale from 1 (*totally disagree*) to 7 (*totally agree*). After answering the questions, participants in the condition with the extreme phrasing received the following feedback: "Acting proenvironmentally is not an important part of who you are. You are not an environmental-friendly person. You don't often think about the environment and you would not act environmental friendly." Participants in the other condition received similar feedback but now indicating that they are an environmental-friendly person: "Acting proenvironmentally is an important part of who you are. You really are a proenvironmental person and people around you see you as a person who acts environmental friendly. You would easily consider acting environmental friendly." Four participants in the condition with the extreme phrasing had higher average scores than the midpoint of the scale. As the feedback would not have been credible to these participants, we excluded them from the analyses. In the condition with the less extreme phrasing, six participants scored on average lower than the midpoint of the scale, and were excluded them from the analyses, because the feedback would not have been credible for them.

Measures

Values. Participants first filled in the same value questionnaire as used in Study 1. Cronbach's alpha for the biospheric value scale was .92 ($M = 5.11$, $SD = 1.28$).

Environmental self-identity. We measured environmental self-identity with the same three items as in Study 1. The items formed a reliable scale ($\alpha = .92$, $M = 3.92$, $SD = 1.33$).

Results

Our first hypothesis was supported: The hidden self-procedure influenced environmental self-identity. Participants who received feedback that they are not an environmental-friendly person reported a lower environmental self-identity ($M = 3.41$; $SD = 1.37$) than participants who received feedback that they are an environmental-friendly person ($M = 4.70$; $SD = .85$), $t(38) = -3.53$, $p < .01$, $d = 1.13$. Importantly, our second hypothesis was supported as well: Biospheric values measured a week before the study still influenced environmental self-identity as measured after the strong manipulation of environmental self-identity. The stronger one's biospheric values, the stronger the environmental self-identity ($\beta = .63$, $p < .001$). Again, the results of a confirmatory factor analysis showed that biospheric values and environmental self-identity can be distinguished empirically. The manipulation and values together explained 53.4% of the variance in environmental self-identity, $F(2, 37) = 21.22$, $p < .001$, $f^2 = 1.13$. Biospheric values explained 39.6% of the variance, $F(1, 38) = 24.95$, $p < .001$, whereas the manipulation explained an additional 13.8% of the variance, $F(1, 37) = 10.95$, $p < .01$. Again, there was no significant effect of the interaction between biospheric values and the manipulation on environmental self-identity ($\beta = .03$, $p = .97$).

Discussion

Study 2 showed that reminding people of their past environmental behavior and manipulating the perception of their past behavior via the hidden self-procedure influenced their environmental self-identity. Participants who realized that they perform several proenvironmental actions and then received feedback that they are environmental friendly more strongly saw themselves as an environmental-friendly person than participants who realized that they hardly engage in proenvironmental behaviors and received feedback that they are not an environmental-friendly person. Our assumption that environmental

self-identity can be influenced is thus supported. In addition, we found support for our hypothesis that biospheric values still influence environmental self-identity after the (strong) manipulation of environmental self-identity. After making past environmental actions salient and providing people with feedback on whether they are an environmental-friendly person or not, biospheric values were still positively related to environmental self-identity. This suggests that environmental self-identity is malleable, but only partly, as biospheric values still predict environmental self-identity. Hence, even though we not only made past environmental behavior salient but also used a strong manipulation of identity, and even though we measured values 1 week in advance, we still found an effect of values on identity.

In this study, we not only reminded participants of their past environmental behavior but also manipulated the perception of this behavior by providing participants with feedback on whether they are an environmental-friendly person or not. Can we replicate our findings if we only make participants' past environmental actions salient without providing them with feedback on their environmental self-identity? And can we replicate that values are still an important predictor of identity? In addition, in Study 2, we did not include a control condition; to address this shortcoming, we included a control condition in Study 3.

Study 3

Study 3 aimed to test whether just reminding people of their past environmental actions influences environmental self-identity. Second, we aimed to replicate if biospheric values still influence environmental self-identity after the manipulation of the salience of past behavior. We thus tested whether environmental self-identity is somewhat stable but can also be changed. Third, we tested whether environmental self-identity in turn influences environmental judgments (i.e., judgments of environmental dilemmas) and intentions. We included judgments of environmental dilemmas in addition to a measure of intentions to examine whether values, previous behavior, and environmental self-identity are not only related to intentions but also to judgments of dilemmas in the environmental domain, which is an easy way to present yourself as a proenvironmental person. Providing strict judgments on the environmental-unfriendly behavior of others is an easy way to signal that you care about the environment. Finally, we tested whether environmental self-identity mediates the relationship between values and the proxies of behavior and between past behavior and proxies of behavior. Hence, like in Study 1, we tested the full model (Figure 1), this time with an experimental design.

Method

Participants and procedure. Respondents were undergraduates at a Dutch university who participated in exchange for course credits. In total, 150 respondents participated in the study, of which 98 were female and 1 participant did not indicate his or her gender. Age ranged from 18 to 27 ($M = 20.56$, $SD = 1.56$). Participants first filled in the value questionnaire, which was put online. After 1 week to 5 months, participants came to the lab and filled out the manipulation question, and questions on environmental self-identity, pro-environmental intentions, and environmental judgements².

Materials

Manipulation. We manipulated the salience of past behavior in a similar way as Cornelissen and colleagues (2008). Participants completed questions on how frequently they engage in eight behaviors. We pretested how common several environmental behaviors are in a Dutch sample. In total, 37 participants indicated on a scale from 1 (*hardly ever*) to 7 (*very often*) how often they perform 20 environmental behaviors. We selected the eight most and eight least common behaviors (see Table 2). One third of the participants indicated how often they performed the eight common proenvironmental behaviors; as most people perform these behaviors often, this is the “environmental-friendly group.” Answers were given on a scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). One third of the participants indicated how often they performed the uncommon proenvironmental behaviors; because most people rarely perform these behaviors, this is the “environmental-unfriendly group.” Finally, one third of the participants indicated how often they perform behaviors which are not related to the environment (e.g., “read the newspaper”); this is our control condition.

Measures

Values. Participants first filled in the same value questionnaire as used in Studies 1 and 2. Cronbach’s alpha for the biospheric value scale was .89 ($M = 4.18$, $SD = 1.46$).

Environmental self-identity. We measured environmental self-identity with the same three items as in Studies 1 and 2 ($\alpha = .92$, $M = 4.51$, $SD = 1.20$).

Product choice. Participants were asked to choose one out of two options of a product. One of the options was always a more expensive environmental-friendly option and the other was a cheaper environmental-unfriendly option.

Table 2. Means and Standard Deviations of the Frequency of Common and Uncommon Proenvironmental Behaviors.

Common behavior	<i>M</i>	<i>SD</i>	Uncommon behavior	<i>M</i>	<i>SD</i>
I separate paper from my waste	6.00	1.49	I often buy organic products	3.24	1.67
I bring glass bottles to the recycling bin	6.32	1.16	I shower very shortly	3.27	1.63
I do not throw litter on the street	6.08	1.55	I buy glass bottles instead of plastic bottles	3.03	1.81
I turn off electrical appliances (to save energy)	5.68	1.42	I am a member of an environmental organization	2.43	1.97
I often go to work or studies by bike instead of by car	4.86	2.45	I always actively search for the most environmental-friendly products	2.89	1.43
I turn off the heater when I leave my room	5.32	1.47	I refuse plastic bags in clothing shops	4.05	2.11
I use energy-efficient light bulbs	5.33	1.39	I rarely eat meat	4.22	2.18
I turn off the lights when no one is in the room	6.31	0.71	I always separate all my waste (chemical, plastics, organic)	4.22	1.83

Note: Answers were given on a scale from 1 (*never*) to 7 (*always*).

For example, participants were asked to choose between an ecological detergent of 1.40 euros or a regular detergent of 1.30 euros. Participants indicated for cookies, a light bulb, deodorant, detergent, and paper towels which option they preferred. We counted the number of proenvironmental options participants chose ($M = 3.82$, $SD = 1.32$).

Judgments of environmental dilemmas. We asked participants to what extent they think it is OK or wrong to perform specific environmental-unfriendly behaviors. We presented participants with four scenarios: A person drives a distance of 3 km by car instead of walking; someone pours white spirit down the sink because the waste handling station is too far; someone turns up the heater instead of putting on a sweater; and someone puts glass waste in the regular bin instead of the recycling bin. Participants answered on a scale from

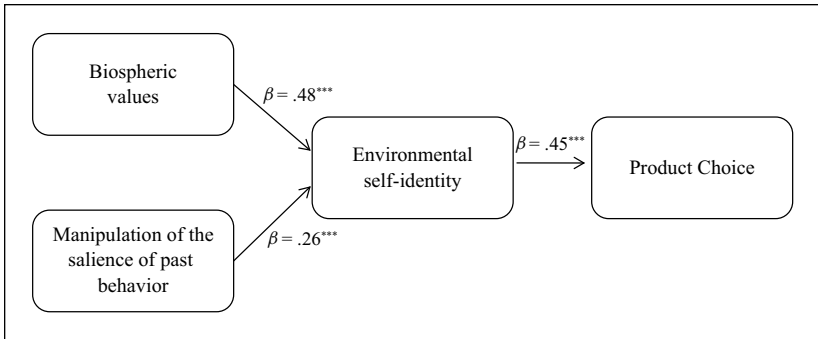


Figure 3. The relationship between biospheric values, manipulation of the salience of past behavior, environmental self-identity, and product choice.

Note: Betas in the model reflect tests of the full model, these may slightly differ from the betas of the separate hypotheses.

*** $p < .001$.

1 (*perfectly OK*) to 7 (*extremely wrong*) to what extent they thought the behavior was OK or wrong. Cronbach’s alpha was .59.³ The average score on the dilemmas was 4.77 ($SD = .93$).

Results

Our manipulation of the salience of past behavior influenced environmental self-identity, $F(2, 144) = 8.42, p < .001, \eta^2_p = .11$. t tests revealed that participants in the environmental-unfriendly group ($M = 3.97, SD = 1.18$) scored significantly lower on environmental self-identity than the control group ($M = 4.66, SD = 1.17$), $t(96) = -2.92, p < .01, d = .59$, and the environmental-friendly group ($M = 4.88, SD = 1.07$), $t(95) = -3.99, p < .001, d = .81$. The environmental-friendly and control group did not significantly differ in environmental self-identity, $t(97) = .96, p = .34$.

Our second hypothesis was supported as well: When the manipulation and values were included in the regression analysis, values were still significantly related to environmental self-identity, $F(2, 121) = 28.05, p < .001, f^2 = .47$. The stronger the participants’ biospheric values, the stronger their environmental self-identity ($\beta = .48, p < .001$; see Figures 3 and 4). The results of the confirmatory factor analysis showed that biospheric values and environmental self-identity can be distinguished empirically. Again, there was not a significant effect of the interaction between biospheric values and the manipulation on environmental self-identity, product choice, or judgments of environmental dilemmas ($ps > .10$).

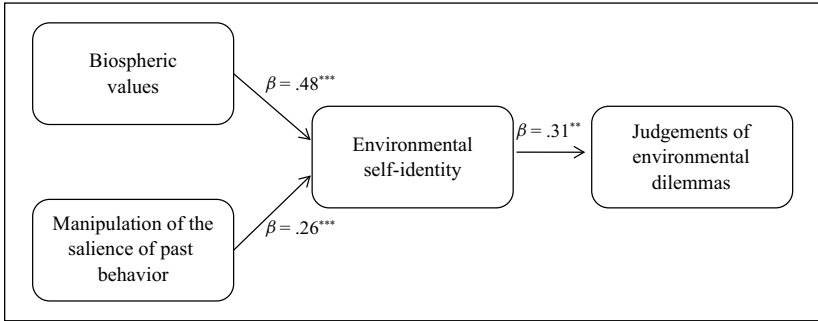


Figure 4. The relationship between biospheric values, manipulation of the salience of past behavior, environmental self-identity, and judgments of environmental dilemmas. Note: Betas in the model reflect tests of the full model, these may slightly differ from the betas of the separate hypotheses.

*** $p < .001$. ** $p < .01$.

Environmental self-identity predicted product choice, $R^2 = .29$; $F(1, 144) = 57.44$, $p < .001$. The stronger the environmental self-identity, the more environmental-friendly products participants chose ($\beta = .53$, $p < .001$). Environmental self-identity also predicted the judgments of the environmental dilemmas, $R^2 = .18$; $F(1, 145) = 32.74$, $p < .001$. The stronger the environmental self-identity, the more wrong the participants found transgression of environmental norms ($\beta = .43$, $p < .001$).

We then tested whether values and the manipulation predicted the dependent variables. Indeed, biospheric values and the manipulation predicted product choice, $R^2 = .17$; $F(2, 122) = 12.58$, $p < .001$. The stronger the biospheric values, the more environmental-friendly products the participants chose ($\beta = .40$, $p < .001$). The manipulation was not significantly related to product choice when values were controlled for ($\beta = .07$, $p = .42$). However, the relationship between the independent variable and the dependent variable do not have to be significant to test mediation effects (James, Mulaik, & Brett, 2006; Shrout & Bolger, 2002). Other possible mediators between the independent and the dependent variable may result in a nonsignificant relationship between the independent variable and the dependent variable. Therefore, we conducted a mediated regression analysis. As expected, environmental self-identity mediated the relationship between biospheric values and product choice as well as the relationship between the manipulation and product choice. The 95% bootstrap confidence interval for the indirect effect of values on product choice via environmental self-identity ranged from .106 to .328, and the relationship between values and product choice significantly

reduced ($\beta = .18, p = .05$) when identity was also included in the regression analysis ($\beta = .45, p < .001$). The 95% bootstrap confidence interval for the indirect effect of the manipulation on product choice via environmental self-identity ranged from .076 to .336.⁴ The relationship between the manipulation and product choices remained nonsignificant ($\beta = -.05, p = .55$) when identity was included in the regression model as well.

Biospheric values and the manipulation of the salience of past behavior predicted the judgments of the environmental dilemmas, $R^2 = .16; F(2, 123) = 11.63, p < .001$. The stronger participants' biospheric values, the more wrong they found transgression of environmental norms ($\beta = .40, p < .001$). The manipulation was not significantly related to the judgments of the dilemmas when values were controlled for ($\beta = .03, p = .69$). In line with our prediction, environmental self-identity mediated the relationship between biospheric values and the judgments of dilemmas and the relationship between the manipulation and the judgments of dilemmas. The 95% bootstrap confidence interval for the indirect effect of biospheric values on the judgments of dilemmas via environmental self-identity ranged from .029 to .160. The relationship between biospheric values and the judgments of dilemmas significantly reduced ($\beta = .24, p = .01$) when environmental self-identity was also included in the regression ($\beta = .31, p < .01$). The 95% bootstrap confidence interval for the indirect effect of the manipulation on the judgments of dilemmas via environmental self-identity ranged from .023 to .138. The relationship between the manipulation and the judgments of dilemmas remained nonsignificant ($\beta = -.04, p = .64$) when environmental self-identity was also included in the regression. Environmental self-identity thus mediated the relationship between biospheric values as well as the manipulation of the salience of past behavior and both dependent variables.

Discussion

In Study 3, we tested our full model in an experimental setting. This study showed that just reminding people of their past behavior had an effect on environmental self-identity. Participants who indicated how often they perform uncommon environmental behaviors, and thus realized they often do not act environmental friendly (environmental-unfriendly group), had a lower environmental self-identity than participants in the control group and than participants who indicated how often they perform common environmental behaviors, and thus realized that they often act environmental friendly (environmental-friendly group). However, the environmental-friendly group did not have a significantly higher environmental self-identity

than the control group. Perhaps this was due to a ceiling effect, the control group already scored relatively high on the environmental self-identity ($M = 4.66$), making it difficult to further strengthening the environmental self-identity. The relatively high scores on environmental self-identity may be related to our sample, perhaps undergraduate students strongly see themselves as environmental friendly. Or it may be that in general, people perceive themselves as environmental friendly. Future research is needed to test whether this is indeed the case. Most importantly, we found a significant difference in the environmental self-identity of the two experimental groups.

We again found support for our hypothesis that even though we manipulated environmental self-identity, values (measured 1 week to 5 months in advance) still predicted environmental self-identity. Furthermore, in line with our expectations, environmental self-identity was related to product choice and the judgments of environmental dilemmas. This shows that environmental self-identity is not only an important predictor of environmental intentions but also of environmental judgments (an easy way to express that you are a proenvironmental person).

In line with our hypothesis, we found that environmental self-identity mediated the relationship between biospheric values on one hand and proxies of environmental behavior on the other hand. Study 3 also provided support for our hypothesis that the relationship between the manipulation of the salience of previous behavior and the proxies of behavior is mediated by environmental self-identity. This suggests that reminding people of their past environmental actions influences subsequent environmental judgments and intentions via the environmental self-identity.

In sum, in Study 3, we found support for our full model. However, we did not find an effect of our manipulation on product choice or on the judgments of the dilemmas. Previous studies suggest that reminding people of their past environmental actions does influence future environmental actions (Cornelissen et al., 2008). Our results may be due to the fact that we measured environmental self-identity before the dependent variables. When asked about their identity, participants answered these questions in line with the manipulation. However, this may have resulted in a motivation to act differently, and thus, to change their environmental behavior. For example, participants in the environmental-unfriendly group may have felt motivated to act environmental friendly after indicating they had a relatively weak environmental identity. Therefore, the measure of environmental self-identity may have caused a nonsignificant relationship between the manipulation and judgments and intentions. To test whether reminding people of their past environmental actions promotes future environmental actions and ruling out

the possibility of possible confounds (by eliciting motivations by asking people to complete questions on their environmental self-identity), Study 4 will follow a similar set up, but now we exclude the measure of environmental self-identity.

Study 4

Study 4 aimed to test whether environmental-friendly behavior can be promoted by reminding people of the proenvironmental behaviors they already perform. More specifically, we tested whether reminding people of their past environmental actions affects subsequent (proxies of) environmental behavior. In Study 4, we included two indicators of environmental behavior. Next to product choice, we included a measure of actual behavior, that is, the amount of papers participants used in a writing task. Participants came to the lab and filled out the manipulation questions and questions on environmental behavior.

Method

Participants and procedure. Respondents were undergraduates at a Dutch university who participated in exchange for course credits. In total, 76 respondents participated in the study, of which 62 were female. Age ranged from 17 to 51 ($M = 20.00$, $SD = 5.30$).

Materials

Manipulation. Participants completed the same questions on how often they engage in different behaviors as in Study 3. One third of the participants were in the environmental-unfriendly group, one third in the environmental-friendly group, and one third in the control group.

Measures

Product choice. We measured product choice in the same way as in Study 3. On average, participants chose 2.83 ($SD = .89$) environmental-friendly products.

Paper use. We measured the amount of papers used in a writing task as an indication of proenvironmental behavior (see Cornelissen et al., 2008). Participants were asked to write down a summary of some products they saw on the computer screen on pieces of paper. We measured how

environmental-friendly participants were in their use of paper by counting the number of sheets used: The fewer papers they used to write down the summary statements, the more environmental friendly their behavior ($M = 4.73$, $SD = 3.88$).

Results

The manipulation had an effect on the number of environmental-friendly products the participants chose, $F(2, 73) = 4.67$, $p = .01$, $\eta_p^2 = .11$. Participants in the environmental-friendly group chose more environmental-friendly products ($M = 3.26$, $SD = .75$) than participants in the environmental-unfriendly group ($M = 2.75$, $SD = .99$), $t(45) = 1.99$, $p = .05$, $d = .58$, and in the control condition ($M = 2.55$, $SD = .78$), $t(50) = 3.30$, $p < .01$, $d = .93$. The environmental-unfriendly group did not significantly differ from the control group, $t(51) = .82$, $p = .42$.

To test whether the manipulation had an effect on paper use, we performed an ANCOVA in which we controlled for the number of words the participants used to describe the products. We found an effect of the manipulation on the amount of papers used, $F(2, 70) = 3.11$, $p = .05$, $\eta_p^2 = .08$. Participants in the environmental-unfriendly group used more papers ($M = 6.17$, $SD = 4.02$) than participants in the control group ($M = 3.48$, $SD = 3.21$), $F(2, 50) = 6.73$, $p = .01$, $\eta_p^2 = .12$. There was no significant difference between the environmental-unfriendly group and the environmental-friendly group ($M = 4.81$, $SD = 4.14$), $F(2, 42) = .05$, $p = .82$, or between the environmental-friendly and the control group, $F(2, 47) = 1.39$, $p = .25$.

Discussion

In line with previous research (Cornelissen et al., 2008), Study 4 showed that the manipulation of the salience of past behavior had an effect on proxies of environmental behavior. Participants in the environmental-friendly group chose more proenvironmental products than participants in the control and environmental-unfriendly groups. Moreover, participants in the environmental-unfriendly group used more papers in a writing task than participants in the control group. We did not find a significant difference between the environmental-friendly and the environmental-unfriendly groups in the amount of papers used, even though the difference in paper use was quite large. In addition, the pattern of results is somewhat different for product choice and paper use. Perhaps there was a lack of power due to a relatively low sample size, as the effect size was relatively weak. A stronger manipulation of past

behavior such as actually persuading people to perform environmental actions may result in stronger and more consistent effects. Overall, the results of Study 4 provide support for our hypothesis that past behavior promotes proenvironmental actions.

General Discussion

We proposed and tested the model in Figure 1 to explain which factors influence environmental self-identity, and how environmental self-identity is in turn related to subsequent proenvironmental judgments, intentions, and behavior. Several studies suggested that identity is an important antecedent of environmental behavior (e.g., Sparks & Shepherd, 1992; Whitmarsh & O'Neill, 2010). However, much remained unclear about what exactly the environmental self-identity is, which factors influence environmental self-identity, and whether environmental self-identity can be changed. Our research aimed to get more insight in how environmental self-identity is formed and how it is related to environmental judgments, intentions, and behavior.

In the first three studies, we tested whether environmental self-identity is influenced by biospheric values and (the salience of) past behavior. We proposed that biospheric values form the stable core of environmental self-identity but that environmental self-identity can also be changed somewhat by reminding people of their previous environmental actions. We found that biospheric values and past behavior indeed uniquely contributed to the prediction of environmental self-identity.

More specifically, we found that the more people believe they behaved proenvironmentally in the past, the stronger their environmental self-identity. Importantly, we not only found an effect of past behavior on environmental self-identity in the correlational study but also in the experimental studies, suggesting that reminding people of their past environmental actions can indeed influence the extent to which they see themselves as an environmental-friendly person. In the third study, we did not find a significant difference between the environmental self-identity of participants in the group that was reminded of the many previous proenvironmental actions they engaged in and the control group. However, importantly, we did find significant differences in environmental self-identity between groups that were reminded of the many proenvironmental behaviors they engaged in during the past versus those reminded of the few proenvironmental actions they performed.

Not surprisingly, reminding people of previous environmental actions combined with feedback on the implications for one's identity more strongly

influenced environmental self-identity than only reminding people of their studies environmental actions, which was reflected in the larger effect size for the former. This suggests that providing people with additional feedback on whether they are an environmental-friendly person or not influences their environmental self-identity to greater extent than only reminding them of their past behavior. In the third study, our manipulation of the salience of past behavior was relatively weak. We only reminded people of past environmental actions. This suggests that actually persuading people to perform an environmental action may have an even bigger effect on their environmental self-identity, especially if the behavior is framed as proenvironmental behavior. Future research is needed to test this proposition.

We also found consistent support for our hypothesis that values influence one's environmental self-identity. Importantly, in line with our expectations, even when people were reminded of their past environmental actions, biospheric values still influenced the environmental self-identity, suggesting that values may indeed form the stable core of self-identity. In Study 2, we used a strong manipulation of identity by manipulating the perception of past behavior, and even in this case, values still predicted the environmental self-identity. In addition, in each study, we measured values at least 1 week before the manipulation of the salience of past behavior, making it very unlikely that our findings are due to an effect of our measure of values on the dependent variables. These results suggest that biospheric values are indeed an important antecedent of environmental self-identity and that environmental self-identity is only somewhat malleable by reminding people of their previous actions.

Our hypothesis that environmental self-identity is related to environmental judgments and intentions was supported as well. The stronger the environmental self-identity, the more environmental friendly one's proenvironmental judgments and intentions. We found relationships between environmental self-identity and a range of proxies of environmental behavior, including the intention to reduce meat consumption, product choices, and judgments of environmental dilemmas. In addition, in Study 4, we found that our manipulation influenced the amount of papers used in a writing task; however, we did not include a measure of environmental self-identity in this study. Our results suggest that environmental self-identity may indeed be a general antecedent, related to a broad range of environmental judgments and intentions. This is in line with the study by Whitmarsh and O'Neill (2010) in which they showed that green identity is related to a range of proenvironmental behaviors. Future research should test whether our results can be replicated in other domains, including more difficult behaviors as dependent variables, such as car use.

Our results suggest a dynamic relationship between environmental self-identity and behavior, that is, past behavior influences one's environmental self-identity, this identity may in turn influence subsequent behavior, which in turn will influence one's environmental self-identity, and so on. Hence, environmental self-identity can change continuously based on one's past behavior. At the same time, our studies revealed that values are the stable basis of environmental self-identity, which indicates that environmental self-identity is only malleable to some extent. We did not aim to study the dynamics between behavior and the environmental self-identity, and think this is an important topic for future research.

Interestingly, our results suggest that environmental self-identity may be an important factor with regard to positive spillover effects. Previous studies found that a specific past behavior can influence a specific identity (e.g., donating blood can strengthen the blood-donor identity; Lee et al., 1999), which in turn influences a specific subsequent action (e.g., future blood donation). We proposed that specific past proenvironmental behaviors may influence one's general environmental self-identity as well, and that this general environmental self-identity will in turn be related to a range of (other) proenvironmental judgments and intentions. Indeed, we found support for such positive spillover effects in our studies. For example, in Study 1, we found that a fuel-efficient driving style influenced environmental self-identity, which in turn promoted the intention to reduce meat consumption. Importantly, we found similar results in our experimental studies, enabling stronger inferences on causality. In Study 3, we found that reminding people of their past environmental actions influenced environmental self-identity, which in turn was related to product choices and judgments of environmental dilemmas unrelated to the behaviors included in the manipulation. This suggests that environmental self-identity may be an important factor in promoting positive spillover from one environmental-friendly behavior to another, and that such positive spillover effects are more likely when initial proenvironmental actions are linked to one's identity.

Interestingly, studies on moral licensing suggest that past proenvironmental actions may inhibit rather than promote future moral actions. For example, participants were less likely to act altruistically after purchasing green products than after purchasing conventional products (Mazar & Zhong, 2010). In addition, participants were less likely to show cooperative behavior in environmental decision making after writing a self-relevant story containing positive traits versus negative traits (Sachdeva, Iliev, & Medin, 2009). Our study suggests that such licensing effects may be less

likely when strengthening one's environmental self-identity, by linking people's past behavior to their identity. For example, by providing people with feedback or reminding them of a range of proenvironmental behaviors they engaged in, they may link their past behavior to their identity. Future research should further test whether environmental self-identity indeed plays an important role in promoting positive spillover of environmental-friendly behavior and whether environmental self-identity may be an important buffer against moral licensing.

We found support for our hypotheses that identity mediated the relationships between values and past behavior on one hand, and subsequent environmental judgments and intentions on the other hand. Biospheric values were indeed related to environmental judgments and intentions via environmental self-identity. We not only found this result in the correlational study but also in the experimental study, suggesting that values affect behavior via the environmental self-identity. Some studies suggest that biospheric values affect behavior directly as well (De Groot & Steg, 2008; Steg, De Groot, Dreijerink, Abrahamse, & Siero, 2011; Steg, Perlaviciute, Van der Werff & Lurvink, 2012); Thøgersen & Ölander, 2002). However, these studies typically tested the relationship between values and behavior without controlling for possible mediator variables such as environmental self-identity. We would expect that if environmental self-identity is included, the relationship between values and behavior will be mediated by environmental self-identity. Future research is needed to test whether and if so, under which conditions values influence behavior directly and under which conditions indirectly.

In addition, Studies 1 and 3 showed that environmental self-identity mediated the relationship between past behavior and subsequent proenvironmental judgments and intentions. However, we did not find an effect of reminding people of their past environmental actions on subsequent judgments and intention in Study 3. This may be due to the fact that we measured environmental self-identity before measuring environmental judgments and intentions. Participants answered the questions on their identity in line with the manipulation, but afterwards they may have become motivated to act differently. For example, participants in the environmental-unfriendly group may have felt motivated to act proenvironmentally after indicating they had a relatively weak environmental self-identity. In Study 3, we found that participants on average chose more environmental-friendly products than in Study 4, which may indicate that this was indeed the case. Hence, the questions on environmental self-identity could explain why our manipulation did not have an effect on behavior in Study 3. Therefore, in Study 4, we tested whether reminding people of their past proenvironmental

behavior indeed promotes future environmental-friendly actions when we would not include questions on environmental self-identity in between. As expected and in line with previous research (Cornelissen et al., 2008), Study 4 showed an effect of the manipulation of the salience of past environmental actions on subsequent behavior, suggesting that reminding people about previous environmental actions may indeed promote or inhibit subsequent proenvironmental actions in another domain. This finding has important practical implications, as it shows that proenvironmental actions can be promoted by reminding people of their past environmental-friendly actions.

In sum, similar to values, environmental self-identity is a general antecedent of behavior, influencing a range of proenvironmental judgments and intentions. However, in contrast to values, which are believed to be highly stable over time (Feather, 1995; Schwartz, 1992), our results suggest that environmental self-identity is somewhat stable, but that the strength of environmental self-identity can also be changed by making people's past environmental actions salient. This suggests that environmental self-identity may be an important factor to target in environmental campaigns as it can be changed although it appears to influence a wide range of judgments and intentions, now and in the future (as it is somewhat stable). Environmental campaigns could, for example, make environmental behaviors salient that many people already perform, for example, bringing their glass bottles to the recycling bin. This way, environmental self-identity can be strengthened, and identity may in turn influence a wide range of other proenvironmental judgments, intentions, and actions. An important question for future research is whether campaigns that address the environmental self-identity indeed result in more proenvironmental actions.

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Notes

1. Note that this is different from our conceptualization of environmental self-identity as taking environmental considerations into account does not mean that you see yourself as a proenvironmental person, and does not need to result in proenvironmental choices.
2. The value questionnaire was put online at the start of the semester, the lab study was conducted 5 months after the start of the semester. Participants had to fill in the value questionnaire before they could participate in the lab study. The time between filling in the questionnaire and participating in the lab study ranged from 1 week to 5 months in advance.
3. The reliability of this scale is relatively low. However, this categorization is justifiable because in the analyses reported below, the pattern of effects on each separate dilemma was similar to the pattern of effects on the corresponding scale.
4. We also tested whether environmental self-identity mediates the relationship between the manipulation and both dependent variables using mediation analysis for multicategorical independent variables (Hayes & Preacher, 2012). The results were similar to the results reported here.

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Author Biographies

Ellen Van der Werff is pursuing a doctoral degree at the University of Groningen. Her research interests include identity, values, and environmental behavior.

Linda Steg is a professor of environmental psychology at the University of Groningen. Her research interests include understanding and changing environmental behavior, and the acceptability of environmental policies.

Kees Keizer is an assistant professor at the social psychology department at the University of Groningen. His main research interests focus on the influence of norms and rules on behavior.