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Retrieving Green: Environmental Group Identity in Ease of Retrieval Manipulations of Environmental Self-identity towards Pro-Environmental Behaviour

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Abstract

Growing global environmental concerns dictate that consumers behave more environmentally friendly, which produced a vigorous effort in psychological research to find ways to facilitate pro-environmental behaviour. Studies suggests manipulating self-identity to promote pro-environmental behaviour; however, few consider the influences of group identification on this endeavour. This study investigated whether ease of retrieval manipulation would positively impact environmental self-identity, if environmental self-Identity would positively predict pro-environmental behaviour, and whether the positive effect of ease of retrieval on environmental self-identity would be stronger for people that experience a stronger environmental group identity. A collaborative online survey employing a between-subjects design was conducted on a sample (N=98) of predominantly young German students. Participants were randomly distributed into two conditions featuring either an easy or difficult task of recalling pro-environmental behaviour. No support for the hypotheses was found. Further analysis found no influence of environmental group identity on the relationship between environmental self-identity and pro-environmental behaviour. Findings suggest that ease of recall-based manipulation of self-identity may not be influenced by group identification in an environmental context, which implies that future similar manipulation may be attempted regardless of the strength of environmental group identity. Further research on these factors is needed to confirm these implications.

Keywords: Ease of retrieval, environmental self-identity, pro-environmental behaviour, environmental group-identity

Introduction

The challenges of climate change and global warming are growing more dire by the day, as the consequences of human pollution on the environment escalate in visibility and severity. A recent report from the Intergovernmental Panel on Climate Change (IPCC) illustrates a very present critical global impact of climate change. According to the report, this impact will only increase in severity if current global leaders and industrial nations fail to halve greenhouse gas emissions this decade and are too slow to instate appropriate adaption (IPCC, 2022). In their Sixth Assessment Report, Working Group II's contribution, the IPCC states that a fast and globally consistent adaption is necessary to avert the increasing risks of irreversible damage to the earth's climate and therefore to global communities and overall populous.

This need for adoption of more environmentally friendly practices also places an imperative on the individual consumer, as transforming today's energy systems in industrialized countries requires a substantial reduction of the total energy consumption at the individual level (Burger et al., 2015). According to Ivanova et al. (2016), individual consumers in their households are responsible for over 60 per cent of all greenhouse gas emissions, with direct responsibility for 20 per cent of all carbon impacts around the globe, underlining the necessity for consumers to adopt more pro-environmental behaviours. Sensible efforts to effectively address climate change should thus target a change in consumer behaviour by either inducing a direct change to behavioural patterns or stimulating underlying factors that produce a pivot towards pro-environmental behaviours.

In their paper on antecedents for and barriers to pro-environmental behaviour, Kollmuss and Agyeman (2002) examine multi-disciplinary models and illustrate multiple factors contributing to individuals engaging in pro-environmental behaviour. Among the many factors that contribute to consumers engaging in pro-environmental behaviour, Kollmuss and Agyeman outline the strong contributing role of intrinsic motivation in the form of values –

specifically environmental values. However, directly appealing to the consumer's environmental values with the goal of increasing engagement in pro-environmental behaviour has been found rather difficult by previous research (cf. Aoyagi-Usui et al., 2003; Soyez, 2012). The difficulties in targeting environmental values in consumers directly for manipulation highlight the need for an indirect avenue of manipulation.

Interestingly, in a study involving the relationship between intrinsic motivation in the form of biospheric values and environmental behaviour, van der Werff et al. (2013) found that the environmental self-identity of participants fully mediated the effects of biospheric values on the participants' environmental preferences, intention, and behaviour. Following up on these findings, van der Werff et al. (2014), examined the relationship between self-identity and pro-environmental behaviour further in terms of not only environmental values, but also past environmental behaviour. Their findings indicate that both biospheric values and past environmental behaviour influence environmental self-identity, which further relates to subsequent environmental judgments and intentions. Therefore, the environmental self-identity of consumers likely inhibits the direct influence of environmental values and past behaviour on engaging in pro-environmental behaviour, as both influence primarily self-identity, which in turn then influences actual displayed behaviour.

Considering the findings of van der Werff et al. (2014), interventions may aim to influence a consumer's environmental self-identity either through direct manipulation or targeting past behaviour. While the direct influence of both will no doubt prove to be a difficult endeavour, a possibility to utilise rather the perception of past behaviour than the actuality of it to influence an individual's self-identity may be found in ease-of-recall tasks. Based on their findings in a study involving these tasks, Schwarz et al. (1991) concluded that people use the degree of difficulty with which past behaviour comes to mind in recall as an additional source of information for judgments later used for self-assessments. Manipulating the ease of retrieval

of past behaviours in an ease-of-recall task could therefore lead to a controllable influence on an individual's self-assessment and consequently their self-identity, in turn possibly affecting future behavioural patterns, even in an environmental context.

However, studies have also found evidence for an effect of group identity and peer influence on an individual's pro-environmental behaviour and their environmental self-identity. The findings of Khare (2015) in their study on antecedents to environmentally friendly buying behaviour suggest that a green self-identity, peer influence, and past green buying behaviour influence the decision to purchase green product. Strong identification with social groups can influence behavioural intention (Terry et al., 1999), also in connection to environmentally active groups and pro-environmental behaviour (Bouman et al., 2021). A group identity in connection to pro-environmental behaviour could influence an individual's identity when activated or prompted in the context of pro-environmental behaviour (cf. Wang et al., 2021).

In addition, prior research has also found evidence that group membership may moderate the impact of ease of retrieval effects (Knoetze, 2015). However, research on the effects of group identity on the ease of retrieval is generally scarce. Furthermore, while research investigating the direct effects of group identity on either ease of retrieval or self-identity exists, there currently exists no prior research on the effects of group identification on the relationship of ease of retrieval and environmental self-identity.

Thus, in order to further investigate relationship between the effects of ease-of-recall tasks on self-identity, address the lack of research on the potential impact of group identity on this effect, and research ways to promote pro-environmental behaviour, this paper attempts to answer the following research question: How do ease of retrieval tasks affect environmental self-identity under the influence of green group identity and how does an environmental self-identity affect pro-environmental behaviour?

Theoretical Framework

Pro-environmental Behaviour

In general, pro-environmental behaviour is viewed as behavioural patterns that a person consciously chooses to engage in to minimize the negative impact of their actions on the environment, or more specifically, every possible conscious action aimed at safeguarding the environment from harm (Steg and Vlek, 2009, as cited in Balundė et al., 2019), either performed in public or private domains of living (Hadler and Haller, 2011, as cited in Balundė et al., 2019). For the purposes of this conceptual model, pro-environmental behaviour is defined as any possible action or pattern intentionally undertaken to protect the environment.

There are a plethora of factors influencing the engagement of individuals in pro-environmental behaviour, ranging from demographic factors to external factors, such as economic and institutional factors, as well as internal factors, such as environmental knowledge and values (Kollmuss & Agyeman, 2002). However, among the intrinsic factors, environmental values and self-identity were found to be among the most influential on the intention of individuals to engage in pro-environmental behaviour (Balundė et al., 2019; van der Werff et al., 2014), next to motivation, attitude, and knowledge (Kollmuss & Agyeman, 2002). Based on the findings of van der Werff (2014), self-identity interposes the direct influence of environmental values on engagement in pro-environmental behaviour. Thus, environmental self-identity stands as an important predictor for an individual's environmental behavioural intention and engagement.

Environmental Self-Identity

According to Terry and Smith (n.d.), self-identity is generally defined as an individual's self-conception or -definition that they may apply to themselves brought about by the social

roles they inhabit or behaviour they engage in. Self-identities generally reflect the "labels people use to describe themselves" (Biddle, Bank, and Slavings 1987, p. 326, as cited in Terry & Smith, n.d.), with said labels representing stable and prominent aspects of one's self-perception. In their study, van der Werff et al. (2013) define self-identity in an environmental sense as the extent to which one sees themselves as a type of person who acts environmentally friendly, with the stable or prominent aspect of an individual's self-perception tied to engaging in pro-environmental behaviour. An environmental self-identity has indeed been found to be a significant predictor of pro-environmental action (Fekadu & Kraft, 2001; Sparks & Shepherd, 1992; Sparks, Shepherd, & Frewer, 1995; Terry, Hogg, & White, 1999, as cited in Whitmarsh & O'Neill, 2010; Mannetti et al., 2004). Hence, attempts to influence environmental self-identity of individuals are cardinal to promote engagement in pro-environmental behaviour in individuals. As the labels of self-identity are however rather stable and slow to change in individuals, self-identity is difficult to manipulate directly (Whitmarsh & O'Neill, 2010). Thus, factors influencing self-identity must be examined further for potential manipulation.

As outlined in van der Werff et al. (2014), biospheric values and past pro-environmental behaviours inform and influence self-identity. Yet, values, even in an environmental context, are relatively stable over time (Schwartz, 1992) and prove generally difficult to manipulate (cf. Aoyagi-Usui et al., 2003; Soyez, 2012). However, a possible avenue to influence self-identity may be found in past behaviours, or, more specifically, in the perception of past behaviour, as "the influence of past behaviour 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, as cited in van der Werff et al., 2014). Van der Werff et al. thus outline the possibility that the more individuals perceive themselves to have acted environmentally friendly previously, the stronger their environmental self-identity, and the higher the influence on engagement in pro-

environmental behaviour. Therefore, manipulating an individual's perception of their past behaviour may prove a potential avenue to influence environmental self-identity and in turn engagement in pro-environmental behaviour.

Ease of Retrieval

The ease of retrieval effect describes the impact of the perceived difficulty of recalling information for making judgements on the judgement itself. The effect is theoretically founded in the availability heuristic as proposed by Tversky and Kahneman (1973), with the availability heuristic stating that easily recalled material can affect judgements. Schwarz et al. (1991) studied this effect in a study involving assertiveness ratings after having respondents complete an ease-of-recall task meant to induce an ease of retrieval effect. In their procedure, participants were asked to name either six or twelve examples of times they had acted assertively in the past, upon after respondents were asked to rate their own assertiveness in a self-assessment measure. Schwarz et al. found that respondents assessed themselves significantly more assertive when they had been asked to name only six past assertive behaviours rather than twelve. The authors of the study concluded that a person's view or assessment of themselves may be subject to influence by the subjective experience of ease or difficulty of recall when drawing inferences from recalled content; a person may rate themselves lower in their assertiveness when experiencing difficulty recalling past assertive behaviours and vice versa.

The results of Schwarz et al. (1991) suggest the opportunity to bring by a change in an individual's self-assessment by manipulating the self-perception through exercises that target the recall of past behaviours. Following research has generally found supporting evidence for the effect itself (cf. Kelley and Lindsay, 1993; Tybout et al., 2005). As the ease of retrieval effect is postulated to be able to affect an individual's self-perception in terms of their past behaviour, an ease of retrieval effect may be able to tap into the relationship of an individual's

perception of their past environmental behaviour and their environmental self-identity, as outlined by van der Werff et al. (2014). A high or low perceived ease of retrieval could therefore affect self-perception in terms of pro-environmental behaviour and influence the degree to which individuals see environmental matters as a part of their identity. This could ergo further produce a change in environmental self-identity and consequently subsequent pro-environmental behaviour.

Green Group Identity

An additional factor that may affect the interaction between ease of retrieval and environmental self-identity is the identification with social groups, or more specifically, the degree with which an individual identifies with a group that is environmentally active. The Social Identity Theory states that an individual defines their personal identity in alignment with social group identities to strengthen or protect their self-identity (cf. Tajfel, 1978; Tajfel & Turner, 1979). In this process, individuals define themselves in terms of their group memberships and their perception of oneness and belongingness to a group, a phenomenon referred to as social identification (Mael & Ashforth, 1992, p. 104, as cited in Bartels & Reinders, 2010). According to Christensen et al. (2004, as cited in Whitmarsh & O'Neill, 2010), this social identification results in one's self-identity conforming to the values, beliefs, and behaviours of the social groups to which one belongs. Therefore, in an environmental context, a social identification with environmentally active groups may cause an individual's self-identity to conform to the environmental values, beliefs and behaviours of the group identified with.

This alignment may be especially apparent in a context where the membership of groups identified with is made relevant. According to Bouman et al. (2021), when group membership is relevant in a given context (such as group values, beliefs, and actions), social

identities are activated and made salient, causing an individuals' self-concept to align with the content of the relevant social identity. A group membership of environmentally active groups may thus affect an individual's self-identity when confronted with information or questions concerning current or past pro-environmental behaviour, causing the individual's self-concept to align with group values and beliefs. Here, ease-of-recall tasks as conducted by Schwarz et al. (1991), asking to recall pro-environmental behaviours, could serve as context to activate a social identity pertaining to an environmentally active group. This, in turn, may cause a self-perception alignment with these groups when asked for their assessment of environmental self-identity after having completed the task.

Furthermore, prior research has shown that social identification can influence the effect of ease of recall on judgements in differing contexts. Stone et al. (2020) found evidence that group membership affected the recall of information presented in a political speech and subsequent judgements, while Stapel et al. (1994) found similar results in the context of risk judgements. Further, Briley et al. (2017) found evidence for a differing effect of ease recall on judgements of ethnical representation in media based on the participant's ethnic group identity. Additionally, evidence was found for the moderating role of group identity in relationship between the effects of ease of retrieval and reparation intention in a study by Knoetze (2015) specifically employing ease-of-recall tasks as used by Schwarz et al. (1991).

Accordingly, while very little research investigating the influence of group identity on the effect of ease of retrieval on self-identity currently exists, earlier research yields ground to investigate a potential influence of group identity on the effect of ease of retrieval on judgements about one's self-identity in an environmental context. Individuals may perceive themselves as more environmentally friendly after experiencing an ease of retrieval if they strongly identify with environmental groups. Consequently, environmental ("green") group identity is presumed to positively affect the effect of ease of retrieval on environmental self-

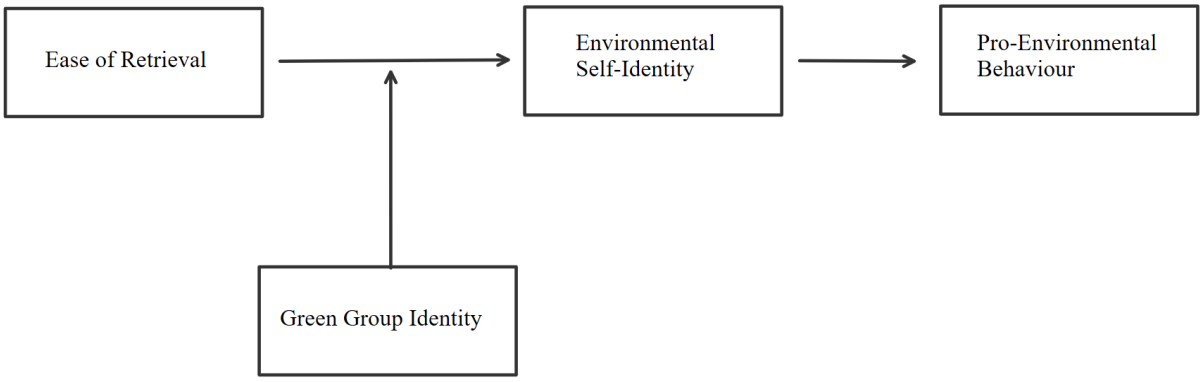
identity, dependent on the degree of group identification. Therefore, green group identity is proposed to serve a moderating role in the relationship between ease of retrieval and environmental self-identity.

The Present Study

The present study aims to investigate the relationship between ease of retrieval and self-identity and its potential impact on pro-environmental behaviour. Similar to the study conducted by Schwarz et al. (1991), the present study aims to manipulate degree of ease of retrieval in differing experimental conditions, wherein one experimental group is asked to recall a higher number of past pro-environmental behaviours than the other experimental group. The resulting ease of retrieval effect is proposed to influence the individual's environmental self-identity. Additionally, this study aims to investigate the effect of green group identity on the relationship between ease of retrieval and environmental self-identity by measuring the strength of identification with groups that promote pro-environmental behaviour and investigating a moderating position. Lastly, a behavioural measure is implemented to investigate if self-identity corresponds with subsequent behaviour in the present study context.

Figure 1

Conceptual Framework



Based on the presented framework, the following hypotheses are formulated:

H1: Ease of Retrieval positively affects Environmental Self-Identity.

H2: The positive effect of Ease of Retrieval on Environmental Self-Identity will be stronger for people that experience a stronger Green Group Identity.

H3: A high strength of Environmental Self-Identity positively affects Pro-Environmental Behaviour.

Methods

Study Design

The present report features a between-subjects study design with Ease of Retrieval as an independent variable, Green Group Identity (GGI) as an independent moderator variable, and Environmental Self-Identity (ESI) as a dependent variable. As a dependent variable, ESI is a continuous variable in form of mean scores, with high values representing a strong environmental self-identity and low values representing a weak environmental self-identity. The independent variable Ease of Retrieval is similarly structured as a continuous variable in the form of mean scores, with high to low values representing the degree of perceived ease of absolving the recall task. Lastly, GGI in this design is also a continuous variable represented as mean scores from measurement. A high value here represents a strong group identity with an environmentally active group and vice-versa. Additionally, the design also employs a measure for pro-environmental behaviour to assess the relationship with ESI as outlined by the model. The variable Pro-Environmental Behaviour is a continuous variable encompassing a score representing the number of times the measure was engaged with and pro-environmental behaviour was displayed. Ethical approval for the study was granted by the University of Twente BMS Ethics Committee.

Participants

Participants were recruited via convenience and snowball sampling on personal basis through social media networks and word-of-mouth or through intranet structures of university facility-wide shared research subject pools. Participation was on voluntary basis, with either no compensation or small compensation in the form of virtual credits for participating students through subject pool networks. Requirements for inclusion were an age above 16 years, at least B2 level English language proficiency, access to a stable connection and an e-mail address. Language proficiency was not tested for due to the high general English proficiency in the sampled population. Exclusion criteria were unfinished and unserious answering, as well as denied consent.

Of the initial subject pool of 196 participants, 80 were excluded for failing to complete the questionnaire, and further 18 were excluded due to unserious answering by failing to pass an attention check measure, resulting in an overall exclusion of 98 responses. Thus, the final dataset consisted of 98 respondents, the demographics of which are displayed in Table 1. The sample was further randomly distributed across two experimental conditions. The low Ease of Retrieval condition sample consisted of 39 respondents, while the high Ease of Retrieval condition encompassed 59 subjects.

Table 1

Characteristics of sample population (N = 98)

Characteristics	N	Percent	M	SD	Min	Max
Total sample	98	100%				
Age	98	100%	25.79	9.84	17	71
Gender						
Male	41	41.8%				
Female	55	56.1%				
Diverse	2	2.0%				
Nationality						
German	82	83.7%				
Dutch	6	6.1%				
Other	10	10.2%				
Education						
Secondary education	42	42.9%				
Vocational training	8	8.2%				
Bachelor’s degree	33	33.7%				
Master’s degree	9	9.2%				
Doctor’s degree	2	2.0%				
Other	4	4.1%				
Occupation						
Student	71	72.4%				
Trainee	3	3.1%				
Working	21	21.4%				
Unemployed	1	1.0%				
Retired	1	1.0%				
Other	1	1.0%				

Procedure

The collection of data proceeded from April 6, 2022, to May 5, 2022. Collection was conducted through the online survey platform Qualtrics. Upon starting the survey, participants were informed about their rights as participants and the research purpose. Afterwards, respondents were given an online informed consent form, explaining further proceedings (see Appendix A). Moving on, participants were asked about demographical data, specifically their age, gender, nationality, occupation, and educational background.

Proceeding in the survey, participants were randomly assigned to one of two experimental conditions. In both conditions, respondents were presented with a definition of pro-environmental behaviour as "actions aimed at avoiding harm to and/or safeguarding the environment, either performed in public (e.g., participation in environmental movements) or private domains (e.g., recycling)" (Balundė et al., 2019). Depending on the condition assigned to, participants were then asked to give either twelve or six examples of acted-out pro-environmental behaviour. Participants in the high requirement condition were asked to give twelve examples, while participants in the low requirement condition were asked to give six examples. Following the recall task, respondents were further prompted to indicate their perceived difficulty in completing the task on a seven-point Likert scale from "Very easy" (1) to "Very difficult" (7). Two questions to rate the difficulty were given as a measure to validate if the manipulation of perceived ease of retrieval was successful.

Continuing with the survey, participants were asked to fill out questions that measured four differing constructs. Of these constructs, "Green Group Identity and "Environmental Self-Identity" were relevant for the present study. Questions pertaining to and measuring differing constructs were part of a cooperative data collection effort conducted collaboratively with two other researchers to maximise the potential participant pool.

After answering the items related to the aforementioned constructs, participants were informed that the researchers had arranged a deal with the World Wildlife Fund (WWF): The WWF would donate a small amount of money (.05 €) to pro-environmental cause for each time the respondents clicked on a link presented to them on a button. Participants were further informed that they could click the link up to a maximum of 100 times. Adding to that, respondents were also given the information that participation in this task was voluntary and that they could finish participation at any point during the measure. After clicking the highest possible number of times or choosing to finish the study during or before the measure,

respondents were debriefed on the true purpose of the link and its deceptive nature. The debrief additionally entailed an option to withdraw consent after being informed of the deceptive nature of the measure (see Appendix A). Lastly, participants were provided with contact details of the researchers for possible inquiries or concerns. The survey closed with a message thanking the respondents for their participation, as well as an announcement that their response had been recorded and that they could exit the survey.

Measures

Ease of Retrieval. First, Ease of Retrieval was assessed by means of prompting participants to respond to one statement completion prompt ("I found the task…") and one question ("How difficult was it for you to recall these behaviours?"). Answers to the prompt and question could be given on a seven-point Likert scale ranging from "Very easy" (1) to "Very difficult" (7). Both the prompt and question were further employed as a manipulation measure to assess whether the intended manipulation of the perceived ease of retrieval was successful. Index scores were computed of the average scores on the two items.

Environmental Self-Identity. Environmental Self-Identity was assessed by means of a scale adapted from van der Werff et al. (2014), consisting of three items that were answered on a seven-point Likert scale ranging from "Totally disagree" (1) to "Totally agree" (7). The items were "Acting environmentally friendly is an important part of who I am", "I am the type of person who acts environmentally friendly", and "I see myself as an environmentally friendly person". Cronbach's alpha for this scale was .95 in the study of van der Werff et al. (M = 4.88, SD = 1.28). Index scores were computed of the average scores on the three items.

Green Group Identity. Green Group Identity was measured by means of a modified version of the Group Identity Scale presented and used in Heere et al. (2011). The original scale presented by Heere et al. measured six dimensions of an individual's sport team identity

through 19 items pertaining to both public and private evaluation, group attachment in interconnection and interdependence, behavioural involvement, and cognitive awareness. For the purposes of this study, the scale was modified based on face validity in terms of effectiveness for this study and based on concerns of potentially compromising the effects of the ease of retrieval manipulation. The scale was reduced to featuring items pertaining to public and private evaluation and interconnection to self and reformulated to fit a broader approach. Further, an original item in the list of questions targeting interconnection to self was replaced with another item.

Before answering the presented items, respondents were to name an environmental group that they were the most familiar with and feel the most positive (or least negative) about. Ensuing questions or statements then related back to this group of choice. The then following set of items consisted of 10 statements:

Item 1: “I would say that I feel as a part of this group.”

Item 2: “Overall, my chosen group is respected by others.”

Item 3: “Generally, people hold a favourable opinion about this group.”

Item 4: ”My group of choice is generally viewed positively by others.”

Item 5: ”I feel positive about being a member of my group of choice.”

Item 6: ”Generally, I am glad to be a member of this group.”

Item 7: ”Overall, I am proud to think of myself as a part of my group of choice.”

Item 8: ”When someone criticises my group of choice, it feels like a personal insult.”

Item 9: “Being associated with this group is important to my self-image.”

Item 10: “Overall, my group of choice is an important reflection of who I am.”

After each statement, the participants were prompted to answer on a seven-point Likert-scale scale ranging from “Totally disagree” (1) to “Totally agree” (7). Index scores were computed

of the average scores on the ten items to form a single variable representing Green Group Identity.

Pro-Environmental Behaviour. Pro-Environmental Behaviour was measured by use of a deception measure in form of an opportunity to engage in pro-environmental behaviour. Scores were dependent on the number of times a link was accessed by the respondent. Therefore, action scores ranged from 0 (link clicked 0 times) to 100 (link clicked 100 times).

Data Analysis

Statistical analyses were conducted via the IBM Statistical Package for Social Sciences (SPSS Version 27). Descriptive statistics (frequencies, means, and standard deviations) were used to explore the demographics and variables of interest. Next, H1 "*Ease of Retrieval positively affects Environmental Self-Identity*" and H2 "*The positive effect of Ease of Retrieval on Environmental Self-Identity will be stronger for people that experience a stronger Green Group Identity*." were tested. The SPSS extension 'PROCESS 4.0 by Andrew Hayes' (Hayes, 2018) was used to assess whether a moderation effect is present. Continuing, H3 "*A high strength of Environmental Self-Identity positively affects Pro-Environmental Behaviour*." was tested by means of a regression analysis. Afterwards, the data was further explored and investigated through means of additional moderation analysis. All inferential analyses use a confidence interval of 95%, corresponding to an alpha of .05.

Results

Data Preparation

Before hypothesis testing, the gathered data was investigated for violations of assumptions of linearity, equal variance, and independence of residuals. Overall, said assumptions have been generally met. Notable violations were however present in the assumption of normality for Ease of Retrieval ($W = 0.96$; $p < .01$), Environmental Self-Identity ($W = 0.93$; $p < .001$) and Pro-environmental behaviour ($W = 0.66$; $p < .001$). Finally, mean scores for the measurement of Ease of Retrieval were reversed to align high scores in correspondence to a high experienced ease of retrieval, as opposed to a high perceived difficulty.

Validity and Reliability of Scales

Furthermore, the validity and reliability of the scales for Green Group Identity and Environmental Self-Identity was assessed. The Bartlett's test of sphericity indicated that correlations were significant for Green Group Identity [$\chi^2(78)=804.40$, $p<.001$] and Environmental Self-Identity [$\chi^2(3)=175.94$, $p<.001$]. Results of the KaiserMeyer-Olkin test for sampling adequacy indicated that the strength of the relationship among the variables was great for Green Group Identity (*KMO*=.86) and good for Environmental Self-Identity (*KMO*=.72). Thus, the results indicated a sufficient fit of the factor model. Factor analyses were run for both scales (see Appendix B).

In terms of Green Group Identity, dimension reduction resulted in a scree plot indicating two major factors under the eigenvalue criterion of ev ≥ 1. None of the items loaded negatively on the first factor, accounting for 51.87% of the variance. Noticeably, item 2 ("Overall, my chosen group is respected by others"), item 3 ("Generally, people hold a favourable opinion about this group."), and item 4 ("My group of choice is generally viewed

positively by others.") loaded partially on the second factor, which accounts for 16.54% of the variance. A varimax-rotated two-factor solution indicates that most items load most heavily on the first factor; however, item 2, item 3, and item 4 load most heavily on the second factor. Items loading on the first factor correspond to items proposed to measure the individual's public and private evaluation of the group, while items loading on the second factor correspond to items proposed to measure the interconnection to self. Therefore, the first factor has face validity to be interpreted as the public and private evaluation of the group, while the second factor has face validity to be interpreted as the interconnection to self. Hence, the items measured the intended two dimensions of group identity as derived from the Group Identity Scale by Heere et al. (2011).

In terms of Environmental Self-Identity, dimension reduction resulted in a scree plot indicating one factor under the eigenvalue criterion of ev ≥ 1, accounting for 82.45% of the variance. Hence, the factor has face validity of being interpreted as Environmental Self-Identity. Lastly, the results of the reliability scores did not differ substantially among the scales. Reliability testing for Green Group Identity indicated almost excellent reliability ($\alpha = .89$). Reliability testing for Environmental Identity also indicated almost excellent reliability ($\alpha = .88$).

Correlations

Table 2 shows a correlation matrix between the main variables. As shown, three main variables correlate at a statistically significant level, i.e., Ease of Retrieval, Green Group Identity, and Environmental Self-Identity. Green Group Identity correlates the strongest with other main variables in this group, namely Ease of Retrieval ($r = .45$) and Environmental Self-Identity ($r = .47$). Notably, the variable of Pro-Environmental Behaviour does not correlate at a statistically significant level with any of the other main variables.

In addition, correlations of main variables with demographic variable such as age and gender were investigated (see Appendix C). The variable Gender significantly correlated with Pro-Environmental Behaviour at $r(96) = .28$, $p < .01$, indicating that participants identifying as women or diverse correlated with higher action scores in the behavioural measure.

Table 2

Correlation Matrix of Major Scores

	1.	2.	3.	4.
1. Ease of Retrieval	-	.45**	.34**	.12
2. Green Group Identity	.45**	-	.47**	-.02
3. Environmental Self-Identity	.34**	.47**	-	.16
4. Pro-Environmental Behaviour	.12	-.02	.16	-

***. Correlation is significant at the 0.01 level (2-tailed).*

Manipulation Check

First, a manipulation check was conducted to investigate whether the conditions of the task were perceived differently in terms of their difficulty. Univariate analysis indicates that there is significant difference between the groups in their perceived ease of retrieval absolving the task ($F(1,95) = 10.99$; $p = .001$). Participants assigned to the condition with fewer to recount pro-environmental behaviours expressed a higher ease of retrieval ($M = 4.97$, $SD = 1.31$) than participants assigned to the condition with a higher number of to be recalled behaviours ($M = 4.08$, $SD = 1.23$). Thus, the ease of retrieval experienced by participants was manipulated successfully.

Moderation Analysis

A moderation analysis was conducted to test H1 "*Ease of Retrieval positively affects Environmental Self-Identity*." and H2 "*The positive effect of Ease of Retrieval on Environmental Self-Identity will be stronger for people that experience a stronger green group identity*". The moderation analysis was executed through Process Macro (Hayes, 2018), the results of which can be seen in Table 3. The interaction effect was found to be very minor and not statistically significant (p = .77), as was the main effect of Ease of Retrieval on Environmental Self-Identity (p = .92). Based on the results of the moderation analysis, null hypotheses for H1 and H2 could not be rejected, therefore leading to the rejection of both H1 and H2.

Table 3

Results of a moderator model with parameter estimates for DV Environmental Self-Identity, IVs Ease of Retrieval, and moderator Green Group Identity (GGI)

Parameter	B	*SE*	*t*	*p*	*LLCI***	*ULCI***
Intercept	3.22	1.46	2.20	.03	0.31	6.12
Ease of Retrieval	0.03	0.32	0.09	.92	-0.62	0.68
GGI	0.32	0.35	0.92	.36	-0.37	1.01
Interaction Effect	0.02	0.07	0.29	.77	-0.13	0.17

** R^2 = .24 (Adjusted R^2 = .22), F(3, 94) = 9.8, p <.001*
*** lower/ upper limit confidence interval 95%.*

Behavioural Measure

Before conducting a regression analysis on the relationship between Environmental self-identity and pro-environmental behaviour controlling for Green Group Identity, statistical assumptions of the data in linearity, independence of residuals, equal variance and normality

were investigated. Additionally, assumptions of no multicollinearity and homoscedasticity were investigated (see Appendix D). The data shows violations of the assumption of normality (W=0.659*; p* <.001) and the assumption of normal distribution of Residuals. The data for the pro-environmental behaviour measure shows clear ceiling and floor effects, as of the initial dataset (*N=98)*, 59 people reached a maximum score, while 27 reached a minimal score.

Furthermore, the data indicates a clear violation of the assumption of linearity for Green Group Identity on Pro-Environmental Behaviour. In case of violation of normality in linear models, van den Berg (2021) recommends extending the model by including the violating independent variable taken squared as an additional predictor. With the introduction of such an additional predictor in the form of Green Group Identity Squared, the data was found suited for further regression analysis. Thus, a regression analysis of Environmental Self-Identity on Pro-environmental Behaviour controlling for Green Group Identity and Green Group Identity Squared was conducted (see Table 4).

Table 4

Results of a regression analysis with DV Times Accessed Link and IVs Environmental Self-Identity (ESI), Green Group Identity (GGI), and Green Group Identity Squared (GGI^2)

Parameter	B	*SE*	*t*	*p*	*LLCI***	*ULCI***
Intercept	-58.48	77.41	-0.76	.45	-212.18	95.23
ESI	8.17	5.21	1.57	.12	-0.81	19.61
GGI	43.86	37.28	1.18	.24	-30.15	117.87
GGI^2	-5.6	4.18	-1.34	.18	-13.9	2.71

*** lower/ upper limit confidence interval 95%.*

The results of regression analysis indicate that the relationship between Environmental Self-Identity and Pro-Environmental Behaviour is not statistically significant (*p = .12)*. Given these results, the null hypothesis for H3 "*A high degree of Environmental Self-Identity positively affects pro-environmental behaviour*" cannot be rejected, leading to the rejection of H3.

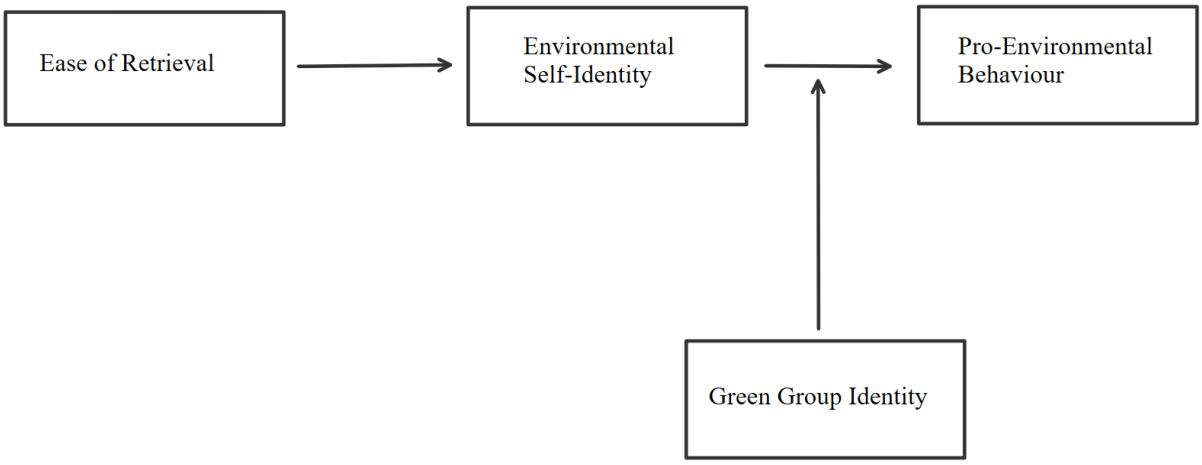
Exploratory Analysis

On basis of statistically significant correlations between the variables Ease of Retrieval, Environmental Self-Identity, and Green Group Identity, further exploratory analysis was conducted. While the effects of group identification on self-identity have been extensively elaborated previously, the identification with social groups can also have implications for the adoption of behaviours. Oyserman et al. (2007) found that social identities had a differing impact on how participants viewed health promoting behaviours, associating health promoting behavioural patterns with outgroups and opposing these behaviours as in-group defining. Similar findings were also presented in studies concerning developments of COVID19 related preventive measures, where congruent social identities were pivotal for strengthened or weakened engagement in promoted protective behaviours (Motta et al., 2021; Powdthavee et al., 2021). In addition, evidence has been found that links pro-environmental group identities to increased environmental activism (cf. Dono et al., 2010; Schulte et al., 2020), while Dono et al. also found pro-environmental group identities to be a strong predictor for pro-environmental behaviour overall – a finding supported by multiple other recent papers (cf. Bouman et al., 2021; Jans, 2021; Wang et al., 2021).

Therefore, an adjusted model is proposed, wherein Green Group Identity serves as a moderator in the relationship of the effect of Environmental Self-identity on Pro-Environmental Behaviour, with a high degree of Green Group Identity positively affecting this relationship and vice versa.

Figure 2

Adjusted Conceptual Framework



The moderation analysis was executed through Process Macro (Hayes, 2018). The overall model was found to be statistically non-significant ($F(3, 94) = 1.48$, $p = .23$, $R^2 = .05$) (see Table 5). The interaction effect was found to be not statistically significant ($p = .31$). In consequence, it can be concluded that Green Group identity does not moderate the relationship between Environmental Self-Identity and Pro-Environmental Behaviour in a statistically significant manner.

Table 5

Results of a moderator model with parameter estimates for DV Pro-Environmental Behaviour, IVs Environmental Self-Identity (ESI) and moderator Green Group Identity (GGI)

Parameter	B	*SE*	*t*	*p*	*LLCI***	*ULCI***
Intercept	-52.14	92.16	-0.57	.57	-235.13	130.85
ESI	17.35	22.82	0.76	.45	-27.97	62.66
GGI	27.49	18.29	1.50	.14	-8.81	63.80
Interaction Effect	-4.44	4.31	-1.03	.31	-13.00	4.11

*** lower/ upper limit confidence interval 95%.*

Discussion

Summary of Results

The present study investigated the relationship between ease of retrieval and environmental self-identity and the moderation by green group identity. Furthermore, the effect of environmental self-identity on pro-environmental behaviour was examined. Following the results of the moderation analysis, no sufficient evidence was found to accept H1 "*Ease of Retrieval positively affects Environmental Self-identity*" and H2 "*The positive effect of Ease of Retrieval on Environmental Self-Identity will be stronger for people that experience a stronger green group identity.*". The results indicate that there is no moderation effect of Green Group Identity on the relationship between Ease of Retrieval and Environmental Self-identity. Additionally, no evidence was found that Ease of Retrieval influences Environmental Self-Identity to a statistically significant degree in the given model. Consequently, both hypotheses had to be rejected.

Furthermore, the results of a regression analysis yielded no statistically significant results for the effect of variables Green Group Identity and Environmental Self-Identity on Pro-Environmental Behaviour. Given these results, H3 "*A high degree of Environmental Self-Identity positively affects pro-environmental behaviour*" had to be rejected. In addition, exploratory analysis could not find evidence for a moderating role of Green Group Identity in the relationship between Environmental Self-Identity and Pro-Environmental Behaviour, as indicated by the results of an additional moderation analysis after the model had been adjusted. Analysis showed that no statistically significant effect could be found for a moderation effect.

Examining Findings

Ease of Retrieval and Environmental Self-Identity. The findings presented in this study unexpectedly do not align with prior research. Attempts to replicate the findings of

Schwarz et al. (1991) wherein the ease of retrieval influenced self-identity after an ease-of-recall task were unsuccessful, as this study could not find a similar effect for ease of retrieval on environmental self-identity. A possible explanation might be found in the effectiveness of the ease-of-recall task. As the data indicates, while the task was effective in manipulating the perceived difficulty and ease of retrieval in respondents, mean scores indicate only a comparably small difference in group means, with respondents assigned to the low requirement condition only reporting a slightly higher ease of retrieval, whereas respondents assigned to the high requirement condition on average perceived an only average difficulty of the task. As a result, the task may not have produced an ease of retrieval effect strong enough to be statistically significant. Future research should therefore adjust high and low requirement conditions to task respondents to recall a higher or lower number of past environmental behaviours, depending on the condition in order to produce a potentially more significant ease of retrieval effect.

Environmental Self-Identity and Pro-Environmental Behaviour. In addition, the present study could not fully confirm an influence of environmental self-identity on pro-environmental behaviour. Based on statistical non-significance, the findings contradicted arguments brought forth by authors such as Balundė et al. (2019) and van der Werff et al. (2014) that (environmental) self-identity is a predictor for pro-environmental behaviour. A possible explanation might be that the behavioural measure did not entail a behaviour that is predicted by environmental self-identity. According to Whitmarsh and O'Neill (2010), some pro-environmental behaviour categories, such as travel behaviour and political activity, are not necessarily predicted by an individual’s self-identity. Donating funds through an online access counter may therefore be a behaviour that is similarly not predicted by environmental self-identity, but rather other underlying factors.

Another explanation for these contradictory findings might further lie in the fact that contrary to van der Werff et al. (2014), this study does not measure pro-environmental behaviour via self-reports, but rather attempts to measure it via actual observed behaviour. In a study on the use of nudges to affect spillover in environmental behaviours, Fanghella et al. (2019) highlight that while environmental self-identity positively affects self-reported behaviour, a similar effect cannot be seen in measures of observed behaviour. According to Fanghella et al., this phenomenon may be caused by negative spillover, where a boosted environmental self-identity through recall of past environmental behaviours results in a heightened sense of morality and thus justification for reduced further moral behaviours, such as environmentally friendly action. This effect may counteract or outweigh other contextual factors exerting positive influence on the relationship of environmental self-identity such as obligation-based intrinsic motivation (van der Werff et al., 2013b). A similar phenomenon might have occurred in the present study, where respondents might have felt that past pro-environmental action relieves them of any obligation to further engage in pro-environmental behaviour as offered by the behavioural measure. Lastly, the measure of pro-environmental behaviour encountered technical difficulties, as discussed when addressing the limitations of the present study.

Future research into the effects of environmental self-identity on pro-environmental behaviour should be cautious of contextual factors such as spillover effects and the possibility of pro-environmental action not motivated by environmental self-identity. Efforts to positively influence environmental self-identity may very well not reliably facilitate environmental action without accounting for and understanding its underlying factors and intricate mechanisms.

Green Group Identity as a Moderator. Finally, the present study could not find evidence for a moderating position of the strength of identification with pro-environmental groups for either the effect of ease of retrieval on environmental self-identity or the effect of

environmental self-identity on pro-environmental behaviour as had been hypothesised and/or outlined by conceptual frameworks. Based on the insights gathered by Christensen et al. (2004, as cited in Whitmarsh & O'Neill, 2010), Bouman et al. (2021) and research done by Briley et al. (2017) and other authors (Knoetze, 2015; Stapel et al., 1994; Stone et al., 2020) it was hypothesised that the positive effect of Ease of Retrieval on Environmental Self-Identity will be stronger for people that experience a stronger Green Group Identity. However, no support for this hypothesis was found, contrasting some of the earlier findings.

A possible explanation might lie in the possibility that ease-of-recall tasks do not activate group identities and thus do not expose the effect on self-identity to any conforming influence of group identities as illustrated by Bouman et al. (2021). Another explanation might also lie in the assumption that group identity simply does not affect the influence of ease of retrieval on judgements pertaining to self-perception and -identity, as opposed to findings showing this to be the case for judgements of risk or intention (Knoetze, 2015; Stapel et al., 1994). Combined, this would imply that the effects ease of retrieval on self-identity and the influence of social identification of self-identity are two direct influences working independently from one another. Consequently, ease-of-recall tasks could introduce the possibility of attempts to influence the environmental self-identity of individuals through ease of retrieval effects regardless of the individual's degree of identification with pro-environmental groups.

As stated, findings could also unexpectedly not support a moderating position of identification with pro-environmental groups in the effect of self-identity on pro-environmental behaviour. The results contrasts research by other authors outlining the effect of group identities on the individual's engagement in pro-environmental activities (cf. Bouman et al., 2021; Dono et al., 2010; Jans, 2021; Schulte et al., 2020; Wang et al., 2021). Possible explanations for these results apart from the previously discussed factors surrounding pro-

environmental behaviour and environmental self-identity might lie in additional contextual factors such as visibility. In their study on the moderating role of visibility for the effect of identity on pro-environmental behaviour, Brick et al. (2017) found that the visibility of the behaviour for others, especially group members, predicted pro-environmental behaviours. Applying these insights to the current study, one could argue that respondents did not engage in pro-environmental behaviour even with a strong green group identity as the behavioural measure was anonymous and effectively invisible to other members of the group identified with. An environmental group identification could therefore not influence the relationship between environmental self-identity and pro-environmental behaviour based on missing visibility.

An alternative explanation may be found in the fact that the behavioural measure entailed an activity that, while supposedly donating funds to a pro-environmental cause, only indirectly did so through supporting a specific environmentally active group – the WWF. While participants could infer environmental benefits by donating to and supporting this group, it ultimately leaves the specific environmental cause and explicit purpose of the supposed generated donations ambiguous and somewhat obscured. In consequence, the perceived efficacy of the behaviour as effective pro-environmental by participants might have been compromised. However, research has found that perceived efficacy is an important factor when predicting whether individuals or groups engage in pro-environmental behaviour (Hamann & Reese, 2020; Mackay et al., 2021).

Adding to that, supporting an environmental group as an objective measure of actual pro-environmental activity may be itself influenced by factors of social identity. Accordingly, the WWF could be seen as an out-group by individuals identifying more with a differing (environmental) group and therefore viewing actions taken to support it with outgroup prejudice and ingroup favouritism, whereby one’s own environmental group would be seen as

a better group to support and supporting the WWF would be perceived as less attractive (cf. Fielding & Hornsey, 2016; Tajfel, 1978; Tajfel & Turner, 1979).

Future research may consequently consider restructuring the behavioural measure to assess pro-environmental behaviour in terms of a group-based/collective effort, where pro-environmental behaviour is more visible to others account for the influence of visibility on the relationship between identity and pro-environmental behaviour. One such measure could for example include an artificially created donation fundraiser, where participants could see the contribution of other participants and likewise, other participants could see their own contribution, addressing the factor visibility. Further tying into this, the deceptive measure could include an indicator of which environmental groups that participants identified with engaged the most in pro-environmental behaviour. Such an indicator could tap into the effects of social comparison in the domain of social identity, whereby participants may be psychologically motivated to see their groups as positively distinct from other relevant groups to maintain a positive and clear self-concept (Fielding & Hornsey, 2016). Lastly, the measure should state a specific donation goal or purpose for the money supposedly raised to ensure beliefs in its efficacy. By implementing these elements, previously highlighted compromising factors may be mitigated, and participants may engage more in measures assessing pro-environmental behaviour based on their degree of identification with environmentally active groups.

Limitations and Strengths

After elaborating on the findings of the study, their theoretical implications and further explanations, potential limitations and weaknesses have to be addressed. First, as a rudimentary start, concerns with the sample are present. Participants were assigned in uneven distribution among the two conditions for the ease of retrieval task, resulting in uneven group sizes. In

addition, the sample population indicates a rather homogenous distribution in terms of demographics. A great majority of the respondents were young academics with predominantly European nationality. Generally speaking, this demographic tends to be very environmentally active (cf. Der-Karabetian et al., 1996; Wallis & Loy, 2021) therefore possibly introducing potential bias in the data and limiting extrapolation of insights for the general public. Specifically, these characteristics may affect pro-environmental behaviour and identities pertaining to environmentally active groups. Thus, the overall data gathered for environmental identities and pro-environmental behaviour may not accurately reflect data for the average consumer and their environmental behaviour.

Secondly, there are potential concerns with the survey in its structure and measurements. As part of a cooperative effort between researchers to maximise sample size, one construct measured in the survey prompted respondents to make statements towards self-assessed habitual patterns in any pro-environmental behaviours they might exert. These prompts were conducted after participants had already completed the ease of retrieval task, which in a slightly similar manner prompts respondents to recall their past pro-environmental behaviours, but before participants were asked to position themselves to statements on their environmental self-identity. Therefore, this measure could introduce the possibility of skewing the ease of retrieval effect by engaging participants in a similar task. To mitigate such a risk in future research, participants should be asked to rate their environmental self-identity immediately after completing the ease of retrieval task.

Thirdly, the pro-environmental behaviour measure proved to be problematic in its technical execution. Being an input-based measure, users of the survey platform often overloaded the survey script with rapid inputs to drive up their score quickly. This likely lead to an error in the survey script and server feedback of the platform, ultimately causing the survey to freeze. Furthermore, it is apparent that the measure was not a well-balanced “cost vs.

benefit" measure, as participants reported either almost no conceived effort to complete the task or did not engage in the task at all, citing it to be tedious, which in sum resulted in very apparent floor and ceiling effects.

Finally, the measure used to assess Green Group Identity leaves room for improvement. A potential risk could be seen in letting participants name their own group of choice for the measure, as groups are only chosen based on their associated pro-environmental behaviour based on the respondents perception. In consequence, no differentiation in group size, order, funding based on public or private sources and type of pro-environmental behaviour is made. An individual feeling part of an activist group may differ from an individual affiliating with a wilderness fund donation group, yet both individuals can display a high degree of identification that is weighted the same. As a closing addition, while the reduction of items for the measure was done based on face validity, it also effectively reduced the measured dimensions of group identity as proposed by Heere et al. (2011). While the included items did load respectively on their targeted dimensions as expected, concerns with the overall accuracy of the measure assessing group identity are present based on the missing items from the Group Identity Scale presented by Heere et al.

However, despite its limitations, the study offers strong points. To start, measures used to assess environmental self-identity and environmental group identity proved to have high reliability and validity, further proving the effectiveness of the scales developed and refined by van der Werff et al. (2014) for environmental self-identity and Heere et al. (2014) for assessing group identity even in a context of environmental group membership. Furthermore, the study has found further proof for the effectiveness of ease-of-recall tasks as employed by Schwarz et al. (1991) to manipulate the ease of retrieval participants experience when participants engage in these tasks. Lastly, while participants reported concerns with the behavioural measure such as technical difficulties, some also gave positive feedback concerning the deceptive nature of

the measure. According to these reports, participants were disappointed to find that they had been deceived and applauded the effectiveness of the deception. This reported effectiveness implies that the premise of donating smaller amounts of money corresponding to the number of low-cost inputs given by participants in an online tool may be suited as a believable deception for other future studies to gather behavioural data in an online environment.

Conclusion

Despite its shortcomings and absence of statistically significant findings, the present study contributes to the body of knowledge of psychology, specifically on environmental identity and behaviour of individuals and groups. As one of the few studies investigating the effects of ease of retrieval on environmental self-identity and pro-environmental behaviour, this study is also among the first to investigate the impact of social identification on the effects of ease of retrieval on self-identity in an environmental context. Findings indicate that when attempting to manipulate environmental self-identity based on ease of recall to promote pro-environmental behaviour, identification with relevant groups does not affect the attempted manipulation. This carries implications that future attempts to influence environmental self-identity and its impact on pro-environmental behaviour may be conducted without having to account for potential influence from identification with pro-environmental groups. However, further research is needed, as research combining effects of group identity and self-identity on pro-environmental behaviour is still rather sparse, especially in the context of manipulation through ease of retrieval effects. Lastly, this study contributes to the body of research on the ease of retrieval effect, further confirming the effectiveness of ease-of-recall tasks as a means to manipulate ease of retrieval individuals experience.

Further attempts to manipulate ease of retrieval in a context of environmental behaviours should consider increasing the difficulty specifically for high requirement

conditions in order to produce a potentially more tangible and significant effect. Future research is further encouraged to investigate the role of environmental group identity in relation to ease of retrieval, environmental self-identity and pro-environmental behaviour by employing expanded scales and restructured measures in order achieve a better understanding of the intricacies of environmental identities, their contextual factors, and their effect on environmental behaviour – and by doing so bring us closer to a greener society and sustainable environment for generations to come.

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Appendix A

Online Consent and Debrief Forms

Figure A1

Online Consent Form

Welcome!

The purpose of this research project is to measure and gain insight on the formation of environmental behaviour. This research project is being conducted by third-year students from the University of Twente.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. If you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalised and your data will be deleted.

We will do our best to keep your information confidential. All data is stored in a password protected electronic format. To help protect your privacy and personal data, the survey will not contain information that will personally identify you. Your responses will be held confidential and we do not collect identifying information such as your name, email address or IP address. The results of this study will be used for scholarly purposes only and may be shared with University of Twente representatives.

The procedure involves filling in an online survey that will take approximately 15 minutes. First you will be asked general demographic questions. Subsequently, you will be given a small task and are asked to fill out a few questions. The topic of the questions pertains to the task and sustainable behaviour.

We ask that you answer the questions truthfully. It is also important that you finish the entire questionnaire up until you are explicitly informed that you can close the survey. You are, however, free to quit the survey at any point in time by closing the window, in which case your response will not be recorded.

If you have any questions about the research study, please contact:
[Omitted]

This research is reviewed according to University of Twente BMS procedures for research involving human subjects.

ELECTRONIC CONSENT:
Please select your choice below.
Clicking on the "I agree" button below indicates that:
• You have read the information given above
• You voluntarily agree to participate
• You are at least 16 years of age
If you do not wish to participate in the research study, please decline participation by clicking on the "I disagree" button.

Figure A2

Online Debrief From

At the beginning of the experiment you were randomly assigned to one of two groups that each were asked to recall a different amount of behaviours. Additionally, the link that you were just provided with was used as a measure of Pro-environmental behaviour. No monetary value was donated. It solely served the purpose of recording pro-environmental behaviour in an online setting.

If you do not consent with this, please indicate so below.

If you have any questions about the research study, please contact:

[Omitted]

This research is reviewed according to University of Twente BMS procedures for research involving human subjects.

ELECTRONIC CONSENT:

Please select your choice below.

Clicking on the "I agree" button below indicates that:

• you have read the information given above

• you acknowledge the deception measure and agree to the use of your data in this research study

If you do not wish for your answers and data being used in the research study, please decline participation by clicking on the "I disagree" button.

Appendix B

Factor Analysis Results for Green Group Identity and Environmental Self-Identity

Figure B1

Scree Plot – Green Group Identity

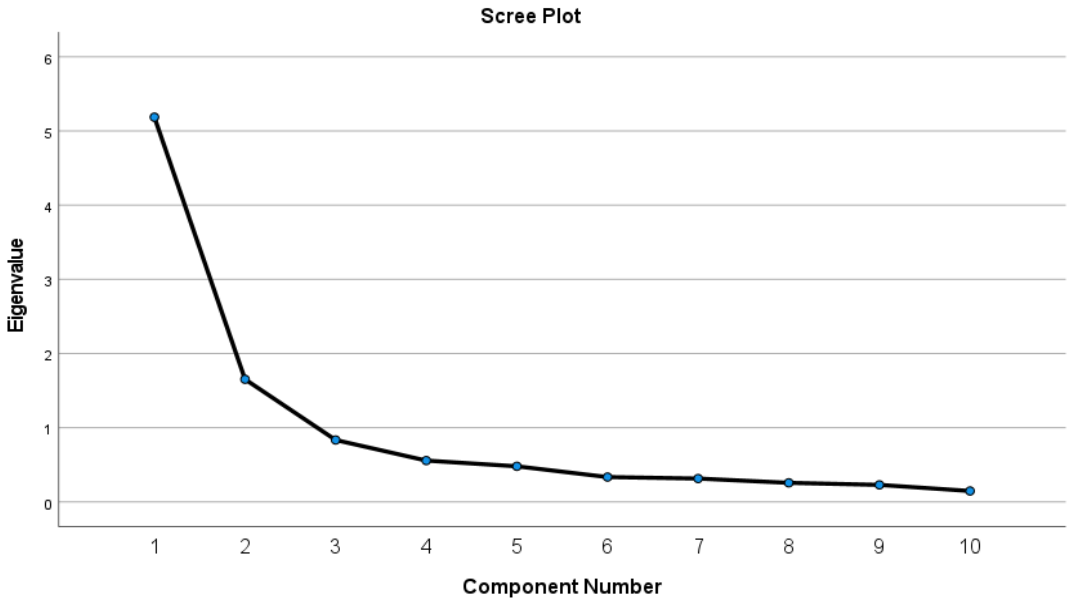

Figure B2

Scree Plot – Environmental Self-Identity

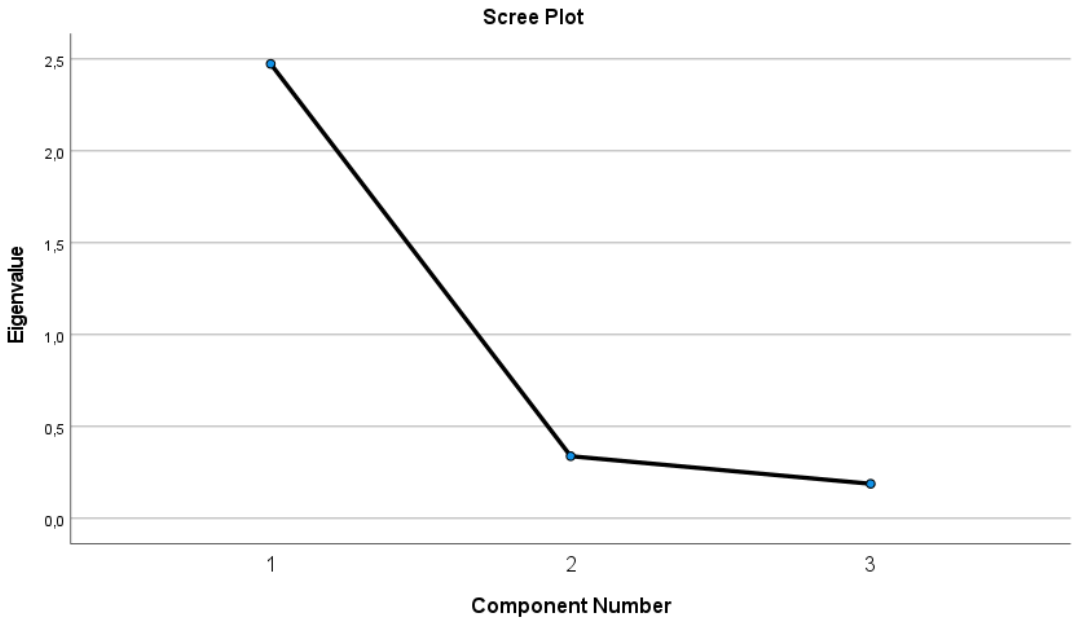

Table B1

Component Matrix of Green Group Identity

	Component	
	1	2
I would say that I feel as a part of this group.	.816	-.213
Overall, my chosen group is respected by others.	.571	.697
Generally, people hold a favourable opinion about this group.	.582	.573
My group of choice is generally viewed positively by others.	.489	.703
I feel positive about being a member of my group of choice.	.827	-.083
Generally, I am glad to be a member of this group.	.862	-.131
Overall, I am proud to think of myself as a part of my group of choice.	.868	-.132
When someone criticises my group of choice, it feels like a personal insult.	.656	-.265
Being associated with this group is important to my self-image.	.766	-.308
Overall, my group of choice is an important reflection of who I am.	.649	-.303

Extraction Method: Principal Component Analysis.
2 components extracted.

Table B2

Rotated Component Matrix of Green Group Identity

	Component	
	1	2
I would say that I feel as a part of this group.	.820	.199
Overall, my chosen group is respected by others.	.172	.885
Generally, people hold a favourable opinion about this group.	.241	.781
My group of choice is generally viewed positively by others.	.097	.851
I feel positive about being a member of my group of choice.	.767	.319
Generally, I am glad to be a member of this group.	.821	.293
Overall, I am proud to think of myself as a part of my group of choice.	.827	.295
When someone criticises my group of choice, it feels like a personal insult.	.703	.077
Being associated with this group is important to my self-image.	.820	.091
Overall, my group of choice is an important reflection of who I am.	.715	.040

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 3 iterations.

Table B3

Component Matrix of Environmental Self-Identity

	Component
	1
I am the type of person who acts environmentally friendly	.903
Acting environmentally friendly is an important part of who I am	.884
I see myself as an environmentally friendly person	.936

Extraction Method: Principal Component Analysis.

Appendix C

Expanded Correlation Matrix

Table C1

Correlation Matrix with Demographics Age and Gender

			1.	2.	3.	4.	5.	6.
1.	Ease of Retrieval	Pearson Correlation	-	.45**	.34**	.12	.05	.03
		Sig. (2-tailed)		<.001	.001	,237	.635	.800
2.	Green Group Identity	Pearson Correlation	.45**	-	.47**	-.02	.09	.15
		Sig. (2-tailed)	<.001		<.001	.863	.379	.152
3.	Environmental Self-Identity	Pearson Correlation	.34**	.47**	-	.16	.15	.12
		Sig. (2-tailed)	.001	<.001		.128	.153	.227
4.	Pro-Environmental Behaviour	Pearson Correlation	.12	-.02	.16	-	.28**	-.09
		Sig. (2-tailed)	.237	.863	.128		.005	.363
5.	Gender	Pearson Correlation	.05	.09	.15	.28**	-	-.06
		Sig. (2-tailed)	.635	.379	.153	.005		.546
6.	Age	Pearson Correlation	.03	.15	.12	-.09	-.06	-
		Sig. (2-tailed)	.800	.152	.227	.363	.546	

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix D

Assumption Checks for Environmental Self-identity on Pro-Environmental Behaviour Controlling for Green Group Identity

Figure D1

Assumption of Linearity – Environmental Self-Identity on Pro-Environmental Behaviour

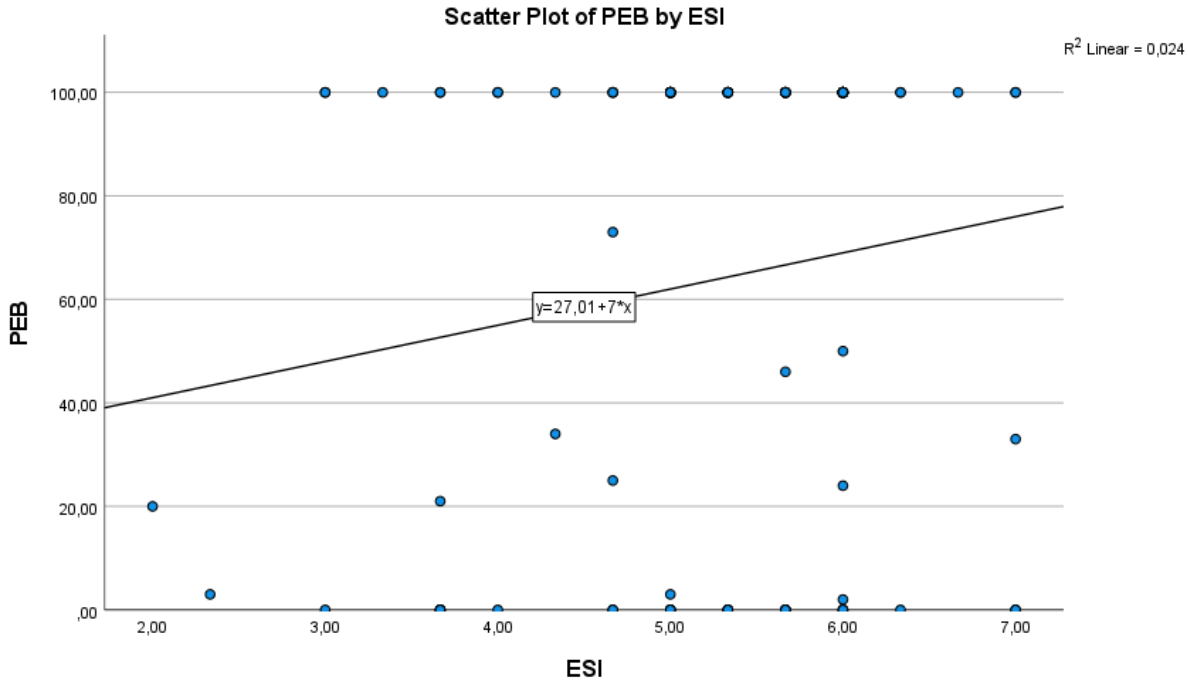

Figure D2

Assumption of Linearity – Green Group Identity on Pro-Environmental Behaviour

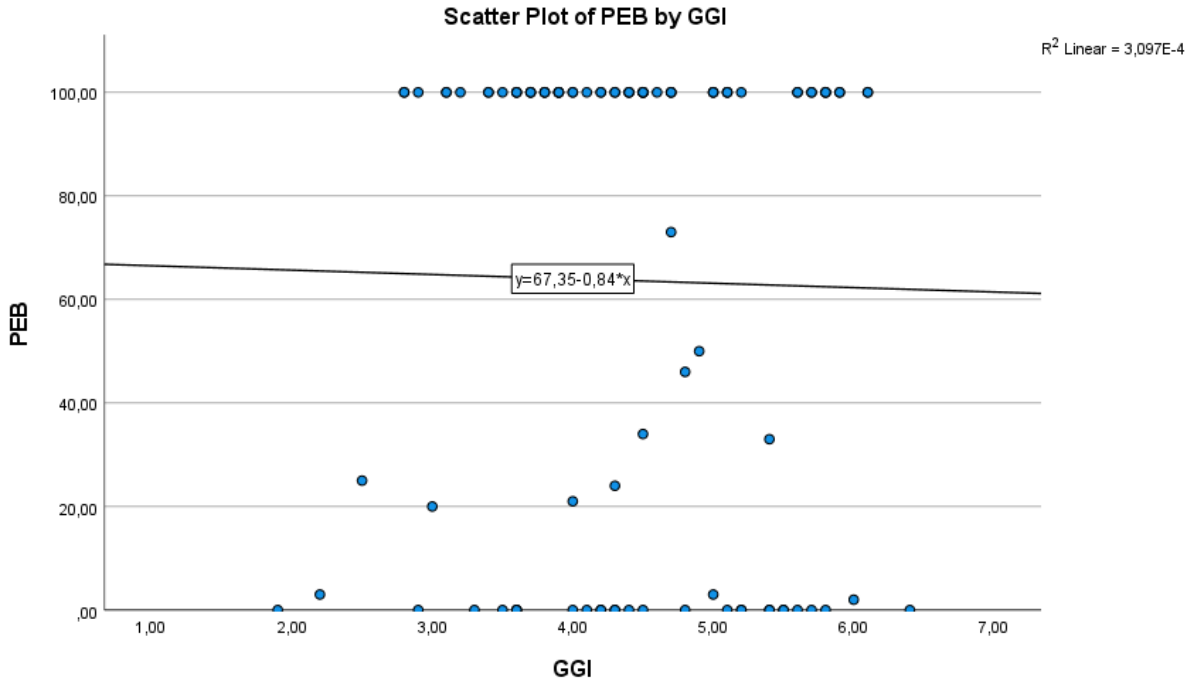

Table D1

Assumption of Independence of Residuals – Durbin Watson

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.19	.03	.01	45,95	2,12

Predictors: (Constant), ESI, GGI

Dependent Variable: PEB

Table D2

Assumption of No Multicollinearity – Collinearity Statistics

					95,0% CI		Collinearity Statistics	
	B	SE	t	Sig.	LLCI	ULCI	Tolerance	VIF
(Constant)	38.73	26.92	1.44	.154	-14.72	92.17		
GGI	-5.5	5.47	-1.01	.317	-16.35	5.36	0.78	1.28
ESI	9.40	5.14	1.83	.071	-.81	19.61	0.78	1.28

Table D3

Assumption of Normality – Normality Tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PEB	.39	98	< .001	.66	98	< .001

a. Lilliefors Significance Correction

Figure D3

Assumption of Normality – P-P Plot

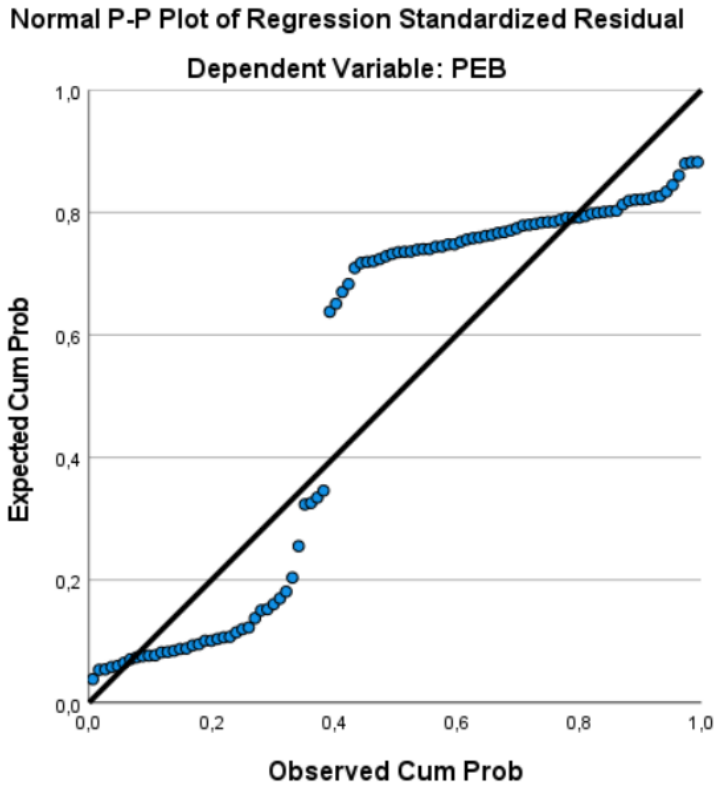

Figure D4

Assumption of Homoscedasticity – Scatterplot