On justifying eco-unfriendly behaviors

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The climate is changing, species are about to go extinct, and mountains of garbage are ever increasing. In order to preserve the earth and provide a good living standard for all its inhabitants, it is important for people to continue making environmentally friendly choices. This dissertation, however, shows that people do not always behave in a consistent manner when it comes to their environmentally friendly behaviors. It is investigated how individuals justify abstaining from environmental actions. Specifically, in Part I, it is shown that individuals’ environmental behaviors are affected by their own previous behaviors. For example, engaging in environmentally friendly behavior may, ironically, lead individuals to subsequently justify being environmentally unfriendly. Second, in Part II, it is demonstrated that actions of other individuals’ and external institutions may provide individuals with justifications for being environmentally unfriendly themselves. These findings have important implications when aiming to persuade people to behave in an environmentally friendly manner.
To John and Hennie Meijers

On justifying eco-unfriendly behaviors

Marijn Meijers
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ON JUSTIFYING ECO-UNFRIENDLY BEHAVIORS

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Chapter 1

Dissertation Overview
Environmental problems, such as contaminated ecosystems, polluted seas, mountains of garbage, and climate change and its consequences are posing an increasing threat (Asia, Jegede, Jegede, K., & Akpasubi, 2007; Boko et al., 2007; Cruz et al., 2007; Kelly et al., 2009; Levin et al., 2010; Moore & Dwyer, 1974; Osuji, Adesiyan, & Obute, 2004; Rosenfeld et al., 2008; Thomas et al., 2004). These environmental problems are largely rooted in human behavior (Barnett et al., 2008; Karl & Trenberth, 2003; Santer et al., 2007; Weber & Matthews, 2008), and action is necessary to counter the negative effects of human behavior on the environment. The idea that action must occur to protect the environment and its inhabitants has been embraced. Governments, environmental institutions, and companies are working to persuade individuals to engage in environmentally friendly behaviors.

For example, campaigns such as Earth Hour by the World Wildlife Fund (WWF) attempt to raise environmental awareness and environmental actions by having individuals switch off their lights for one hour to signal that they want to pass the planet on to future generations. Greenpeace actively campaigns to make companies and consumers aware of the influence of their production and consumption on natural resources. For example, Greenpeace campaigns against the use of Kleenex tissues because producing these tissues
contributes to deforestation. Governments persuade individuals to recycle their waste by reminding them that glass can also be recycled and by introducing new garbage bins specifically designated for plastic. Similarly, there are large governmental campaigns attempting to persuade individuals not to litter. Not only governments and environmental institutions launch campaigns to stimulate environmentally friendly behaviors and initiatives, companies also make an effort to contribute to a greener world.

Companies are integrating corporate social responsibility (CSR) in their core business strategies and are actively communicating these policies to the world. For instance, IBM has an extensive program concerning environmental effects, which focuses on pollution prevention and climate protection. IBM even has a separate website that explains their environmental CSR strategy to the public (IBM, 2014). The Marriott hotel branch uses an energy and environmental action plan to achieve their energy and water reduction goals and develop green hotels. Marriott attempts to inspire stakeholders to engage in environmental actions such as Environmental Awareness Month and includes this strategy in their Sustainability Report (Marriott, 2014). Companies thus recognize the need to engage in CSR and are eager to communicate their efforts to the public. Because of an increased interest in environmental friendliness by companies and consumers, green advertising has also increased. For instance, Coca-Cola advertises their plant bottles, which are partially composed of plants and completely recyclable (Coca Cola, 2014). Additionally, Coca-Cola campaigned with the WWF to help conserve the Arctic and protect polar bears (Arctic Home, 2014). Individuals are thus being stimulated by many initiatives to be more environmentally friendly. However, the question is whether these campaigns and initiatives are productive. For example, individuals might be persuaded to be environmentally friendly once, but do these campaigns actually lead to long-lasting environmentally friendly behaviors?

In this dissertation, we show that long-lasting environmentally friendly behaviors might not always occur. Some individuals have difficulty maintaining their New Year's Resolutions and often stop exercising by the third week of January. Similarly, other individuals appear to have difficulties making consistent environmentally friendly choices. While some individuals have many excuses to stop exercising in the third week of January (e.g., it is raining
outside), others generate excuses to be environmentally unfriendly. In this dissertation, we investigated the underlying principles of why individuals are inconsistently environmentally friendly. Namely, we investigated how individuals might justify engaging in environmentally unfriendly behaviors.

First, we studied how an individual’s own previous behavior might provide a justification for being environmentally unfriendly. For example, ‘I already behaved environmentally friendly, so it is okay for now’ (Part I: Internal Justification). Second, we studied how other individual’s actions and external institutions might provide a justification for being environmentally unfriendly, for example, ‘My husband already behaved environmentally friendly, so I kind of did too, therefore it is okay for now’ (Part II: External Justification).

In the current chapter, we provide an overview and summary of our research. We describe the research conducted in the four empirical chapters of this dissertation and draw (theoretical) conclusions based on these chapters. Additionally, we discuss the practical implications of this dissertation and provide the tools to develop campaigns that are more likely to be successful in persuading individuals to engage in continued environmentally friendly behavior. Finally, we discuss what elements to account for when communicating about science to the public via mass media. However, we begin by providing our definition of environmentally friendly behavior and explaining why individuals have difficulty engaging in environmental actions.

**Environmental Friendliness**

There are many definitions for eco-friendly, or in other words, environmentally friendly behavior. In this dissertation, we adhere to the definition by Steg and Vlek (2009) who define environmentally friendly behavior as behavior that harms the environment as little as possible or may even benefit the environment. Hence, examples of environmentally friendly behavior include recycling, using green energy, and riding public transportation because these actions are less harmful to the environment than their alternatives. Environmentally friendly behavior is however not always straightforward take, for instance, purchasing organic beef. Purchasing organic beef is environmentally friendly in the sense that the cow forage is free of chemicals, and sustainable in the sense that animal welfare is considered, and
the cows do not receive medication, such as antibiotics, unless necessary. However, because these cows live longer, they require more food and produce more carbon dioxide. This longevity, in turn, is bad for the environment and not environmentally friendly. Thus, would purchasing organic beef count as environmentally friendly behavior? In this dissertation, we consider it to be environmentally friendly because consumers perceive purchasing organic beef as an environmentally friendly act (Sparks & Shepherd, 1992; Tacken, de Winter, & Wertheim-Heck, 2007; Thøgersen & Ölander, 2003). So, in this dissertation, we adopt a broad perspective and define environmentally friendly behavior as actions that are or are perceived to be as non-harmful to the environment as possible. Our main reason for adopting this perspective is that behaviors that are not actually environmentally friendly, but are perceived to be, may also provide individuals with a justification to abstain from environmentally friendly behavior.

Why do individuals have such a difficult time being environmentally friendly? First, environmentally friendly behavior is often more costly in terms of money and time and is occasionally inconvenient. For example, recycling one’s garbage is more costly in terms of time than throwing everything in one waste bin. Purchasing organic food and other environmentally friendly products, such as degradable detergents, often requires paying a surplus. Riding public transportation to work is often less convenient and less comfortable than taking a car. Second, the effects of environmentally friendly behavior are not immediately noticeable. If individuals stop using their cars today, there will not be any noticeable effects tomorrow. It might require years for the positive effects of environmentally friendly behaviors to emerge.

Third, to make it even more complicated, when one person decides to be environmentally friendly today, this behavior may not have any effect, not only today but probably never. To create a better environment, collective action is necessary. Therefore, for success to be likely, individuals are dependent on others. Being environmentally friendly thus often involves a trade-off between what individuals want for themselves immediately and what they want for others in the long-term (Fujita, Clark, & Freitas, 2013; Lindenberg & Steg, 2007; Van Dam & Fischer, 2013). To illustrate, Hennie may take a brief, cool shower on a chilly day for the sake of a better environment or she may be
tempted to take a nice, long, warm shower, which is an instant, immediate reward for herself.

In sum, individuals have difficulty being environmentally friendly because environmentally friendly behaviors are costly and often evoke a conflict between what individuals want for themselves and what they should do for the environment (Lindenberg & Steg, 2007; Steg, Bolderdijk, Keizer, & Perlaviciute, 2014).

**Justifications**

Research suggests that for individuals to choose for themselves, rather than for the environment, they require some sort of justification (Miller & Effron, 2010; Sachdeva, Iliev, & Medin, 2009; Tiefenbeck, Thorsten, Roth, & Sachs, 2013). Individuals want to see themselves as moral and want to maintain this view (e.g., Mazar, Amir, & Ariely, 2008; Steele, 1988). Thus, to maintain their self-view of being moral, individuals feel that they require an excuse or justification to permit themselves morally questionable behavior, such as environmentally unfriendly behaviors (Bratanova, Loughnan, & Gatersleben, 2012; Schmuck & Schultz, 2002; Schwartz, 1992; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Therefore, when individuals are conflicted when deciding how to behave (e.g., environmentally friendly or not), they will choose the option they want but only when they can justify it (Okada, 2005; Shafir, Simonson, & Tversky, 1993). Therefore, once individuals can justify engaging in the behavior they want to engage in (e.g., taking the car, turning up

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1 Previous research has often showed that environmentally friendly is motivated by moral reasons. To test whether engaging in environmentally friendly behaviors also provides individuals with a feeling of morality, we conducted two studies (which are not included in the empirical chapters of this dissertation). In the first study, 176 participants ($M_{\text{age}} = 22.12$ years, $SD_{\text{age}} = 4.83$, 79.5 % female) were randomly assigned to one of two conditions (scenarios: recycling or reading the newspaper) of a between-subjects design. The participants were either asked to imagine recycling waste or reading a newspaper. Consistent with the view of environmentally friendly behavior as moral behavior, the participants in the recycling condition felt morally better about themselves ($M = 5.66$, $SD = 0.84$ - measured on a scale from 1 to 7) than individuals who imagined reading a newspaper ($M = 4.96$, $SD = 0.87$), $F(1, 175) = 29.89$, $p < .001$, $\eta^2_p = .15$. Additionally, in the second study, 150 participants ($M_{\text{age}} = 20.37$ years, $SD_{\text{age}} = 2.47$, 82.0 % female) were asked how moral it would be to purchase regular or organic sneakers in a within-subjects design. A paired samples t-test showed that purchasing the organic shoes was perceived as more moral ($M = 8.24$, $SD = 15.64$ - measured on a scale from -50 to +50), than purchasing regular shoes ($M = -4.74$, $SD = 12.52$), $t(146) = 7.85$, $p < .001$, $\eta^2 = 0.30$. 

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the thermostat), they will do so. Importantly, individuals do not necessarily choose the most rational or right choice, but they flexibly use reasons to justify their desired behavior (Hsee, 1995; Kunda, 1987; Shafir et al., 1993 - see also De Witt Huberts, Evers, & De Ridder, 2014).

Consider the following example: John and Hennie celebrated their wedding anniversary with some close friends last night. The next morning Hennie has to rush off to work, and John cleans the house. John looks at the mess of empty plastic and glass bottles, wrapping paper and confetti on the floor, and several cans in the kitchen. Instead of throwing all the garbage into one large garbage bag, John decides to separate his garbage. He begins collecting the empty glass bottles and puts them in a crate. John then moves on to the packaging and plastic bottles that are lying around. Next, John decides to collect the cans in the kitchen. Finally, he gathers all the paper that is lying on the tables and puts it into a large paper bag. When he is finished, John walks to the waste-disposal and disposes of his separated waste into the designated bins. John then walks back home and remembers that he needs groceries for dinner. Normally, John would bike to the supermarket because it is nearby. Today, however, John decides to go by car. After all, was he not already environmentally friendly enough today?

The example illustrates that individuals may occasionally generate justifications from their previous behaviors for not being environmentally friendly. In this manner, an individual’s own environmentally friendly behaviors may, ironically, lead to subsequent less environmentally friendly behaviors. We investigate this phenomenon in Part I of this dissertation (Internal Justification). In Part II, we investigate how external sources may provide individuals with a justification for environmentally unfriendly behaviors (External Justification). To illustrate, return to the example of John who previously recycled all his garbage. Hennie (who is happily married to John) hears of all the environmental friendly acts that John performed while she was at work. While walking into the city center, Hennie is approached by a fundraiser for the WWF. She is a generous person who cares about the environment. This time, however, she decides not to donate to the WWF as she feels that they (as a couple) have been sufficiently environmentally friendly for the day. In this dissertation, we investigate how individuals may use both
internal and external sources of justification to justify environmentally unfriendly behaviors.

**Dissertation Outline**

In Chapter 2 and Chapter 3 (Part I: Internal Justification) of this dissertation, we investigate how one’s own moral behaviors may provide individuals with a justification for environmentally unfriendly behavior and therefore impair subsequent environmentally friendly behavior. We build on research that shows that individuals may feel they have earned a justification when they have engaged in a moral act (in other words a license; e.g., De Witt Huberts, Evers, & De Ridder, 2012; Effron, Cameron, & Monin, 2009; Effron, Monin, & Miller, 2013; Khan & Dhar, 2006; Mazar & Zhong, 2010; Merritt et al., 2012; Merritt, Effron, & Monin, 2010; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). In Chapter 2, we show in a field study how an individual’s previous moral behaviors (e.g., donating to charity) impair environmentally friendly behavior. In Chapter 3, we show in three studies how an individual’s environmental actions may affect subsequent moral actions. In Part I, we thus investigate how one’s own moral behaviors may serve as an internal source of justification for environmentally unfriendly behavior.

In addition to an individual’s own behaviors justifying environmentally unfriendly behaviors, an individual may also find justification in external sources (Part II: External Justification), such as the behaviors of a close other, shown in the example of John and Hennie. Using three studies in Chapter 4, we investigate how the moral acts of a close other may provide a justification for being environmentally unfriendly. Based on research that demonstrates that individuals who are close with one another may experience a feeling of oneness and therefore may interpret the behaviors of this close other as the behaviors of oneself (Goldstein & Cialdini, 2007), we hypothesize and show that vicarious licensing effects occur. Namely, the moral behaviors of a close other may impair one’s own subsequent environmentally friendly behavior.

In Chapter 5, we study another source of external justification, namely media reports. We examine how science media reports may be an external source of justification and therefore impair an individual’s own environmental actions. Namely, we demonstrate in four studies how the
picture painted by the media of ever-progressing science may provide individuals with the feeling that they no longer have to be environmentally friendly. The method that the media uses to communicate about science may thus provide a justification and therefore impair environmentally friendly behaviors.

In sum, this dissertation examines when individuals feel excused to be environmentally unfriendly. We examine how individuals may use both internal and external sources as justifications for being environmentally unfriendly. By doing so, we provide an explanation for why individuals often abstain from environmentally friendly choices despite the common view that it is important to be environmentally friendly.

**Part I: Internal Justification**

In the first section of this dissertation, we investigate how an individual’s own moral behaviors serve as an internal source of justification to be environmentally unfriendly. Before discussing the research conducted in Chapters 2 and 3, we provide a background for our research. We discuss the licensing effect as a framework for justifying environmentally unfriendly behaviors. However, we begin by explaining the importance of investigating environmentally friendly behaviors as a sequential decision process rather than isolated, one-time behaviors.

Most of the research in communication science, psychology, and marketing has investigated different ways to persuade individuals to be more environmentally friendly (e.g., Abrahamse, Steg, Vlek, & Rothengatter, 2007; Carrico & Riemer, 2011; Cialdini, 2003; Kareklas, Carlson, & Muehling, 2014; Kong & Zhang, 2013; Meijers, Verlegh, & Smit, 2014; Peloza, White, & Shang, 2013; Rabinovich, Morton, Postmes, & Verplanken, 2009; Schuhwerk & Lefkoff-Hagius, 1995; Steg & Vlek, 2009; Tucker, Rifon, Lee, & Reece, 2012; Verplanken & Holland, 2002). Research investigating environmentally friendly choices often studies these behaviors individually, as one-time choices, rather than in the context of a sequential decision-making process. For example, studies investigate how to increase one’s recycling behavior, but not how previous actions affect these recycling behaviors.

However, recent research has shown that choices at one time may be influenced by preceding choices (e.g., Cavanaugh, Bettman, Luce, & Payne,
2007; Dhar & Simonson, 1999; Ein-Gar & Steinhart, 2011; Khan & Dhar, 2006; Monin & Miller, 2001; Mukhopadhyay & Johar, 2009; Novemsky & Dhar, 2005). For instance, it has been demonstrated that individuals balance their current and previous consumption decisions (Kivetz & Simonson, 2002; Mukhopadhyay & Johar, 2009). Individuals are, for example, more likely to indulge by choosing a chocolate cake over a fruit salad when they previously had restrained themselves from buying a desired item that was on sale. In others words, individuals initially restrain themselves and subsequently use this restraint as a justification for giving in (Mukhopadhyay & Johar, 2009). This line of research shows that it is important to investigate an individual’s choice outside a vacuum and in a sequential decision-making context because an individual’s choice to be environmentally friendly (or not) may be affected by a prior choice. Such a preceding behavior may provide individuals with a justification for not having to engage in environmentally friendly behaviors. We therefore investigate how preceding behaviors of oneself influence an individual’s environmentally friendly behaviors. We do so by building on the literature concerning the licensing effect.

**Licensing Effect**

It is often assumed that once individuals behave in a certain manner (e.g., pro-social, moral, environmentally friendly), they will continue doing so. The idea is that individuals feel compelled to behave consistently, and therefore it is assumed that once individuals have behaved in an environmentally friendly manner, they will also behave in an environmentally friendly manner in subsequent decisions (e.g., Burger & Caldwell, 2003; Freedman & Fraser, 1966; Gawronski, 2012; Snyder & Cunningham, 1975; Steele, 1988). Many classic psychological theories emphasize that individuals want to behave consistently: cognitive dissonance theory (Festinger, 1957), foot-in-the-door principle (Freedman & Fraser, 1966), and self-perception theory (Bem, 1967). For example, self-perception theory (Bem, 1967) posits that individuals make inferences about their attitudes and feelings based on observations of their own behavior (Bem, 1965; Bem, 1967). After performing a behavior, individuals reason that they must consider the performed behavior to be desirable, thus making engagement in similar behaviors more likely (Albarracin & Wyer, 2000; Bem, 1967).
However, recent research on the licensing effect suggests that performing a moral act may actually lead to performing an immoral act. Moral licensing entails that after performing a moral deed, individuals feel that they are allowed to refrain from further moral behavior (Monin & Miller, 2001). An individual’s moral behavior may thus serve as an internal source of justification for immoral behavior. The explanation for this result is that a moral act temporarily satisfies an individual’s sense of being moral, thus permitting them to act immorally. Similar research shows that recalling general moral behaviors performed in the past leads to immoral behaviors in the present. For example, recalling general moral behaviors leads to more cheating behavior on a math task (Jordan, Mullen, & Murnighan, 2011) and to donating less money to charity (Sachdeva et al., 2009, but see Blanken, Van de Ven, Zeelenberg, & Meijers, 2014). This research suggests that committing a moral act may license (in other words justify) subsequent environmentally unfriendly behaviors.

Monin and Miller (2001) were the first to provide evidence for the licensing effect. The researchers demonstrated that opposing sexist views initially resulted in subsequent more sexist choices. Specifically, male participants who initially disagreed with sexist statements, such as ‘most women should stay at home’, were more likely to indicate in a second task that men were more suitable than women for a stereotypically male job. Presumably, these male participants had accumulated moral credentials in their ‘non-sexist person account’ by indicating that most women should not remain home. Having established their moral selves, the men subsequently felt licensed to make a more sexist choice. By contrast, participants who agreed with sexist statements in the first task were more likely to indicate that women would be equally suitable for the job as men in the second task. These male participants did not accumulate moral credentials; therefore, they were not licensed to make a more sexist choice in the second task.

Over the past years, studies have demonstrated evidence for licensing effects in various domains. For example, individuals who indicated to vote for Obama were subsequently more likely to indicate that a White rather than a Black person was more suitable for a certain job (Effron et al., 2009), and individuals who were willing to volunteer were subsequently more likely to pamper themselves and indulge by purchasing luxury products (Khan & Dhar, 2006). Of interest to our objective, the licensing effect has also been
demonstrated regarding environmentally friendly behaviors. For example, individuals are more likely to lie and steal after shopping in a shop selling mostly environmentally friendly products (Mazar & Zhong, 2010), and individuals are less likely to make environmentally friendly choices after being prompted to think of themselves as moral rather than as immoral (Sachdeva et al., 2009). Together, these studies provide evidence for the idea that previous moral behaviors may provide individuals with a justification for no longer having to display environmentally friendly behaviors.

Based on licensing effect research, Chapters 2 and 3 investigate how an individual’s own previous moral behaviors may serve as an internal source of justification to subsequently engage in environmentally unfriendly behaviors. In Chapter 2, we investigate how preceding moral behavior (i.e., donating to charity) compromises the likelihood of engaging in environmental action and whether licensing effects occur in real life, outside the laboratory. In Chapter 3, we investigate how preceding environmentally friendly behavior compromises the likelihood of engaging in environmental action and how an environmental self-identity decreases the chance of licensing effects in the environmental domain.

Chapter 2: Choosing to Donate Provides Justification

Most licensing effect studies are conducted in the laboratory where individuals are assigned to conditions that motivate them to behave in a specific manner (e.g., Mazar & Zhong, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). It is therefore uncertain whether these effects also occur in real life. A notable exception is an experimental field study, in which the residents received feedback on their water usage. In this study, the residents were assigned to a feedback or non-feedback condition. When the residents received feedback on their water consumption, they lowered their water usage but simultaneously increased their electricity usage (Tiefenbeck et al., 2013). However, the participants were assigned to the experimental conditions. In real life, individuals choose to behave morally, rather than doing so because they are pushed in that direction by experimental procedures.

Therefore, it is possible that licensing effects could be (partially) explained by reactance toward the manipulation. Feelings of reactance occur when individuals feel that their freedom of choice is being restricted (Brehm &
Brehm, 1981; Dillard & Shen, 2005). In response to reduced freedom, individuals may move in the opposite direction. This result implies that when individuals feel they are being ‘forced’ to behave in a moral manner by experimental procedures, they may show the exact opposite behavior and behave immorally. It is therefore important to investigate whether licensing effects also occur in real life settings, which we investigated in Chapter 2.

Namely, Chapter 2 investigated whether choosing to behave morally impairs an individual’s environmentally friendly behavior. Therefore, we examined whether donating to charity decreases the likelihood of behaving in an environmentally friendly manner. To examine this hypothesis, we conducted a field study with a naturalistic quasi-experimental design. We asked individuals on the street whether they donated to Serious Request. Serious Request is a yearly fundraising event that occurs on the six days before Christmas. DJs from a Dutch national radio station are locked in a glass house and perform live, 24 hours a day. During these six days, the DJs abstain from eating. Individuals may donate to Serious Request by, for example, requesting a song. Throughout the country, fundraising activities are organized, such as Serious Request runs and unofficial glass houses. The money is donated to a different Red Cross project every year. In 2012 (the year of the study), the theme was let’s hear it for the babies, and money was raised to repress infant mortality. More than €12 million was raised, and (interim) scores were covered on the national television news. In sum, Serious Request is a well-known, nationwide charity.

We approached individuals in the city center where the Serious Request glass house was situated. Because we expected that most individuals in this city would have donated, we also collected data in the city center of a second city to have comparable group sizes (donating versus non-donating). This city was comparable in size, and similar to the Serious Request city, it was a student town with a specialized university. A substantial amount of individuals donated to Serious Request in both cities (81.1 and 22.5%, respectively), as expected.

We asked individuals whether they donated and to what extent they were willing to perform certain environmentally friendly behaviors (e.g., sign an environmental petition). The results showed that individuals who previously
donated to Serious Request were subsequently less willing to perform environmentally friendly behaviors than individuals who did not donate to Serious Request. In other words, donating to Serious Request provided individuals a license for environmentally unfriendly behavior. Seemingly unrelated moral behaviors may thus provide individuals with a justification for no longer being environmentally friendly. Our study thus shows that licensing effects are not merely the result of reactance toward manipulation in experimental studies; these effects also occur in a quasi-experiment in the field when individuals choose to perform an initial moral behavior. Therefore, our field study establishes the ecological validity and robustness of the licensing effect.

This result contrasts an assumption of many prominent behavioral theories, namely, that individuals prefer to behave consistently: once a person behaves morally, one will continue to do so (e.g., Bem, 1967; Burger & Caldwell, 2003; Festinger, 1957; Freedman & Fraser, 1966; Gawronski, 2012; Snyder & Cunningham, 1975; Steele, 1988). The present study shows that consistency does not always occur. Thus, both licensing and consistency effects have been well documented; therefore, when are licensing and consistency effects more likely? In Chapter 3, we answer this question by investigating the role of self-identity in justifications and consequently expecting licensing versus consistency effects.

Chapter 3: Self-Identity and Justification

There is a rich body of literature that shows that individuals are more likely to behave consistently, thus implying that an initial environmental act will lead to a subsequent environmental act (e.g., Bem, 1967; Festinger, 1957; Freedman & Fraser, 1966; Gawronski, 2012; Snyder & Cunningham, 1975). However, research on the licensing effect and goal-fulfillment suggests that individuals may stop being environmentally friendly after an initial environmental act (e.g., Longoni, Gollwitzer, & Oettingen, 2014; Merritt et al., 2010; Zeigarnik, 1927). In Chapter 3, we examined the role of environmental self-identity in determining whether consistency or licensing effects are more likely to occur after an initial environmental act.
Self-identity is the manner in which individuals see themselves and the labels they use to describe themselves (e.g., Aquino & Reed, 2002; Markus & Zajonc, 1985; Reed, Forehand, Puntoni, & Warlop, 2012; Tajfel & Turner, 1986; Whitmarsh & O’Neill, 2010). There are various sources that suggest that individuals continue to behave in a certain manner when this behavior is a component of their self-identity (Bem, 1967; see also; Eagly & Chaiken, 1993; Taylor, 1975). Individuals infer what is important to them and what type of person they are from their past behavior, and this self-identity subsequently guides their behavior (Bem, 1967). Thus, after performing a certain behavior, individuals appear to reason that they consider this behavior desirable, thus making engagement in similar behaviors more likely (Albarracín & Wyer, 2000; Bem, 1967). Research shows that self-identity drives behaviors in identity relevant domains, which results in individuals behaving in an identity congruent manner (Bem, 1967; Erikson, 1964; Markus & Zajonc, 1985; Reed et al., 2012). In other words, when individuals have an environmental self-identity, they are more likely to behave accordingly when making decisions in the environmental domain (Fielding, McDonald, & Louis, 2008; Gatersleben, Steg, & Vlek, 2002; Nigbur, Lyons, & Uzzell, 2010; Sparks & Shepherd, 1992; Van der Werff, Steg, & Keizer, 2013a; 2013b; Whitmarsh & O’Neill, 2010). This result suggests that when individuals have an environmental self-identity, they are less likely to show licensing effects in the environmental domain.

The licensing effect dictates that having established moral credentials provides individuals with a justification for not being environmentally friendly. It is thus unlikely, however, that individuals with an environmental self-identity would want to justify environmentally unfriendly behaviors. Research suggests that when a trait, such as environmentally friendliness, is valued, an individual strongly believes in being an environmentally friendly person and wants to maintain this moral aspect of their self-concept (Kunda, 1987; Mazar et al., 2008; Sanitioso, Kunda, & Fong, 1990). Similarly, research suggests that individuals act consistently with their identity because having a certain identity creates the must be true to oneself (Erikson, 1964; Reynolds & Ceranic, 2007). This notion strongly suggests that individuals with an environmental self-identity will not show licensing effects in the environmental domain because they are not motivated to justify environmentally unfriendly behaviors.
In three studies, we observed support for the proposition that licensing effects within the environmental domain are unlikely for individuals with an environmental self-identity. In Study 3.1, we showed that when individuals imagined purchasing organic sneakers, they were subsequently less willing to be environmentally friendly. However, this effect only occurred for individuals with a weak environmental self-identity. Individuals with a strong environmental self-identity were as willing to perform environmentally friendly behaviors, regardless of whether they previously made an environmental decision. These individuals were thus unlikely to feel licensed within the environmental domain. In other words, individuals with a strong environmental self-identity (in contrast to individuals with a weak environmental self-identity) are unlikely to use previous moral acts as an internal source of justification for not being environmentally friendly.

In Study 3.2, we aimed to replicate this effect with a different manipulation, different measure of self-identity, and different measure of environmental friendliness to assess the validity and reliability of our results. We measured environmental self-identity online, two weeks before the lab study. In the lab, the environmentally friendly behavior manipulation consisted of real online shopping behavior. Replicating the first study, this study showed that when individuals purchased organic apparel in an online web shop, they were subsequently less likely to be concerned about the environment than when they purchased regular apparel, but only when they had a weak environmental self-identity. Individuals with a strong environmental self-identity were as likely to be concerned about the environment after purchasing organic as after purchasing regular apparel and did not use their previous environmentally friendly behavior as a source of internal justification.

In Study 3.3, we wanted to exclude an alternative explanation for our results in the first two studies. Namely, individuals with a strong environmental self-identity may behave morally ‘better’ in general because those who behave morally in one domain may also be more likely to behave morally in other domains (Aquino & Reed, 2002). Environmentally friendly consumers are also perceived to be more ethical and altruistic (i.e., morally better; Mazar & Zhong, 2010). Therefore, rather than not showing licensing effects in the environmental domain specifically, individuals with a strong environmental self-identity may not show licensing effects in any moral domain.
To exclude this alternative explanation, we investigated whether individuals with a strong environmental self-identity did feel licensed in domains other than the environmental domain. This result was indeed observed. Individuals with a strong environmental self-identity indulged in hedonic shopping (as opposed to virtuous shopping) after committing an environmental act and did so to the same extent as individuals with a weak environmental self-identity. It is thus not the case that individuals with a strong environmental self-identity are unlikely to show licensing effects generally. Individuals with a strong environmental self-identity are specifically unlikely to show licensing effects in the environmental domain – the domain that is relevant to their identity.

**Part I: Conclusions and Future Directions**

In the first section of this dissertation, we investigated how individuals use internal sources of justification for abstaining from environmentally friendly behaviors. In other words, we examined how an individual’s own previous moral behaviors serve as a justification for abstaining from environmental actions. In Chapter 2, we investigated how donating to charity may serve as an internal source to justify environmentally unfriendly behaviors. Moreover, we showed real life licensing effects when individuals choose to behave morally rather than in response to experimental procedures. Thereby, we contribute to the licensing literature by establishing the ecological validity and robustness of the licensing effect.

In Chapter 3, we uncovered self-identity as an important moderator for expecting licensing effects. This is consistent with recent research that has attempted to disentangle when to expect consistency and when to expect licensing effects. Recently, possible moderators were uncovered that can be accommodated in our identity relevance account. For example, research shows that consistency effects are more likely when individuals view their behavior abstractly (Conway & Peetz, 2012) and when individuals incurred costs for their initial moral act (Gneezy, Imas, Brown, Nelson, & Norton, 2012). It has been suggested that when thinking in an abstract mindset or performing costly behaviors, individuals are more likely to interpret their behavior in terms of their identity (Conway & Peetz, 2012; Gneezy et al., 2012). Self-identity may thus be the mechanism underlying the results that abstract mindsets and costly
behaviors instigate consistency rather than licensing effects. Therefore, our results extend and unify previous research.

Our research also raises some questions for future research. First, why do individuals with an environmental self-identity not feel licensed in the environmental domain? Is it because they do not earn a license by being environmentally friendly, for example, because they regard these acts as ‘normal’ rather than consider them to be morally? Or is it because they do not want to use previous moral behaviors as a justification for not being environmentally friendly? Based on Chapter 3, we argue that the latter explanation is more likely. Namely, in Chapter 3, we observed that individuals with a strong environmental self-identity showed licensing effects after performing an environmental act in a domain other than the environmental domain. Apparently, individuals are provided a license after an environmental act but are reluctant to ‘trade it in’ when it concerns environmentally friendly. Furthermore, in a recent study (which is not included in the empirical chapters of this dissertation), we observed further evidence for the presumption that individuals with a strong environmental self-identity regard environmentally friendly behaviors as equally moral as those with a weak environmental self-identity. In fact, individuals with a strong environmental self-identity perceive environmentally friendly behaviors as more moral than individuals with a weak environmental self-identity. This result appears to suggest that individuals with a strong environmental self-identity are provided with moral credentials when performing an environmental act because they perceive environmental acts as moral acts. However, these individuals may be unwilling to use these acts as a justification for being environmentally unfriendly. Only for individuals with a weak environmental self-identity,

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\[ \text{Six hundred and ten participants (} M_{\text{age}} = 30.52, \text{ } SD_{\text{age}} = 10.00, \text{ } 37.5\% \text{ female}) \text{ judged another person’s morality when this individual decided to purchase organic or regular sneakers. We observed an interaction between the participant’s environmental self-identity and the purchase (organic, regular), } F(1, 596) = 16.21, p < .001, \eta^2 = .03. \text{ A spotlight analysis showed that participants (both with a weak and a strong environmental self-identity) regarded the person who purchased organic sneakers as more moral than the person who purchased regular sneakers, } b = .97, \text{ } se = .07, t(604) = 14.36, p < .001. \text{ A simple slope analysis showed that this effect was more pronounced for participants with a strong environmental self-identity, } b = .20, \text{ } se = .05, t(608) = 3.98, p < .001. \]
environmentally friendly behavior appears to the behavior that individuals want to justify.

A second question that deserves further attention in future research is the magnitude of the licensing effect. Specifically, do larger moral acts lead to larger immoral acts? Previous research suggests that the licensing effect operates proportionally: the larger the preceding moral act, the larger the subsequent immoral act (Jordan et al., 2011). Jordan et al. (2011) showed that when individuals recalled moral past behaviors, they were subsequently more likely to cheat on a subsequent task. The morality of the recalled moral past behaviors was coded by two coders that were blind to the hypothesis and conditions. The researchers showed that the more moral the past behaviors, the more the participants cheated. In Chapters 2 and 3, we therefore investigated whether moral behavior proportionally led to environmentally unfriendly behavior; however, we did not observe support for this idea.

In Chapter 2, we did not observe that the more individuals spend on charity the less likely they were to be environmentally friendly. In Chapter 3, it was not the case that the more the environmental friendliness of the product that individuals bought was emphasized, the more individuals felt justified to behave in an environmentally unfriendly manner. Namely, when prominent visual and textual cues emphasized that a product was environmentally friendly, the participants did not feel more licensed than when environmental friendliness was emphasized by small textual cues.

There could be multiple reasons for not observing these proportional licensing effects. One reason could be that individuals do not necessarily perceive an act as more moral when they spend more money, as shown in Chapter 2. For example, purchasing a more costly environmental product (i.e., the hybrid car Toyota Prius) may not provide individuals with a larger license than purchasing a relatively costless product (i.e., recycled paper towels) because individuals perceive these acts as equally moral. A recent study we conducted (which is not included in the empirical chapters of this dissertation) indeed shows that paying a surplus for organic products does not make the act of purchasing the organic product more moral than not paying such a surplus.

Three hundred and six participants ($M_{age} = 30.52, SD_{age} = 10.00, 37.5\%$ female) judged another person’s morality when this person purchased organic sneakers.
instead of regular sneakers. These sneakers had either no price indication, the regular and organic sneakers were identically priced ($65), or the organic sneakers were more expensive ($80) than the regular sneakers ($65). The results showed that there was no effect of the presence of price (or a price difference) on the judged morality of the person purchasing the sneaker, $F(2, 305) = .008, p = .992$. Therefore, purchasing more expensive organic sneakers is not more moral than purchasing organic sneakers that are identically priced as regular sneakers or have no price indication.

This result suggests that morality and the costs associated with environmentally friendly behavior are not necessarily related to one another. The same reasoning may apply when emphasizing the environmental friendliness of products, as shown in Chapter 3. Emphasizing that a product is environmentally friendly with many visual and textual cues does not necessarily make the product more moral than merely emphasizing that a product is environmentally friendly with small textual cues. Therefore, it is possibly important that someone was environmentally friendly and not how costly or conspicuous this environmentally friendly behavior was because these acts may be identical: they help the environment.

Another reason could be that the magnitude of the morality of the first behavior is not important to provide individuals with a justification. Instead, when individuals want to justify morally questionable behaviors, the mere act of having performed something moral may suffice. Thus, individuals who have purchased a hybrid Toyota Prius and recycled paper towels can justify taking a nice long warm shower. However, buying a Toyota Prius may justify taking nice long showers for the rest of the year, whereas buying recycled paper towels may only justify taking nice long showers for the rest of the week. Future research is necessary to investigate these interesting questions.

**Part II: External Justification**

In Part I, we examined how internal sources of justification may impair environmentally friendly behavior; namely, we showed how preceding actions of the self might decrease environmental action. In Part II, we examine how external sources of justification may impair an individual’s environmentally friendly behavior. For example, Hennie’s husband John
performs an environmentally friendly behavior (i.e., recycling) and therefore Hennie feels she must no longer be environmentally friendly (i.e., not donating to the WWF). Are there vicarious licensing effects, and if so, between whom? We investigated this question in Chapter 4.

Chapter 4: Close Others Providing Justification

Individuals are social animals with many relationships. Some relationships may be close (e.g., one’s partner or child) and others may be less close (e.g., one’s colleague or friendly neighbor). Research shows that individuals in close relationships may experience a sense of ‘oneness’ (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Namely, individuals may perceive the other person to be a component of the self and integrate the other’s attributes, behaviors, and characteristics into the self (e.g., Aron, Aron, Tudor, & Nelson, 1991; Goldstein & Cialdini, 2007). Therefore, an individual’s sense of self can be expanded to include others when it concerns close others opposed to non-close others (Aron & Aron, 1986; Aron et al., 1991). As a result, individuals may feel as if the aspects and behaviors of this close other are also partially one’s own (Aron et al., 1992; Aron et al., 1991; Goldstein & Cialdini, 2007; see also Heider, 1958). We hypothesized that, similar to internal justification, this external source may provide individuals with a justification for environmentally unfriendly behaviors. Namely, we expected that the moral behaviors of close others may be perceived as one’s own and subsequently impair environmentally friendly.

Consistent with this reasoning, research shows that the actions of close others may be perceived as the actions of oneself, thus changing one’s self-view through vicarious self-perception (Goldstein & Cialdini, 2007). This suggests that the moral behaviors of close others may serve as an external source of justification for being environmentally unfriendly. In other words, vicarious licensing effects may occur when close others perform moral behaviors. By contrast, the actions of non-close others are less likely to be perceived as the actions of oneself because there is less self-other overlap. We therefore expected that the moral actions of non-close others were less likely to serve as an external source of justification for being environmentally unfriendly. Therefore, vicarious licensing effects would be less likely when concerning non-close others. We tested these hypotheses in three studies.
In Study 4.1, we showed that when a close other (e.g., one’s best friend) purchased an environmentally friendly refrigerator, the participants were subsequently less willing to be environmentally friendly than when a close other purchased a regular refrigerator. In other words, the participants felt licensed to be environmentally unfriendly when a close other purchased an environmentally friendly refrigerator. The environmental actions of close others may thus serve as a justification for being environmentally unfriendly.

In Study 4.2, we tested with whom these vicarious licensing effects occur. We examined our hypothesis that vicarious licensing effects only occur when concerning close others (e.g., best friend) but not non-close others (e.g., fellow student). Indeed, when participants imagined a close other recycling waste (opposed to a non-close other), they were subsequently less likely to choose for the environment but more likely to choose for economic profit in a behavioral decision task. Vicarious licensing may thus occur, but only when it concerns close others.

In Study 4.3, the participants contemplated the moral (immoral) behavior of a close (non-close) other, and we replicated the result patterns of Studies 4.1 and 4.2. Again, the results suggested that individuals were less likely to be environmentally friendly when a close other behaved morally. Specifically, the study showed that the participants were less likely to choose organic products when contemplating a moral than immoral close other. Additionally, the results suggested that these vicarious licensing effects only occurred with close others but not non-close others. Namely, the study showed that the participants were less likely to choose organic products when they thought of a moral close other than when they thought of a moral non-close other. Together, these three studies supported external justifications, such that individuals may generate a license for being environmentally unfriendly from the moral behaviors of close others. Thus, as one’s own moral behavior may provide individuals with an internal license for no longer having to be environmentally friendly, the behavior of close others with whom individuals experience a sense of oneness may also provide individuals with an external license. Therefore, the
environmentally friendly behaviors of close others may ironically lead to less environmentally friendly behaviors by oneself\(^3\).

In Chapter 5, we examined another type of external source of justification by testing whether external institutions influenced an individual’s environmentally friendly behaviors. Namely, we investigated how media reports that communicate scientific progress provide individuals with a justification to be environmentally unfriendly.

**Chapter 5: Media Science Reports Providing Justification**

The popular media often overstate the progress of science and its ability to provide solutions to significant problems such as climate change and disease (i.e., progress frame; e.g., Corbett & Durfee, 2004; Nisbet et al., 2002; Stewart, Dickerson, & Hotchkiss, 2009; Weaver, Lively, & Bimber, 2009). For instance, one may read that scientists have invented huge mirrors that will reflect sunlight to evade the burning sun, that individuals will live in floating cities when the sea level rises, or how humanity might move to Mars altogether when the Earth’s resources are exhausted.

Because most individuals’ scientific knowledge is based on popular media, this overly optimistic progress frame may affect their view on science and their subsequent behaviors (e.g., Caulfield, 2004; Elliott & Rosenberg, 1987; McInerney, Bird, & Nucci, 2004; Zimmerman, Bisanz, Bisanz, Klein, & Klein, 2001). In four studies in this fifth chapter, we investigated how media reports communicating ever-progressing science affect an individual’s environmentally friendly behavior. We hypothesized and showed that when individuals believe that science has ‘everything under control’, they must no longer be environmentally friendly. Thus, media science reports justify environmentally unfriendliness. To explain this phenomenon, we used the

\(^3\) The licensing effect also works in reverse: after doing something immoral, individuals are more likely to display moral behavior (e.g., Sachdeva et al., 2009). This effect has been referred to as moral cleansing and has been shown to hold for a wide range of behaviors. For example, after considering selling and buying human body parts for transplantations (i.e., immoral behavior), individuals were more likely to subsequently volunteer (i.e., moral behavior; Tetlock, Kristel, Elson, Green, & Lerner, 2000). In Study 4.3, we also observed some support for vicarious cleansing effects, such that individuals are more likely to be environmentally friendly after a close other behaved immorally.
Compensatory control theory (Kay, Gaucher, Napier, Callan, & Laurin, 2008), which we will elaborate below.

Compensatory control theory dictates that individuals have the fundamental motivation to perceive order in the world (Kay et al., 2008). When individuals perceive the world to be less orderly than desired, they aim to alleviate these feelings of disorder because these feelings may induce anxiety and stress (e.g., Kay et al., 2008; Pennebaker & Stone, 2004). This theory distinguishes two main routes to maintain order perceptions: personal control and external control (see also Rothbaum, Weisz, & Snyder, 1982). When individuals experience personal control, they feel that they can influence their environment. This control in turn provides a notion of an orderly world. External control is the feeling that an external source (e.g., God or the government) exerts influence over an individual’s environment and the world in general. This feeling may, similar to personal control, provide individuals with perceptions of a controlled, orderly world.

Personal and external control thus function as two separate routes to perceiving the world as orderly and non-random. Importantly, the compensatory control theory posits that these different routes to orderly world perceptions function in a hydraulic fashion. In other words, a threat to one source of order (e.g., external control) enhances the motivation to affirm an alternative method (e.g., personal control). These two sources thus work together to prevent perceptions of disorder.

Consider the following scenario: something important is about to happen that individuals have no full control over. For some individuals, this may be the birth of a baby and hoping the baby will be healthy. For other individuals, this may be marriage and hoping the wedding day will be sunny. Because individuals do not have full control over these situations, they may rely on an external source of control to provide this control. A good example would be praying to God, in the hope that He can influence these events. Research shows that when individuals experience situations with low levels of personal control (e.g., the 9/11 attacks), they pray to cope (Ai, Tice, Peterson, & Huang, 2005).

Recent research suggests that scientific progress (in a similar manner to God) can provide individuals with the feeling of control (Rutjens, van
Harreveld, & van der Pligt, 2010; 2013). Similar to those that feel that God can exert control over the world, individuals may also feel that science can exert control over the world. A simple example includes advances in the medical and environmental sciences, which help to solve problems that were previously uncontrollable (e.g., natural disasters, diseases). By solving these problems, science exerts control over the world and therefore serves as an external source of control.

Compensatory control theory suggests that when individuals perceive external sources as being in control, they no longer must exert control themselves (Kay, Gaucher, McGregor, & Nash, 2010; Kay et al., 2008; Kay, Shepherd, Blatz, Chua, & Galinsky, 2010; Rutjens, van Harreveld et al., 2010; Rutjens et al., 2013). Because optimal levels of order are provided by external sources, individuals have fulfilled their need to perceive order. Because of the hydraulic nature of the two routes to control, this makes personal control redundant. In other words, individuals may use the idea of an external source as a justification for not exerting personal control. This justification implies that when individuals strongly believe in the progressing capacity of science, they feel that the world is orderly and they no longer have to exert control themselves.

We hypothesized that this perception may have a detrimental effect on environmentally friendly. We argue that being environmentally friendly can be seen as a source of personal control. By being environmentally friendly, individuals not only experience personal control through a sense of agency but also actively exert control over the surrounding world. Support for this hypothesis can be derived from previous results that show that pro-social behaviors restore order because individuals experience personal control by influencing a certain outcome (Banfield, 2011). We therefore argue that environmentally friendly behavior may be seen as a source of personal control.

We generated the following hypothesis based on the notion that individuals no longer feel the need to exert personal control when they perceive the world as orderly and controlled: when science is portrayed as omniscient and ever-progressing by the media, feelings of order increase and therefore reduce environmentally friendly attitudes, intentions, and behaviors. In other words, individuals may use the feeling that science has control as an external source of justification, thus making environmentally friendly behaviors
less likely. Instead, when the media is more critical of science and communicates the limits of progress, feelings of order decrease and environmentally friendly attitudes, intentions, and behaviors increase. In other words, individuals cannot use the feeling that science has control as an external source of justification, thus making environmentally friendly behaviors more likely. We systematically investigated these hypotheses by means of four studies.

In Study 5.1, we examined whether reading a newspaper article that uses a progress frame increases feelings of order compared to reading an article that portrays a more realistic image of science. As expected, the participants experienced more feelings of order when they read a newspaper article that emphasized science progress than when they read a newspaper article that emphasized that science is progressing but not omniscient.

In Study 5.2, we investigated whether implicitly priming order (versus disorder) increases the need to exert personal control by making environmentally friendly choices. The study showed that when participants were implicitly primed with words concerning order (using a scrambled sentence task), they were subsequently less willing to be environmentally friendly than when primed with words concerning disorder. For example, the participants were less willing to wear a warm sweater when it was cold and instead preferred to raise the thermostat.

In Study 5.3, we aimed to demonstrate that being environmentally friendly increased feelings of personal control (i.e., could be seen as a method to exert control and therefore enhance generalized feelings of control). We showed that when participants engaged in a task concerning environmental decision-making, they experienced more personal control than when not engaging in such a task. This result supports our hypothesis that environmentally friendly behavior is a source of personal control.

In Study 5.4, we examined the full model by testing our main hypothesis that when the media use a progress frame, it enhances feelings of order and therefore reduces environmentally friendly behaviors. Specifically, we observed that when participants read a newspaper article using a progress frame, they were subsequently less likely to engage in environmental actions. Importantly, this result was mediated by feelings of order. By contrast, when participants read a newspaper article about how science is progressing and beginning to determine solutions to solve problems pertaining to diseases and
the environment – but is not there yet! – individuals experienced lower levels of order. Thus, individuals were subsequently more likely to engage in environmental actions. In other words, when individuals feel that science will control the world for them, they are no longer environmentally friendly because they can use scientific progress as an external source of justification. This result indicates that when the media communicates about science using a progress frame, as often occurs, an individual’s willingness to be environmentally friendly is undermined.

Our results showed that scientific media reports might provide individuals with an external source of justification to no longer be environmentally friendly. Similar to close others, media reports on scientific progress may serve as an external source of justification for environmentally unfriendly behaviors. These studies are an important addition to the current research of mass media communication and particularly, science communication. Science communication has mainly focused on investigating the manner in which science and scientists are portrayed in the media (e.g., Dudo et al., 2011; Long & Steinke, 1996) and how science communication influences individual’s attitudes and beliefs toward science (e.g., Hwang & Southwell, 2009). How an individual’s beliefs about science affect their subsequent behaviors has been largely unstudied. Chapter 5 fills this gap by showing that beliefs regarding scientific progress largely influence an individual’s (environmentally friendly) behavior. Our studies therefore reinforce the importance of investigating how framing in the media and science communication affect an individual’s environmentally friendly, particularly because they may serve as an external source for justifying environmentally unfriendly behavior.

**Part II: Conclusions and Future Directions**

In the second section of this dissertation, we showed that external sources of justification – similar to internal sources – provide individuals with a justification for abstaining from environmental actions. In Chapter 4, we demonstrated that the actions of close others may provide individuals with an external justification for abstaining in environmental actions. When individuals experience a sense of oneness with another person, the actions of the other person may be perceived as one’s own (Cialdini et al., 1997).
Therefore, the moral actions of a close other may license an individual to be environmentally unfriendly. This result contributes to the licensing literature by showing that individuals may not only be provided with a license for environmentally unfriendly actions by their own previous behaviors (i.e., internal source of justification) but also by the behaviors of close others (i.e., external source of justification). Therefore, the environmental actions of close others may ironically lead to less environmental actions of the self.

This result appears to contrast with the results on social norms. Namely, a myriad of studies have showed that others’ behaviors guide an individual’s own behaviors because they communicate a norm (e.g., Cialdini, 1993; Cialdini, 2003; 2007; Cialdini, Reno, & Kallgren, 1990; Kallgren, Reno, & Cialdini, 2000; Keizer, Lindenberg, & Steg, 2008; Mollen, Rimal, Ruiter, & Kok, 2013; Nigbur et al., 2010; Reingen, 1982; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007; Terry, Hogg, & White, 1999). For example, individuals are more likely to be environmentally friendly and reuse their bath towels in hotels if other guests also do so (Goldstein, Cialdini, & Griskevicius, 2008), individuals are more likely to donate money when they see a list of individuals who have also donated money (Reingen, 1982), and individuals are more likely to decrease their electricity use when their neighbors consume less electricity than they do (Schultz et al., 2007). The behavior of others defines the social norm and provides individuals with social proof on how to behave, thus leading them to behave in a similar manner. Particularly, when individuals feel similar or close to others, they are likely to follow their behavior (e.g., Festinger, 1954; Goldstein et al., 2008; Johnston & White, 2003; Louis, Davies, Smith, & Terry, 2007; Turner, 1991). For example, when individuals read that previous guests in their specific hotel room have reused their towel, they are more likely to also reuse their towels (Goldstein et al., 2008), and when individuals identify with a group, they are more likely to behave consistently with the group norm (Stok, de Ridder, de Vet, & de Wit, 2012; Terry et al., 1999). At first glance, these results regarding social norms appear to contradict our results; however, there are some differences that explain these apparently opposing results.

When emphasizing similarity or closeness in social norm experiments, these similar others resemble what we would term non-close others (rather than close others). For example, individuals may be more likely to reuse their towels
when they resemble the other hotel guests more (e.g., they both stayed in the same room; Goldstein et al., 2008). However, this situation is unlikely to create an overlapping feeling of oneness and self-other, which drives the vicarious licensing effect. When comparing the results of social norm studies with our results regarding non-close others, they in fact appear to be consistent rather than opposing. Namely, the behavior of non-close others may guide an individual’s behaviors so they are more environmentally friendly rather than provide a justification for environmentally unfriendly behavior.

Another difference is that studies on social norms often examine the effect of an individual’s behaviors on another individual’s identical behaviors. For example, how low energy use by neighbors leads to a lower energy use of the self (Schultz et al., 2007) or how littering by one individual who disposes of a handbill on the parking garage floor leads to littering by another individual who disposes of a handbill on that identical parking garage floor (Cialdini et al., 1990). Research shows that the effect of norms diminishes once the norm-setting behavior and the behavior following this norm become more distant. Therefore, an anti-littering norm leads to less littering, but a recycling or energy-saving norm are less likely to lead to less littering (Cialdini et al., 1990). Thus, the more conceptually close the norm and behavior are, the stronger the effects of social norms. In our studies, we investigate how moral behaviors may lead to environmentally unfriendly behaviors or how one type of environmentally friendly behavior influences other types of environmentally friendly behaviors. These behaviors are thus less conceptually close, which might be an additional explanation of why we observe vicarious licensing rather than social norm effects.

In Chapter 5, we investigated how another external source (i.e., scientific media reports) can provide individuals with justifications for environmentally unfriendliness. When the media communicate science using a progress frame, individuals may feel it is justified to be less environmentally friendly. These results are an important addition to the current research of mass media communication effects on environmentally friendly behaviors.

Until recently, there is not much known about how science-related uncertainties and contradictions influence an individual’s environmentally friendly attitudes and behaviors (but see e.g., Morton, Rabinovich, Marshall, & Bretschneider, 2011). For example, it is interesting to think about the manners
in which the turmoil that was caused by the recent ‘IPCC gate’ might affect environmentally friendly. It could be argued that media reports on IPCC gate and contradictory scientific results in general might undermine an individual’s belief in science as an institution. This could, ironically, increase the likelihood of engaging in environmentally friendly behavior. Because individuals can no longer rely on science to exert control, they must take matters into their own hands and as a result behave in an environmentally friendly manner. Alternatively, it could also be the case that such reports increase skepticism and perhaps even cause a disregard for science all together (Gleick et al., 2010). This would then undermine the idea that environmentally friendly behavior is necessary in the first place (as the research suggesting that environmentally friendly behavior is necessary may be flawed as well). Therefore, the skepticism toward science or possible disregard for science could then reduce environmentally friendly behavior. Whether either effect is more likely poses an interesting question for future research.

Our research shows that it is vital to recognize the potential effect of mass media communication on environmentally friendly behavior and important to investigate these effects. For example, it could be interesting to study how viewing disaster movies that depict natural disasters as a consequence of climate change influences an individual’s likelihood to engage in environmental action. Research shows that when the consequences of climate change become more tangible for individuals, individuals become more concerned about climate change and are more likely to be environmentally friendly (Li, Johnson, & Zaval, 2011). Because of the narrative nature of movies, climate change related problems might thus become more tangible when watching these movies. In theory, watching movies like The Day After Tomorrow could thus stimulate environmentally friendly behavior. How apparently unrelated movies, TV shows, and video games may influence environmentally friendly behavior constitutes an intriguing direction for future research.

Together, Chapters 3, 4, and 5 show that there may be boundary conditions to using external sources of justification. In Chapter 3, we showed that individuals with an environmental self-identity were unlikely to justify environmentally unfriendly behaviors. In Chapter 4, we showed that
individuals were unlikely to use the moral behavior of non-close others as an external source of justification. In Chapter 5, we showed that individuals were unlikely to use scientific media reports as an external source of justification when science could not immediately improve the environment. Individuals generally tend to be self-serving (e.g., Hastorf & Cantril, 1954; Kunda, 1987; Sanitioso et al., 1990; see also Study 4 - Gino & Galinsky, 2012), but there appear to be limits. For example, using the moral behavior of your partner (e.g., participating in a charity run) may serve as a justification for environmentally unfriendly behavior (e.g., not recycling). By contrast, your neighbor participating in a charity run is unlikely to serve as a justification for environmentally unfriendly behavior such as not recycling. Apparently, individuals do not feel comfortable using any source of justification; there are personal and situational constraints for justifying environmentally friendly behaviors. Future research could further investigate these boundary conditions to prevent justifications of environmentally unfriendly behaviors.

Practical Implications
This dissertation demonstrates that individuals are adept at justifying being environmentally unfriendly. Do these results indicate that it is useless to persuade individuals to be environmentally friendly and that the many campaigns attempting to persuade individuals to engage in environmentally friendly behavior unsuccessfully try to instigate long-lasting environmentally friendly behaviors? We do not necessarily think so. However, this dissertation shows that there might be factors that could be accounted for when designing campaigns. In this section, we provide the tools for campaign developers to increase the likelihood of encouraging continued environmentally friendly behavior. We discuss how the media can communicate in such a manner without impairing environmentally friendly behavior, but we begin by discussing the practical implications of our results that individuals with a strong environmental self-identity are unlikely to justify environmentally unfriendly behaviors.

Campaign Development
In Chapter 3, we showed that it is more likely that individuals are consistently environmentally friendly when individuals view themselves as an
environmental person. Namely, individuals with a strong environmental self-
identity are less likely to justify their environmentally unfriendly behaviors than
individuals with a weak environmental self-identity. To illustrate, when
individuals choose an environmental product because they have an
environmental self-identity and are environmentally friendly, they are likely to
behave in an environmentally friendly manner again. By contrast, when
individuals choose an environmental product because they, for example, want
to impress others (Griskevicius, Tybur, & van den Bergh, 2010) and not
because this is in accordance with their environmental self-identity, they are
likely to subsequently feel licensed to behave in an environmentally unfriendly
manner. Our research shows that to decrease the chance of licensing effects
and increase the chance of consistency effects, it is vital that individuals come
to view themselves as environmentally friendly. It is thus important to elicit an
environmental self-identity when developing environmental campaigns or
creating green ads.

One particularly useful technique to elicit such an environmental self-
identity is the social labeling technique (Kraut, 1973). When using social
labeling, individuals are provided with a cue that they can use to form beliefs
about themselves (e.g., Allen, 1982; Bem, 1967; Goldman, Seever, & Seever,
1982; Kraut, 1973; Strenta & Dejong, 1981). For example, by providing
individuals with the social label ‘you are an environmental person’, they are
more likely to view themselves as an environmental person. Through social
labeling, a certain identity is thus established, which then influences
subsequent choices (Allen, 1982). We showed in Chapter 3 that once
individuals perceive themselves as an environmental person, they are also more
likely to continue behaving in an environmental manner. Therefore, social
labeling appears to be a relatively simple and therefore promising persuasive
method to motivate continued environmentally friendly behaviors.

There are numerous ways in which the social labeling technique can
be applied in practice. First, social labeling appeals could be used in mass
media campaigns to persuade individuals to engage in environmentally friendly
behaviors without referring to individuals’ previous environmentally friendly
behaviors. Allen (1982) successfully appealed to individuals living in the
United States via television by labeling American consumers as willing to help
solve the energy problem. So, by appealing to the public that they belong to a
group which wants to contribute to a greener world, individuals may come to see themselves as environmental and will be more likely to engage in environmental actions. For example, by providing students with the label that students are generally willing to engage in environmental actions, these students may perceive themselves as environmental and will be more likely to engage in subsequent environmental actions. Labeling a group of individuals may be particularly beneficial because individuals may even use the behaviors of individuals in their social group as a justification for being environmentally unfriendly. We showed in Chapter 4 that individuals may use the moral and environmentally friendly behaviors of close others as a justification for environmentally unfriendly behaviors. We argue (based on our Chapter 3 results and studies of social labeling) that when individuals perceive themselves as part of a group which subscribes to being environmentally friendly, they will be less likely to use their own and the behaviors of close others as a justification for environmentally unfriendly behaviors because their environmental self-identity will be salient. In sum, individuals could be persuaded to behave in a consistent environmental manner without having information on their recent environmentally friendly behaviors.

Second, labeling can be applied after individuals have engaged in behaviors that could be construed as environmental (Cornelissen, Dewitte, Warlop, & Yzerbyt, 2007). For example, companies could state on packages of environmentally friendly products (e.g., low energy light bulbs or ecological detergents) that the consumer is an environmental person because they purchased the product. Even when individuals purchase a product for non-environmental reasons, for example, because a low energy light bulb is cheaper in the long run, providing this label allows individuals to reattribute their purchase as environmentally conscious rather than price conscious (Cornelissen, Pandelaere, Warlop, & Dewitte, 2008). Therefore, consumers will perceive themselves as an environmental individual, which makes continued environmentally friendly behaviors more likely. Similarly, on bottle banks, there could be slogans that state that the individuals disposing of their bottles must be environmental individuals because they recycled their waste. This strategy appears most effective because individuals then have proof of their environmental friendliness (Cornelissen et al., 2007; Scott & Yalch, 1978), which makes reactance toward the method of social labeling less likely.
Finally, social labeling is an efficient and easily applicable persuasive method because it operates particularly well in conditions where individuals are not deeply processing information and instead rely on automatic processes and heuristics (Cornelissen et al., 2007). When an individual’s cognitive resources are partially occupied, their persuasion knowledge is less likely to be activated (Friestad & Wright, 1994). In addition, when an individual’s cognitive resources are partially occupied, they are more likely to rely on heuristics, such as social labels, than when they process or retrieve these social labels with full cognitive resources (Cornelissen et al., 2007). This is advantageous because individuals often make automatic, unconscious decisions in daily life (e.g., Bargh, Chen, & Burrows, 1996; Dijksterhuis, Smith, Van Baaren, & Wigboldus, 2005). For example, when shopping for (environmentally friendly) products in the supermarket, individuals may also be deliberating on what to cook for dinner, thinking about their work appointments for the next morning, and recalling a nice dinner they had over the weekend. Similarly, when processing an ad or campaign, individuals may not process using full concentration because of the advertisement and marketing clutter. Under such circumstances, an individual’s cognitive resources are thus often directed elsewhere, thus increasing the efficiency of the social labeling technique.

In sum, based on the research presented in this dissertation, we argue that it is important that campaigns elicit an environmental self-identity. Most campaigns persuade individuals to be environmentally friendly rather than (additionally) elicit an environmental self-identity. We argue that it is important that campaigns not only persuade individuals to behave in an environmentally friendly manner but also elicit an environmental self-identity. Individuals will then be less likely to justify their environmentally unfriendly behaviors. The social labeling technique appears to be a promising strategy for eliciting environmental self-identities, thereby triggering continued environmentally friendly behaviors. This technique can be efficiently incorporated in mass communication campaigns, packaging labels, and slogans and might be extra effective in conditions in which individuals have limited processing resources, which is common to individuals’ busy daily lives.
Mass Media Communication Regarding Science

After discussing how eliciting an environmental self-identity may help improve campaigns instigate continued environmentally friendly behaviors, we will now discuss the practical implications of our result that the progress frame often used by the media may impair environmentally friendly behaviors. We have shown that when individuals feel that science will control the world, they no longer feel that they must be environmentally friendly. This result indicates that when the media communicate about science using a progress frame, an individual’s willingness to behave in an environmentally friendly manner will be undermined. We discuss what factors could be accounted for when communicating about science via mass media in such a manner that environmental unfriendly behavior is less likely.

One implication from our studies is that how the media communicate regarding scientific developments and achievements is important. Mass media communication (regarding science) can have negative side effects on an individual’s willingness to be environmentally friendly – without journalists’ awareness. Through the progress frame that is often used when communicating about science, science may be depicted as omnipotent (Long & Steinke, 1996; Nisbet et al., 2002). This portrayal may therefore provide individuals with the idea that current environmental problems (and similar problems) may be resolved soon (Nelkin, 1995; Nisbet et al., 2002). Our research shows that this perspective impairs an individual’s (environmental) behavior.

Therefore, when reading that geo-engineering may be a final resort for problems concerning climate change and environmental pollution, individuals may feel that there is no need to act environmental because the problem will be solved by geo-engineering. For example, saving energy to reduce carbon dioxide emissions and preventing heating of the Earth becomes less necessary when scientists have invented large mirrors that can reflect sunlight. Similarly, riding public transportation instead of driving to counter the Greenhouse Effect becomes less necessary when it is possible to fertilize oceans by adding iron to stimulate the growth of carbon dioxide eating phytoplankton. However, these techniques remain underdeveloped, may come with large costs and risks, and may be counterproductive (Keller, Feng, & Oschlies, 2014). Therefore, when communicating to the public about geo-engineering, it is important to not only stress what could be achieved by geo-engineering but also stress that these
techniques are under development, plus, that human behavioral change remains vital to prevent heating of the Earth and may be the best remedy in the end. In this manner, individuals will be more likely to feel the need to be environmentally friendly.

This influence of media communication on an individual’s behavior is unlikely to only be present in the environmental domain. We suspect that similar effects will also occur in the health domain. For example, the media state that individuals who are currently alive will easily live to 100 years old and cancer is no longer deadly but a chronic disease (DWDD, 2013; Lahousse, 2013). These statements may undermine an individual’s need to behave in a healthy manner. When cancer is perceived as ‘only’ a chronic disease (rather than the deadly disease that unfortunately it frequently is), individuals may not feel the need to stop smoking or drinking. A Dutch newspaper article emphasizes this effect. This article reported how there is an increase of STDs because adolescents’ fear of AIDS and STDs has been lessened because these are no longer deadly diseases (Karimi, 2011). It is therefore important that the media nuance scientific breakthroughs and does not depict an overly optimistic scenario.

This does not mean that the media cannot paint a scientific picture that is promising for determining solutions to problems and creating a better world. It is important that individuals see the use of science so they will be more supportive of it (Nisbet & Mooney, 2007). In fact, believing in the promise of science is strongly negatively correlated with having reservations toward science. Therefore, individuals who believe in the current and future benefits of scientific developments are less likely to have concerns regarding the negative effects of science (Miller, Pardo, & Niwa, 1997; Nisbet et al., 2002; NSB, 2000). Communicating that science is promising for a better world is thus important. It is however also vital to appeal to an individual’s own responsibility to help create this better world.

In Short

In this dissertation, we investigated how individuals justify abstaining from environmental actions. Specifically, we studied how an individual’s own previous behaviors may justify being environmentally unfriendly (Part I) and
how other individuals' actions and external institutions may provide individuals with justifications for being environmentally unfriendly (Part II). We, for example, showed that engaging in environmentally friendly behaviors, ironically, led to subsequent environmentally unfriendly behaviors. In a final note to the reader, the individual chapters that follow have been written as scientific journal articles. Therefore, they can be read independent of one another and in any order. This format also implies that there is some overlap between the different chapters of this dissertation.
Part I

Internal Justification
Chapter 2

Choosing to Donate Provides Justification

This chapter is based on:
Choosing to Donate Provides Justification

Despite the global recession, the amount of charitable donations grows steadily every year (Charity Aid Foundation, 2013). There are multiple reasons why individuals donate to charity, one of them being that individuals experience a warm glow of giving when they do so (Andreoni, 1990). Indeed, research has shown over and over again that giving to others makes individuals feel good (Dunn, Aknin, & Norton, 2008; 2014). This finding is fairly universal and is even observed concerning toddlers (Aknin et al., 2013). Even imagining donating to charity gives individuals the feeling of being moral (Khan & Dhar, 2006). The fact that donations make individuals feel good about themselves suggests that donating to charity is a win-win situation, that does not only help others, but also helps oneself.

Recent research however suggests that the warm glow of giving may in fact be a double edged sword, rather than a win-win situation. Namely, when individuals experience a feeling of morality after a moral deed they are likely to behave less morally on a subsequent occasion (Jordan et al., 2011; Khan & Dhar, 2006; Sachdeva et al., 2009). Donating to charity may then serve as an internal justification for abstaining from moral behavior. This phenomenon is
called the licensing effect and entails that by performing moral behavior, individuals establish moral credits that justify (or license) subsequently immoral behavior (Monin & Miller, 2001; Sachdeva et al., 2009). In this chapter, we test this hypothesis in a field setting and show that when individuals just donated to charity they are subsequently less likely to behave morally in seemingly unrelated situations.

Licensing Effects

Over the past years, studies have documented the existence of licensing effects in a variety of domains. Monin and Miller (2001) were the first to demonstrate the licensing effect in a series of studies that show that individuals are more likely to behave prejudiced in hiring decisions after they initially had the opportunity to behave in a non-prejudiced manner. For example, when individuals were given the opportunity to disagree with racist statements, they were subsequently more likely to indicate that a job was more suitable for a White rather than a Black person (Monin & Miller, 2001). Other research concerning the licensing effect has shown that these effects also occur across domains: when individuals imagine donating money to charity, they are subsequently more likely to cheat in order to perform better on an unrelated task (Brown et al., 2011) and when individuals shop in a webshop with mostly environmentally friendly products they are subsequently more likely to take out more money out of an envelope than they had actually earned (Mazar & Zhong, 2010). Engaging in moral behavior can thus provide individuals with a justification to subsequently behave immorally (Monin & Miller, 2001).

The assumed underlying mechanism is that the initial moral behavior provides individuals with moral credentials which boost their moral self-regard. This boosted moral self-regard subsequently liberates them to behave morally questionable (Jordan et al., 2011; Khan & Dhar, 2006; Sachdeva et al., 2009). Similar, research shows that boosting individuals’ moral self-regard by reminding them of their moral traits subsequently leads to immoral behavior. For example, recalling humanitarian behaviors resulted in donating less money to charity (Sachdeva et al., 2009) and lower intentions to volunteer (Conway & Peetz, 2012).

Unfortunately, studies concerning the licensing effect are mostly conducted in laboratory settings where individuals are assigned to conditions
motivating them to behave in a specific way, it is therefore uncertain whether these effects also occur in real life (e.g., Mazar & Zhong, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). A notable exception is a field study in which residents received feedback on their water usage. The residents were assigned to a feedback or a non-feedback condition and the study showed that when residents received feedback on their water consumption, they lowered their water usage but at the same time increased their electricity usage (Tiefenbeck et al., 2013). In this study by Tiefenbeck et al. (2013), individuals were still assigned to conditions. In real life, however, individuals choose to behave morally (e.g., charitably, environmentally friendly) rather than doing so because they are pushed in that direction by experimental procedures.

Therefore, it is possible that licensing effects are (partially) explained by reactance toward the manipulation. When individuals feel their freedom of choice is being constrained they may experience a feeling of reactance (Brehm & Brehm, 1981; Dillard & Shen, 2005). As a response toward this reduced freedom, individuals may move in the opposite direction. So, when individuals feel they are being ‘forced’ to behave morally by experimental procedures, they may show the exact opposite behavior (i.e., immoral behavior) as a response toward this reduced freedom. It is therefore important to investigate whether licensing effects indeed occur in real life settings.

Consistency Effects

This question is particularly relevant given the extensive body of research that shows that the opposite of licensing effects may be as likely: After a moral act, individuals may feel compelled to behave consistently and therefore also behave in a moral manner in subsequent decisions (e.g., Benabou & Tirole, 2011; Burger & Caldwell, 2003; Freedman & Fraser, 1966; Gawronski, 2012; Snyder & Cunningham, 1975; Steele, 1988). Cognitive dissonance theory (Festinger, 1957), the foot-in-the-door principle (Freedman & Fraser, 1966), and self-perception theory (Bem, 1967) all emphasize that individuals want to appear consistent. In addition, self-affirmation theory posits that individuals want to view themselves as being moral (Steele, 1988), making continued moral decisions more likely. There is thus also ample research suggesting that a moral act will lead to subsequent moral choices as individuals
infer from their past behavior what they find important (Albarracín & Wyer, 2000).

In fact, a recent field study showed that individuals were actually more likely to show such consistency effects than licensing effects after an initial moral act (Gneezy et al., 2012). In the study of Gneezy et al. (2012), visitors of an amusement park had the opportunity to purchase a photograph which was taken while taking a ride in one of the attractions. This photograph was either sold with a charitable-giving promotion (i.e., half of the price was donated to charity) or not. When individuals bought a photo with a charitable-giving promotion they were subsequently more likely to purchase presents for others rather than for themselves (i.e., display pro-social behavior) than when they bought a photo without such a promotion. The authors suggest that this consistency effect (i.e., behaving pro-socially on two subsequent occasions) was caused by the self-perception mechanism (Bem, 1967). Participants presumably perceived themselves as the ‘giving-kind’ after having purchased the photograph with the charitable-giving promotion and therefore were more likely to give again. Based on this research of consistency effects it would thus be the case that donating to charity may lead to subsequently behaving morally again.

The Current Study

Overall, there is evidence suggesting that individuals will behave less morally after donating to charity (i.e., licensing effect) and evidence that individuals want to behave consistent and will display moral behavior again (i.e., consistency effect). We are interested in whether individuals in real life (where they initially choose to behave morally) are more likely to feel licensed or to behave consistently after a moral act. To steer clear of the influence of self-perception we will therefore study whether choosing to behave morally in one domain (i.e., donating to the Red Cross) leads to behaving immorally in another domain (i.e., being environmentally unfriendly) – rather than investigating licensing effects within domains (e.g., giving). Please note that even across domains self-perception effects could occur. After a moral act individuals may come to see themselves as moral, motivating them to behave morally again. The chance that these self-perception effects occur
spontaneously across domains, however, appears less likely than self-perception effects within a specific domain. By contrast to the Gneezy et al. (2012) study, we therefore expect a licensing effect. Moreover, to circumvent the alternative reactance explanation pointed out earlier, we employ a quasi-experimental design in which participants choose freely whether or not they donate to charity, as in real life, rather than being assigned to conditions. As far as we know, all other studies into licensing encompass experimental procedures, assigning individuals to conditions.

Since we used a naturalistic quasi-experimental design, it is important to control for possible confounding factors such as demographic variables and individuals’ tendency to donate in general. Additionally, to make sure that the effect on our dependent measure (i.e., environmentally friendly behavioral intentions) is due to individuals’ donating behavior and not to prior differences in environmentally friendliness, we controlled for individuals’ environmental self-identity. A large body of research shows that environmentally friendly intentions and behaviors are largely influenced by individuals’ environmental self-identity (Fielding et al., 2008; Gatersleben et al., 2002; Nigbur et al., 2010; Sparks & Shepherd, 1992; Van der Werff et al., 2013a; Whitmarsh & O'Neill, 2010). Individuals with a strong environmental self-identity are, for example, more likely to recycle, consume organic vegetables, use green energy, and engage in environmental activism (Fielding et al., 2008; Sparks & Shepherd, 1992; Van der Werff et al., 2013b; Whitmarsh & O'Neill, 2010). So, to prevent distortion of our results, we included environmental self-identity as a covariate in our study.

Study 2.1: The dark side of donating

Method

We chose the yearly charitable event ‘Serious Request’ to test our hypothesis. This is one of the largest nationwide charitable events in The Netherlands. On the six days before Christmas, DJ’s of a popular radio station are locked in a ‘glass house’ to raise money for the Red Cross. They do so by performing live radio, 24 hours a day, and abstaining from eating. Each year, the glass house is situated in a different city and individuals go visit to donate money or simply to enjoy the atmosphere. Money is donated by requesting a
song for whatever amount. Throughout the country fund raising activities are organized by, for example, schools and companies. Moreover, on national television updates are given twice a day and even the national news covers the event. In sum, Serious Request is a nationwide event, engaging many individuals. For more background information, please see [http://en.wikipedia.org/wiki/Serious_Request](http://en.wikipedia.org/wiki/Serious_Request).

**Participants and Design.** Potential participants were approached during Serious Request in two different cities (one in which the ‘glass house’ was situated). Since we expected that most individuals in the city center of the Serious Request city would have donated, we collected data in the city center of an additional city as well, to have comparable group sizes (donating versus not donating). This city was comparable in size and similar to the Serious Request city it was a student town with a specialized university. As expected, in the Serious Request city, a majority of the individuals donated to Serious Request (81.1%), whereas in the other city relatively less individuals donated to Serious Request (but still a substantial amount; 22.5%).

Two hundred eighty three participants filled out our questionnaire. Nineteen participants did not adhere to instructions, for example, they completed the questionnaire with multiple persons or did not fully complete the questionnaire. A subgroup of these participants also indicated to not have donated to Serious Request on the first question, but later on stated that they donated 50 euro last year or indicated that they not yet donated to Serious Request (but were about to). This may cause a problem as prior moral deeds and future moral deeds may also provide individuals with a license (e.g., Jordan et al., 2011). Therefore, these nineteen participants were omitted from the main analyses. Furthermore, six participants were identified as outliers based on the Mahalanobis Distance method, which exceeded the critical value at \( p < .001 \) (Pallant, 2001; Tabachnick & Fidell, 2007) and were omitted from the analyses. Leaving a total of 261 participants \( (M_{\text{age}} = 31.49, SD_{\text{age}} = 13.56, 53.3\% \) female) for our analyses. Please note that inclusion of the outliers would have resulted in the same results.

**Procedure.** Participants first read and signed an informed consent. Since our participants may not be very familiar with filling out questionnaires, they were shown an unrelated example question illustrating how to answer
questions using a Likert scale. After this, they were asked to indicate whether
they just donated to Serious Request.

Next, participants were asked to rate six items regarding
environmentally friendly intentions. Intentions were measured by using items
like “I would be willing to pay more each month for electricity if it meant cleaner air” measured on a scale from 1 (completely disagree) to 7 (completely agree), Cronbach’s $\alpha = .85$ (Minton & Rose, 1997). Then, participants completed several background questions (i.e., age, education, gender) to be able to control for their potential influence on our dependent measure environmentally friendly intentions. They also indicated how often they typically donate to charity, how much they typically donate to charity, and how much they donated to Serious Request. Next, to be able to control for participants’ environmental self-identity, they completed an environmental self-identity measure with four items like “I think of myself as an environmentally-friendly conumer” measured on a scale from 1 (completely disagree) to 7 (completely agree), Cronbach’s $\alpha = .86$ (Whitmarsh & O’Neill, 2010). Finally, participants were thanked for their participation and fully debriefed.

Results and Discussion

Preliminary analyses: Covariates. To control for confounding variables, we checked the correlations between demographics, donating behavior in general, environmental self-identity and our dependent measure environmentally friendly intentions. We also investigated whether it was required to control for the surveyor who administered the questionnaire.

Age ($r = .15, p = .018$), how often individuals typically donate to charity ($r = .28, p < .001$), and environmental self-identity ($r = .60, p < .001$), were significantly correlated with the dependent measure (environmentally friendly intentions). Additionally, surveyor ($p = .050$) had a significant effect on environmentally friendly intentions. A post-hoc test showed that participants surveyed by one surveyor consistently reported higher environmentally friendly intentions than the other six surveyors. Therefore, we took age, surveyor, how often individuals typically donate to charity, and environmental self-identity into account as covariates. Gender ($r = -.02, p = .749$), education ($r = .10, p = .122$), how much individuals typically donate to charity ($r = -.01, p = .838$),
and how much individuals donated to Serious Request ($r = .03, p = .614$), were not correlated with environmentally friendly intentions.

**Main analyses.** We conducted an ANCOVA with donating (yes/no) as predictor and age, surveyor, how often participants typically donate, and environmental self-identity as covariates. In line with the licensing effect, the ANCOVA showed that participants who donated to Serious Request had lower intentions to be environmentally friendly ($M = 4.11, SE = .07$) than participants who did not donate ($M = 4.42, SE = .10$), $F(1, 247) = 6.36, p = .012, \eta_p^2 = .03$. Donating to charity may justify environmentally unfriendly intentions.

As expected, the covariate environmental self-identity strongly influenced individuals’ environmentally friendly intentions, $F(1, 247) = 118.80, p < .001, \eta_p^2 = .33$, which is consistent with previous research in the domain of environmental friendliness (Whitmarsh & O’Neill, 2010). The covariate how often individuals typically donate also had a positive effect on environmentally friendly intentions $F(1, 247) = 11.21, p = .001, \eta_p^2 = .04$. So along the lines of research stating that the moral domain is multifaceted (Aquino & Reed, 2002), we observed that individuals who frequently donate to charity were also more likely to be environmentally friendly. Surveyor and age did not have a significant effect on environmentally friendly intentions, $F(1, 247) = 2.24, p = .136$ and $F(1, 247) = 0.02, p = .969$, respectively.

Please note that when not accounting for the covariates age, surveyor, and how often individuals typically donate, the ANCOVA displayed the same pattern. Thus, the ANCOVA showed once more that participants who donated to Serious Request were subsequently less likely to report environmentally friendly intentions ($M = 4.12, SE = .07$) than participants who did not donate to Serious Request ($M = 4.38, SE = .10$), $F(1, 254) = 4.40, p = .037, \eta_p^2 = .02$. Taking the covariate environmental self-identity into account was vital due to its large effect on environmentally friendly intentions, as consistent with previous research on the role of environmental self-identity in expecting environmentally friendly behaviors (Fielding et al., 2008; Gatersleben et al., 2002; Nigbur et al., 2010; Sparks & Shepherd, 1992; Van der Werff et al., 2013a; Whitmarsh & O’Neill, 2010). The strong effect of environmental
self-identity as a covariate suggests that it deserves a closer look in the future research, perhaps as a moderator (we will return to this in Chapter 3).

**General Discussion**

Our study shows that donating may have a dark side to it, as donating to charity may subsequently license individuals to behave immorally in other domains. Specifically, when individuals donated to Serious Request they subsequently reported lower environmentally friendly intentions than individuals who did not donate. Giving to charity thus appears to provide donors with an internal justification that subsequently frees them to behave less environmentally friendly. Donating to charity may thus not always be a win-win situation. In fact, it could have negative consequences for individuals’ subsequent moral behaviors.

This chapter adds to the existing literature on both charitable giving and the licensing effect. Our study demonstrates that the licensing effect also emerges when individuals choose to behave morally in the first instance. So far, the licensing effect had been mainly investigated in the lab or by assigning individuals to behave in a moral way (e.g., Mazar & Zhong, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). This study establishes the ecological validity and robustness of the licensing effect by showing that the effect also emerges in the field when participants choose to behave morally rather than being assigned to do so. Licensing effects thus not appear to be merely caused by experience a feeling of reactance toward the manipulations used in many licensing studies, but also occur in real life when individuals choose themselves to behave morally.

Also, it establishes the need for investigating what happens after individuals donate to charity. Abundant studies investigate what factors influence individuals’ donation behavior (e.g., Bekkers & Wiepking, 2011; Bennett, 2003; Rabinovich et al., 2009; Sargeant, Ford, & Hudson, 2008; Wiepking & Bekkers, 2012) and how individuals may be persuaded to donate to charity (e.g., Das, Kerkhof, & Kuiper, 2008; Ein-Gar & Levontin, 2013; Fisher, Vandenbosch, & Antia, 2008; Handy, 2000; Liu & Aaker, 2008; White & Peloza, 2009). Studies investigating sequential decision making within the domain of charitable giving are, however, scarce (e.g., Beldad, Snip, & Van
Hoof, 2014; Sargeant & Woodliffe, 2007; Winterich, Mittal, & Aquino, 2013), and studies investigating how charitable giving influence subsequent seemingly unrelated moral behaviors are virtually nonexistent. The current study fills this gap by demonstrating that donating behavior impairs subsequent moral behaviors and shows that it is thus important to also investigate the effects of charitable giving on seemingly unrelated behaviors. Particularly since this may not always constitute of a positive spill-over but may, ironically, have negative side consequences.

Limitations

It should be noted that the effect size of our finding is relatively small. This is consistent with a recent meta-analysis of the licensing effect (Blanken, Van de Ven, & Zeelenberg, 2013). Although the effect is relatively small, the effect should not be disregarded. The majority of individuals in both the US and the UK regularly make donations (Charity Aid Foundation, 2013). Given this prevalence of donating, even a small effect may have substantial consequences. Another limitation of our study is that it constitutes of self-report measures. Individuals may report more socially desirable and therefore may (unknowingly) overstate their environmentally friendly intentions (Paulhus, 2002). If this would be the case in our study, the licensing effects would in reality be stronger. So, the problem of answering socially desirable would sooner harm than help finding the licensing effect.

Future Research

One may wonder whether the amount of the initial donation affected the magnitude of the licensing effect. Previous research suggests that the licensing effect may operate proportionally, such that a larger previous moral behavior leads to a larger subsequent immoral behavior (Jordan et al., 2011). We checked whether the amount donated affected the magnitude of the licensing effect, but this was not the case. Donating larger sums of money does not appear to provide one with a ‘larger’ license to subsequently be even less environmentally friendly. Future research could investigate this topic in more detail.

Additionally, future research could investigate how licensing effects may be prevented by the use of self-perception mechanism. Individuals tend to
behave consistently with how they perceive themselves (Bem, 1967) and previous research shows that by using the social labeling technique individuals may be stimulated to behave morally consistently through the self-perception mechanism (Allen, 1982). Research, for example, shows that when providing individuals with the social label ‘you are an environmentally friendly person’ they become more likely to actually see themselves as an environmentally friendly person and behave accordingly (Allen, 1982; Cornelissen et al., 2007). This suggests that when individuals are being actively labeled as moral, they may come to see themselves as moral and behave accordingly, implying that they will be less likely to use the moral credits earned in one situation to behave immorally in another. In this way, it may be prevented that people use donating to charity as an internal source of justification for immoral (e.g., environmentally unfriendly) behavior. This constitutes a valuable avenue for future research.
Chapter 3

Self-Identity and Justification

This chapter is based on:
Self-Identity and Justification

Consumers often make series of moral consumption decisions. For example, when taking a trip to the supermarket, they may have to decide between environmentally friendly and conventional alternatives when choosing laundry detergents, are offered organic options in the rice and pasta sections, and consider brands advertising donations to charities at the soda shelf. Research on moral consumer purchases, however, often studies these decisions in isolation, as one-shot choices rather than investigating consumer choices as a sequential-decision making process (e.g., Fielding et al., 2008; Whitmarsh & O’Neill, 2010). Recent research shows that it is important to investigate consumer choices in a sequential-decision context, since a consumption decision may be affected by a preceding decision (e.g., Cavanaugh et al., 2007; Dhar & Simonson, 1999; Ein-Gar & Steinhart, 2011; Khan & Dhar, 2006; Mukhopadhyay & Johar, 2009; e.g., Novemsky & Dhar, 2005). For instance, consumers may balance their current and previous consumption decisions such that they are more likely to indulge after they previously constrained themselves (Kivetz & Simonson, 2002; Mukhopadhyay & Johar, 2009).
A compelling explanation for balancing current and previous consumer decisions is provided by research on the licensing effect. This body of research suggests that prior virtuous or moral decisions may provide consumers with an internal justification to make subsequent vice or morally questionable decisions (e.g., Catlin & Wang, 2013; Khan & Dhar, 2006; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). By performing morally laudable behavior, individuals accumulate moral credentials that subsequently provide them with a justification to behave in a morally dubious way. Mazar and Zhong (2010), for example, showed that individuals feel licensed to cheat after consuming environmentally friendly products. In the current article, we extend and unify previous research on the licensing effect. We argue and show that consumers will be less likely to show licensing effects in domains that are relevant to their identity – in other words: in identity relevant domains.

Moral Licensing Effects

The moral licensing effect entails that engaging in a moral act makes individuals subsequently more likely to engage in a morally questionable act (e.g., Khan & Dhar, 2006; Mazar & Zhong, 2010; Merritt et al., 2010; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). For example, when individuals are given the chance to disagree with sexist statements, they are afterwards more likely to make more sexist choices (Monin & Miller, 2001) and when individuals imagine donating money to charity they are subsequently more likely to cheat on a math task (Brown et al., 2011). These licensing effects are also demonstrated within the domain of consumer behavior. Khan and Dhar (2006), for example, showed that consumers felt licensed to engage in luxury consumption (i.e., buying designer jeans) after volunteering for charity, whereas Tiefenbeck et. al. (2013) showed that consumers felt licensed to increase their electricity consumption after lowering their water consumption.

The assumed mechanism underlying these licensing effects is that the initial moral behavior provides individuals with moral credentials which boost their moral self-regard. This subsequently ‘frees’ them to behave morally questionable (Khan & Dhar, 2006; Miller & Effron, 2010; Monin & Miller, 2001). Similarly, research shows that boosting one’s moral self-regard by recalling moral behaviors performed in the past leads to immoral behavior in the present. For example, recalling moral behaviors resulted in donating less
money to charity (Sachdeva et al., 2009), more cheating behavior on a math task (Jordan et al., 2011), and a lower intention to volunteer (Conway & Peetz, 2012).

While licensing effects appear to be prevalent in many different domains, we posit that they may not be the typical consequence of moral consumer decisions. We propose that an important determinant for whether licensing effects occur is whether the domain of consumption is identity relevant. So, when taking the example of how decreasing water consumption leads to increasing electricity consumption (Tiefenbeck et al., 2013), we expect that consumers will not feel justified to increase their electricity consumption when they have a strong environmental self-identity as this would be inconsistent with their identity.

Identity Relevant Behaviors

Self-identity is the manner in which individuals see themselves and the labels they use to describe themselves (e.g., Aquino & Reed, 2002; Markus & Zajonc, 1985; Reed et al., 2012; Tajfel & Turner, 1986; Whitmarsh & O’Neill, 2010). By behaving in an identity congruent manner individuals show themselves and others who they are, therefore, identity typically influences behavior (Bem, 1967; Eagly & Chaiken, 1993; Taylor, 1975). For instance, individuals prefer global over local products when their global identity is salient (Zhang & Khare, 2009), they are more likely to behave morally when their moral identity is salient (Aquino, Freeman, Reed, Lim, & Felps, 2009), and they are more likely to consume ethical, fair trade products when they strongly identify as ethical (Ozcaglar-Toulouse, Shiu, & Shaw, 2006). Additionally, individuals who are forced to behave incongruent to their identity will compensate for this later on by behaving in an identity congruent manner (Verplanken & Holland, 2002). Identity thus drives behaviors in identity relevant domains, resulting in individuals behaving in an identity congruent manner (Bem, 1967; Erikson, 1964; Markus & Zajonc, 1985; Reed et al., 2012).

Combining this identity congruency perspective with the licensing effect raises the question whether licensing effects will occur in identity relevant domains. The assumption behind the licensing effect is that having established moral credentials frees individuals to justify morally questionable
behavior (e.g., Miller & Effron, 2010; Monin & Miller, 2001). It is unlikely, however, that consumers would want to behave incongruent to their identity within identity related domains. Indeed, research suggests that when a trait such as morality is valued by individuals, they strongly believe in being moral and they want to maintain this moral aspect of their self-concept (Kunda, 1987; Mazar et al., 2008; Sanitioso et al., 1990). Similarly, research suggests that individuals act consistent to their identity because having a certain identity creates the must to be true to this self-concept (Erikson, 1964; Reynolds & Ceranic, 2007). This suggests that consumers will not show licensing effects when the decision making domain is identity relevant. In the present article we will test this hypothesis that licensing effects are unlikely within identity relevant domains, focusing on the domain of environmentally friendly consumption.

Environmentally Friendly Consumption

Environmental self-identity has a large influence on environmentally friendly behavior (e.g., Sparks & Shepherd, 1992; Van der Werff et al., 2013a; Whitmarsh & O’Neill, 2010), making the environmental domain particularly suitable to test our hypotheses. In addition, studying sequential behaviors is especially relevant in the environmental domain, since most studies investigate merely one-shot choices (Peattie, 2010). Finally, the impact of consumption on the environment makes it important to investigate environmentally friendly consumer behavior, and environmentally friendly consumption is highly relevant and timely as many companies are now making an effort to produce more environmentally friendly products to counter environmentally unfriendly consumption. In Unilever’s “Sustainable Living Plan” the reduction of environmental impact is one of the key goals. Other examples include H&M launching environmentally friendly clothing lines, IKEA reducing energy use during transportation, and Nike recycling PET bottles for their apparel collection. The idea behind these efforts is to diminish the impact of consumption on the environment so to protect the environment.

Research on the licensing effect, however, suggests that these efforts may not always be fruitful. One environmentally friendly action may – ironically – provide consumers with a justification to subsequently behave environmentally unfriendly. In this way, the initial environmental
consumption may be offset by the subsequent environmentally unfriendly behavior. More problematic, even having the option of being environmentally friendly present serve as a justification to behave environmentally unfriendly (Catlin & Wang, 2013). By investigating the circumstances under which the licensing effect is less likely to occur, we hope to provide valuable insights that may have important practical implications.

Overview of studies

In three studies, we systematically tested our proposition that licensing effects are mitigated in identity relevant domains. In Studies 3.1 and 3.2, we investigated whether the licensing effect within the environmental domain is especially likely for consumers with a weak environmental self-identity, whereas such a licensing effect is nullified for consumers with a strong environmental self-identity. In Study 3.3, we sought additional support for our proposition by excluding an alternative hypothesis.

Study 3.1: Environmental self-identity as a moderator

In Study 3.1, we sought to demonstrate that the licensing effect within the environmental domain is moderated by environmental self-identity. We hypothesized that participants imagining purchasing an environmentally friendly product would subsequently be less likely to report environmentally friendly intentions than participants imagining purchasing a conventional alternative. Importantly, we expected that this effect occurs only for participants with a weak environmental self-identity. Participants with a strong environmental self-identity will not show such a licensing effect.

Method

Participants and design. Seventy participants ($M_{age} = 22.57$, $SD_{age} = 3.18$, 70.0% female) were recruited using snowball sampling and were invited via e-mail to take part in an online study. They were randomly assigned to one of two conditions (type of purchase: conventional, environmentally friendly)\(^4\)

\(^4\) As previous research showed that the licensing effect may operate proportionally, such that a larger previous moral behavior leads to a larger subsequent morally questionable behavior (Jordan et al., 2011), we initially designed three conditions: conventional, moderately environmentally friendly, and heavily environmentally friendly sneakers. The difference between the environmental
of a between subjects design. One outlier was detected in the control condition (based on Cook’s distance) and therefore omitted from the analyses.

Procedure. We first measured participants’ environmental self-identity by asking them to rate five items like “I am concerned with environmental issues” and “I value being an environmentally friendly person” and on a scale from 1 (completely disagree) to 7 (completely agree; based on Sparks & Shepherd, 1992), Cronbach’s $\alpha = .84$. To manipulate whether participants behaved in an environmentally friendly manner they completed a task that was allegedly on the effectiveness of ads. Participants were asked to take their time to study an ad of sneakers of a well-known brand (Nike) and imagined buying the sneakers being advertised. We designed two ads depicting a pair of Nike sneakers. The ads were identical, except for the slogan. In conventional (i.e., control) condition the slogan emphasized the comfort of the sneakers whereas in the environmentally friendly (i.e., licensing) condition the slogan emphasized the organic, environmentally friendly nature of the sneakers.

Dependent measure. After imagining that they had bought the sneakers in the ad, participants were asked to complete the questionnaire regarding environmentally friendly behavioral intentions. Intentions were measured by using seven items like “I would be willing to stop buying products from companies guilty of polluting the environment even though it might be inconvenient for me” measured on a scale from 1 (completely disagree) to 7 (completely agree), Cronbach’s $\alpha = .67$ (based on Minton & Rose, 1997). Finally, participants were thanked for their participation and fully debriefed.

Results and Discussion

To test our hypothesis, we performed an OLS regression with environmentally friendly intentions as dependent variable and type of purchase (conventional, environmentally friendly), environmental self-identity
analysis revealed a significant interaction between type of purchase and environmental self-identity on the environmentally friendly intentions measures, $b = 0.47$, se = 0.22, $t(65) = 2.17, p = .033$ and a significant main effect of type of purchase, $b = -0.48$, se = 0.20, $t(65) = -2.48, p = .016$. The main effect of environmental self-identity was not significant, $b = 0.10$, se = 0.20, $t(65) = 0.48, p = .635$.

To interpret the interaction effect, we standardized the continuous variable environmental self-identity and conducted a spotlight analysis at one standard deviation below the mean (labeled weak environmental self-identity) and one standard deviation above the mean (labeled strong environmental self-identity, following Aiken & West, 1991; see Figure 3.1). As predicted, the analysis supported our hypothesis that only consumers with a weak environmental self-identity show a licensing effect. Namely, participants with a weak environmental self-identity were less likely to report environmentally friendly intentions after imagining purchasing environmentally friendly shoes than after imagining purchasing conventional shoes, $b = -0.95$, se = 0.33, $t(65) = -2.88, p = .005$. By contrast, participants with a strong environmental self-identity were as likely to report environmentally friendly intentions after

![Figure 3.1](image.png)

**Figure 3.1.** Figure showing the interaction effect of purchasing sneakers (i.e., organic, conventional) and individual differences in environmental self-identity on environmentally friendly intentions (1-7) in Study 3.1. The significance levels of the slopes are estimated by simple slope analyses (Aiken & West, 1991).
imagining purchasing environmentally friendly shoes as after imagining purchasing conventional shoes, \( b < 0.01, \text{se} = 0.25, t(65) = 0.02, p = .987 \). In sum, consumers with a weak environmental self-identity are likely to show environmental licensing effects, whereas consumers with a strong environmental self-identity are unlikely to show environmental licensing effects. This supports our hypothesis that licensing effects are unlikely within identity relevant domains.

Note that this finding goes beyond the more general positive effect of identity on behavior that has been demonstrated in prior research (e.g., Erikson, 1964; Reynolds & Ceranic, 2007). Here, we postulate that consumers with a weak environmental self-identity will behave in an environmentally friendly manner (i.e., socially desirable) until they have established the moral credentials that makes them more comfortable with justifying environmentally unfriendly behavior. In other words, they need to be able to justify their environmentally unfriendly behaviors. By contrast, consumers with a strong environmental self-identity will consistently behave environmentally friendly, regardless of their prior behaviors.

**Study 3.2: Replication of the moderation**

In Study 3.2 we aimed to conceptually replicate the finding that licensing effects are unlikely for identity relevant behaviors with a manipulation of actual purchasing behavior and different measures so to enhance the validity of our results. In this way, we can assess the validity and reliability of our results (Koole & Lakens, 2012).

**Method**

**Participants and design.** Eighty-seven university students (\( M_{\text{age}} = 22.11 \) years, \( SD_{\text{age}} = 5.45 \), 74.7 % female) participated in exchange for course credit and the chance of winning the outfit that they chose during the experiment (i.e., one person was randomly chosen and got a voucher to purchase the outfit they chose). Participants were randomly assigned to one of two conditions
environmentally friendly versus conventional purchase)\(^5\) of a between-subjects design.

**Procedure.** Two weeks before the study was run in the lab, participants who signed up for the experiment were asked to complete an online questionnaire to assess their environmental self-identity. To enhance validity of our claims, we operationalized environmental self-identity in a different way than in Study 3.1. Participants completed six items measuring environmental intentions like “*I am willing to make personal sacrifices for the sake of slowing down pollution even though the immediate results may not seem significant*” measured on a scale from 1 (*completely disagree*) to 7 (*completely agree*), Cronbach’s \(\alpha = .82\) as a measure of environmental self-identity (see Clayton, 2003; Minton & Rose, 1997).

For the actual experiment two weeks later, participants came to the lab and were individually seated in the cubicles. They ostensibly participated in a series of unrelated studies on a personal computer. In order to manipulate whether participants engaged in environmentally friendly behavior, they completed a task that was allegedly on online shopping. Participants were asked to purchase an outfit for a night out on a website of a large well-known apparel chain (H&M) for about €100 (cf., Mazar & Zhong, 2010). We built two websites: one with *conventional apparel* (i.e., control condition) and one with *environmentally friendly apparel* that was made of organic cotton (i.e., licensing condition). Both websites offered the exact same apparel (e.g., shirts, blouses, pants) for both men and women. However, in the environmentally friendly web shop it was communicated that the apparel was environmentally friendly whereas in the conventional web shop there was no reference to environmental friendliness. After the participants had purchased their outfit, the experimenter wrote down which items they purchased and the participants completed a filler study.

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\(^5\) As in Study 3.1, we initially designed three conditions: conventional, moderately environmentally friendly, and heavily environmentally friendly apparel web shop. The difference between the environmental conditions existed of adding a prominent visual cue emphasizing environmental friendliness (i.e., an organic cotton logo) to the web shop in the heavily environmentally friendly apparel condition. As in Study 3.1, we found no statistical differences between the two environmental conditions, \(t < 1\). We therefore decided to collapse the two environmental conditions into one environmental condition for conciseness and clarity reasons. Again, as in Study 3.1, the results are the same when analyzing the environmental conditions separately.
questionnaire on their opinion regarding the website to keep up the appearance of the alleged goal of the experiment.

**Dependent measure.** Following this shopping task, we measured participant’s environmental concern on a 7-point scale using a thirteen item scale with items like “Natural resources must be preserved even if people must do without some products” and “I feel angry and frustrated when I think about the harm being done to plant and animal life by pollution,” Cronbach’s $\alpha = .89$ (based on Minton & Rose, 1997). Finally, participants were thanked for their participation, and fully debriefed on the nature of the experiment and the web shop.

**Results and Discussion**

As expected, the OLS regression analysis with type of purchase (environmentally friendly versus conventional), environmental self-identity (a standardized continuous predictor), and their interaction as predictors revealed a significant interaction effect, $b = 0.43$, se $= 0.15$, $\beta = .48$, $t(83) = 2.86$, $p = .005$. The main effects of apparel web shop and of environmental self-identity were not significant, $b = -0.20$, se $= 0.15$, $t(83) = -1.38$, $p = .173$, and $b = 0.02$, se $= 0.12$, $t(83) = 0.20$, $p = .846$ respectively.

To interpret the interaction effect we standardized the continuous variable environmental self-identity and conducted a spotlight analysis at one standard deviation below (labeled weak environmental self-identity) and above (labeled strong environmental self-identity) the mean (see Figure 3.2). As predicted, participants with a weak environmental self-identity reported less environmental concern after purchasing environmentally friendly apparel than after purchasing conventional apparel, $b = -0.63$, se $= 0.22$, $t(83) = -2.84$, $p = .006$. By contrast, individuals with a strong environmental self-identity were as likely to report environmental concern after purchasing environmentally friendly apparel as after purchasing conventional apparel, $t(83) = 1.13$, $b = 0.22$, se $= 0.20$, $p = .262$. We thus replicate the result of Study 3.1 that consumers with a weak environmental self-identity are likely to show licensing effects, whereas consumers with a strong environmental self-identity are unlikely to show licensing effects within the environmental domain. This conceptual
replication strengthens the evidence for our notion that licensing effects are unlikely when the domain is identity relevant.

![Figure 3.2](image.png)

**Figure 3.2.** Figure showing the interaction effect of purchasing apparel (i.e., organic, conventional) and individual differences in environmental self-identity on environmental concerns (1-7) in Study 3.2. The significance levels of the slopes are estimated by simple slope analyses (Aiken & West, 1991).

**Study 3.3: Excluding an alternative explanation**

In Study 3.3 we aimed to find further support for our hypothesis that licensing effects are unlikely in identity related domains. In Studies 3.1 and 3.2 we consistently showed that consumers with a strong environmental self-identity do not show licensing effects within the environmental domain. We reasoned that this is the case because environmentally friendly behavior is identity relevant to consumers with a strong environmental self-identity. Therefore, they are continuously motivated to be environmentally friendly, rather than that they would like to justify their environmentally unfriendly behaviors.

An alternative hypothesis for our results in Studies 3.1 and 3.2 could be that environmentally friendly consumers are “morally better” in general and behave more morally laudable in any moral domain, rather than in the environmental domain specifically. Being environmentally friendly is often
seen as an ethical and morally right thing to do (Bratanova et al., 2012; Schmuck & Schultz, 2002). Since the moral domain is multifaceted (Aquino & Reed, 2002), it may be argued that consumers who behave morally in one domain may also be more likely to behave morally in other domains. Individuals who consume environmentally friendly are indeed perceived to be more ethical and altruistic (i.e., morally better; Mazar & Zhong, 2010). If environmentally friendly consumers are in fact ‘morally better’ individuals our results of Studies 3.1 and 3.2 might be explained by environmentally friendly consumers behaving and being more moral in general, rather than being driven by environmental self-identity specifically. To rule out this possibility, we conducted Study 3.3 as the litmus test for our hypothesis and examined whether consumers with a strong environmental self-identity (who do not use environmentally friendly behavior as a justification for subsequent environmentally unfriendly behavior) do use environmentally friendly behavior as a justification for subsequent imputable behavior in other morally laudable domains.

To establish this boundary condition, we measured environmental self-identity plus we modified the dependent variable to examine whether consumers with a strong environmental self-identity will show licensing effects in moral domains other than the environmental domain. We investigated this by having participants choose between a hedonic and a utilitarian good (see Khan & Dhar, 2006). Research has shown that utilitarian products are seen as relatively virtuous, morally laudable choices, whereas hedonic products are seen as relative vice, and morally questionable choices (e.g., Dhar & Wertenbroch, 2000; Khan & Dhar, 2006; Kivetz & Simonson, 2002). To enhance validity of our prior results, we again used a different manipulation of environmentally friendly behavior and a different measure for environmental self-identity than in Studies 3.1 and 3.2.

**Pre-test**

To manipulate whether individuals engaged in environmentally friendly behavior, we modified a manipulation in the domain of consumer licensing by Khan and Dhar (2006). In their manipulation, they asked participants in the licensing condition to imagine having volunteered doing
community services and having to choose between two community services. Participants in the control condition did not complete a task.

To make the task more applicable to our goal and student sample, we asked participants in the licensing condition to imagine having volunteered doing an internship at an environmental charity. Specifically, in the volunteering (i.e., licensing) condition participants were asked to imagine that their lecturer had asked for volunteers to help a charity develop a campaign next semester, and that they had signed up to do so. They were given the chance to pick the charity they liked most and in order to facilitate choosing they were given the description of two charities (WWF and Greenpeace). After reading the information, they indicated which environmental charity they preferred for doing the voluntary internship at.

To make the control condition more comparable to the licensing condition, we also asked participants in the control condition to complete a task. Participants in the rating (i.e., control) condition were told that the researchers were pre-testing a description of two environmental charities (WWF and Greenpeace) for a study that would run the week after. Participants were asked to read the two descriptions and indicate whether the two descriptions were equally well written on a 7-point scale (cf. Mazar & Zhong, 2010). All participants thus read the exact same information, only the subsequent action differed.

The idea behind this is that in the licensing condition participants feel like they engaged in environmentally friendly behavior as they make an active environmental choice (e.g., choose an environmental charity for doing a voluntary internship). By contrast, in the control condition participants do not feel like they engaged in environmentally friendly behavior as they are merely exposed to information regarding the environment but not make an active environmental choice (e.g., rate the descriptions of two charities). To examine whether individuals in the volunteering (i.e., licensing) condition indeed felt that they engaged in more environmentally friendly behavior than participants in the rating (i.e., control) condition, we conducted a pre-test.

The manipulation was pre-tested on 43 university students ($M_{age} = 23.58$ years, $SD_{age} = 1.72$ – 1 missing, 76.7% female). Participants first completed the manipulation and then answered three questions regarding the
extent to which they behaved in an environmentally friendly manner. They answered items like ‘To what extent do you feel you just did something good for the environment?’ on a scale from 1 (not at all) to 7 (very much), \( \alpha = .91 \). As expected, an ANOVA showed that participants in the licensing condition, who chose between the two charities to volunteer at, felt they had behaved more environmentally friendly (\( M = 4.75, SD = 1.35 \)) than participants in the control condition who merely rated the two charities (\( M = 3.39, SD = 1.21 \)), \( F(1, 42) = 12.08, p < .001, \eta^2_p = .23 \). Our manipulation of behaving in an environmentally friendly manner thus succeeded so we used it in our third and final study.

Method

Participants and design. One hundred twenty-four university students (\( M_{age} = 20.01 \) years, \( SD_{age} = 1.58 \), 3 missing, 82.3 % female) completed the present study and several unrelated studies online in exchange for course credit. The participants were randomly assigned to one of two conditions (volunteering for an environmental charity versus rating environmental charities) of a between-subjects design.

Procedure. Participants first completed the subtle manipulation of engaging in environmentally friendly behavior as described in the pre-test. In the licensing condition, participants chose one of two environmental charities to volunteer at. In the control condition, participants rated the how well-written the descriptions of the two environmental charities were.

Dependent measures. Following our manipulation, we administered the first dependent measure. Participants were asked to imagine wanting to buy both a combination microwave oven (i.e., utilitarian good) and designer jeans (i.e., hedonic good; based on Khan and Dhar (2006)). Participants imagined going to a shopping mall where a sale was going on, however, when being in the mall they only had enough money for either the combination microwave oven or the designer jeans. Therefore, they had to choose between purchasing the combination microwave oven (virtuous choice) and the designer jeans (vice choice). Their preference was measured on a bipolar slider ranging from 0 (definitely the combination microwave oven) to 100 (definitely the designer jeans).
Next, we administered a second dependent measure in which participants were asked to choose between the environment and economic profit. This measure was taken from previous research on environmental licensing (Sachdeva et al., 2009). Participants completed an environmentally friendly behavior task in which they imagined managing a manufacturing plant that pollutes the air via smokestacks. In order to prevent the release of pollutants they could run filters at monetary costs. Under pressure from environmentalist lobbyist and at the risk of a new law prescribing running the filters 100% at all times, all manufacturing plants agreed with the lobbyists to run the filters 60% of the time. The participants could choose to run filters for any 10% interval between 0% and 100%, with each incremental step costing €0.2 million. The more often the filters would run the better for the environment, but also the higher the financial costs.

At the end of the testing session (i.e., after 20 minutes of completing unrelated and filler studies) we measured environmental self-identity, apparently as part of another unrelated study. We used the Whitmarsh & O’Neill (2010) scale consisting of four items: ‘I think of myself as an environmentally-friendly consumer’, ‘I think of myself as someone who is very concerned with environmental issues’, ‘I would be embarrassed to be seen as having an environmentally friendly lifestyle’ (reversed), and ‘I think it is important that my family and friends think of me as someone who is concerned about environmental issues’ on a scale from 1 (completely disagree) to 7 (completely agree), Cronbach’s $\alpha = .53$. The reliability of the scale improved substantially when leaving out the reversed scored item, Cronbach’s $\alpha = .77$. We therefore chose to perform our subsequent analyses on the remaining items, but please note that the results with the four item scale were the same.

**Results and Discussion**

**Hedonic versus utilitarian choices.** The choice on the slider between the combination microwave oven (virtuous product; 0) and the designer jeans (vice product; 100) was used in an OLS regression analysis in which we used environmental charity (volunteering, rating), environmental self-identity (a standardized continuous predictor), and their interaction as predictors. The analysis revealed, as expected, a significant main effect of rating versus
volunteering for charity, $b = 9.95$, $se = 4.58$, $t(120) = 2.17$, $p = .032$, but the interaction effect between identity and rating versus volunteering for charity was non-significant, $b = -0.74$, $se = 4.57$, $t(120) = -0.16$, $p = .872$ as was the main effect on environmental self-identity, $b = -5.77$, $se = 3.25$, $t(120) = -1.77$, $p = .079$.

The results indicate that participants were more likely to subsequently choose the hedonic option after choosing between two environmental charities to volunteer at than after merely rating information about the same two charities. In other words, consumers are more likely to justify indulgence by choosing hedonic goods after indicating their willingness to behave environmentally friendly, than after performing a neutral act.

Importantly, this effect was not qualified by an interaction effect. Both participants with a weak and a strong environmental self-identity felt licensed to behave hedonically after performing an environmentally friendly act. This suggests that individuals with a strong environmental self-identity are not morally better individuals who do not show licensing effects in any morally laudable domain. Instead, individuals with a strong environmental self-identity do not show licensing effects in the identity relevant domain of environmentally friendly behavior specifically. After all, consumers with a strong environmental self-identity do not show licensing effects in the environmental domain (as shown in Studies 3.1 and 3.2) but they do show licensing effects in morally laudable domains other than the environmental domain (i.e., purchasing vice versus virtue products).

Environment versus economic profit. The same OLS regression analysis as on the first dependent measure was run on the second dependent measure: the smokestack filters item. Results from the smokestack filters item, however, presented a somewhat different story: The analysis revealed that the main effect of rating versus volunteering for charity was no longer significant: $b = -0.26$, $se = 0.28$, $t(120) = -0.91$, $p = .366$, also the interaction effect was non-significant: $b = 0.01$, $se = 0.28$, $t(120) = 0.03$, $p = .979$. The main effect of environmental self-identity was marginally significant $b = 0.38$, $se = 0.20$, $t(120) = 1.88$, $p = .062$.

These results appear to indicate that licensing effects wane off as there no longer was an effect of our manipulation on the second dependent measure.
It may thus be the case that an environmentally friendly act (t0) licenses consumers with a weak environmental self-identity to subsequently express less environmental concern (t1), but not to also express fewer environmentally friendly intentions (t2). We will return to this issue in the General Discussion.

In sum, the results of Study 3.3 suggest that individuals with a strong environmental self-identity are not in general morally better individuals who do not show licensing effects in any morally laudable domain. Instead our results suggest that they specifically do not justify morally questionable behaviors in the identity relevant domain of environmentally friendly behavior. In other moral, non-environmental, domains they are as likely to justify morally questionable behaviors as individuals with a weak environmental self-identity. Thereby excluding an important alternative explanation for our results and therefore providing additional evidence for our hypothesis that licensing effects are unlikely in identity relevant domains.

**General Discussion**

In three studies we tested our hypothesis that licensing effects are unlikely in identity relevant domains. Our studies demonstrated that consumers justify morally questionable behaviors once they have established moral credentials by previously behaving morally laudable, importantly however, this effect was moderated by identity relevance: When the domain was identity relevant, consumers were unlikely to justify morally questionable behaviors. These results are consistent across experiments, and were shown to be robust against the use of different manipulations for environmentally friendly behavior, different dependent variables, and different measures for environmental self-identity.

In Study 3.1, we showed that purchasing environmentally friendly products (i.e., sneakers made of organic cotton) ironically justified subsequent environmentally unfriendly behaviors compared to purchasing conventional products, however, only for consumers with a weak environmental self-identity. By contrast, consumers with a strong environmental self-identity were likely to engage in further environmentally friendly behavior, irrespective of whether they previously purchased an environmentally friendly product. In Study 3.2, we conceptually replicated this finding while measuring environmental self-identity two weeks before the experiment and having participants shop for an
actual outfit. The results showed once more that consumers with a weak environmental self-identity are likely to show licensing effects in the environmental domain whereas consumers with a strong environmental self-identity are unlikely to show licensing effects in the environmental domain.

In Study 3.3, we showed that consumers with a strong environmental self-identity do justify morally questionable behaviors in moral domains other than the environmental domain. This suggests that it is not the case that consumers with an environmental self-identity are “morally better” individuals in general who never show licensing effects. Rather, they specifically do not justify environmentally unfriendly behaviors because these behaviors are relevant to their identity. Together, these studies provide strong support our proposition that although licensing effects emerge after morally laudable consumption they do not emerge in identity relevant domains.

**Theoretical Contributions and Practical Implications**

The current results fit with recent research that has been trying to disentangle when licensing effects occur and when not (Conway & Peetz, 2012; Gneezy et al., 2012; Young, Chakroff, & Tom, 2012). These studies have, for example, shown that abstract mindsets are less likely to lead to licensing effects than concrete mindsets (Conway & Peetz, 2012) and that costly behaviors are less likely to lead to licensing effects than costless behaviors (Gneezy et al., 2012). It has been suggested that when thinking in an abstract mindset or when performing costly behaviors individuals are more likely to interpret their behavior in terms of their identity (Conway & Peetz, 2012; Gneezy et al., 2012), which would allow us to regard these results as supportive of our theorizing. Therefore, our results extend, support, and unify previous research by revealing identity relevance as the underlying mechanism in expecting licensing effects.

By uncovering identity relevance as an important moderator our results also provide the tools for preventing licensing effects in morally laudable domains. When it concerns, for example, instigating long-lasting environmentally friendly consumption behavior it is important that consumers come to see themselves as environmentally friendly, as then they will be less likely to show environmental licensing effects. Research suggests that merely making consumers consciously aware that they just behaved in an environmentally friendly manner and they thus *are* environmentally friendly
consumers may decrease the likelihood of licensing effects. Young, Chakroff, and Tom (2012) propose that when individuals are made aware that they are “do-gooders” by nature, they are more likely to actually behave good when faced with an opportunity to do so. This is also in line with classic self-perception studies in which individuals see an initial environmentally friendly act as a signal that they are in fact an environmentally friendly person making them more likely to consistently make more environmentally friendly choices (Bem, 1967; Cornelissen et al., 2007). So, after consumers behaved in an environmentally friendly manner (regardless of their primary intentions to behave in this manner) it is important to emphasize the environmentally friendly nature of their actions and to emphasize that this thus means that they are an environmentally friendly person. For example, if individuals ride public transportation to work instead of driving simply because there is no parking space, the environmentally friendly character of this behavior plus the implications (i.e., you are a environmentally friendly person) could be stressed. In this way individuals will come to see themselves as persons with a environmental self-identity (Cornelissen et al., 2008) and our results show that they will then be less likely to show licensing effects within the environmental domain.

**Directions for Future Research**

Previous research suggests that the licensing effect may operate proportionally, such that a larger previous moral behavior may lead to a larger subsequent morally questionable behavior (Jordan et al., 2011). In Studies 3.1 and 3.2, we investigated the hypothesis that licensing effects may operate proportionally in the domain of environmentally friendly consumption by highlighting the environmental nature of the product. Our results showed that purchasing a product strongly highlighting its environmental nature did not provide a larger license than a product modestly highlighting its environmental nature. It may be the case, however, that consumers may feel more licensed when purchasing a more costly environmental product (i.e., hybrid Tesla) than purchasing a relatively costless product (i.e., biodegradable detergent) or performing an effortful act (i.e., help cleaning up part of a beach) than a relatively effortless act (i.e., throwing garbage in the bin). This appears to be at
odds, however, with the recent results of Gneezy and colleagues (2012) which suggest that highlighting the costs and effort of the initial moral act could actually decrease the likelihood of licensing effects. Future research is therefore required to provide conclusive evidence on this matter and to unravel whether licensing effects are less or more likely when emphasizing the initial costs of a morally laudable behavior.

Lastly, future research is warranted on the longevity of licensing effects. So far, research on the licensing effect only investigated how a morally laudable behavior may affect a subsequent decision. Given that consumers often make series of choices it is important to investigate whether a morally laudable behavior may also justify ensuing morally questionable decisions. Our research may provide a starting point for this as we included two dependent measures in Study 3.3, representing multiple sequential decisions. In this study, the licensing effect no longer emerged on the second dependent measure. There are multiple explanations for this finding. It could be the case that the second dependent variable was less sensitive than the first dependent variable therefore not uncovering the licensing effect. This appears unlikely, however, as Sachdeva and colleagues (2009) successfully demonstrated the licensing effect on the second dependent variable of Study 3.3 in their study.

An alternative explanation could be that our manipulations were not strong enough to generate effects on the second dependent variable. Previous research has however used filler tasks between similar manipulations of feeling licensed and the dependent variables (Khan & Dhar, 2006; see also e.g., Sachdeva et al., 2009). These studies also demonstrated licensing effects, making this alternative explanation also unlikely. We therefore interpret our finding as that a behavior at t0 may influence a subsequent decision at t1, but no longer affects the ensuing decision at t2. It could thus be the case that obtained moral credentials must be re-established in new contexts. Future research could investigate the endurance of the licensing effect in new, ensuing contexts in more detail as it is important to know whether a moral consumer decision may justify subsequent immoral consumer decisions perpetually, especially since consumers often make series of decisions.
Conclusions

Many companies show morally laudable initiatives such as enhancing ethical and environmental concerns by cause related marketing, reusing materials, and producing fair-trade products. Our results highlight that it is important to consider the possibility of licensing effects when trying to instigate this kind of morally laudable consumer behavior as these praiseworthy initiatives may actually backfire. Fortunately, however, we also show that this will not always be the case. Our studies reveal that consumers are unlikely to show these licensing effects when the domain is identity relevant. For example, licensing effects may harm long-lasting environmentally friendly consumption, but not for consumers who regard environmentally friendly behavior as a component of their identity. A possible remedy for the detrimental consequences of licensing effects may therefore be to use communication strategies that enhance the identity relevance of these domains.
Part II

External Justification
Chapter 4

Close Others Providing Justification

This chapter is based on:
Meijers, M. H. C., Noordewier, M. K., Verlegh, P. W. J., & Smit, E.G. Taking close others' behavior into account when striking the moral balance. Revision invited for an international academic journal.
Imagine walking on the street with another person during a street fair. It is crowded, sunny, and there is a festival-like atmosphere. The person you are with throws an empty plastic cup in the roadside flora. Does this environmentally unfriendly act influence the chance that you will donate at the Greenpeace stand later that day? We posit it will, depending on your closeness to the other person.

Research shows that individuals search for balance in their moral behaviors such that they cleanse previous immoral behaviors by subsequently behaving morally (i.e., *cleansing effect*) and feel justified to behave immorally after a previous moral act (i.e., *licensing effect*; Monin & Miller, 2001; Sachdeva, Iliev, & Medin, 2009; Tetlock, Kristel, Elson, Green, & Lerner, 2000). We will argue and show that individuals may not only search for balance in their own moral behaviors, but will also take into account behaviors of those close to them. When individuals feel close to another person there is great self-other overlap (Aron et al., 1991) and individuals may perceive the actions of the other as if they are the actions of themselves (Goldstein & Cialdini, 2007). In other words, individuals incorporate the behaviors of close others into their
own self-concepts. We, therefore, posit that immoral behaviors of close others may lead to vicarious cleansing effects, whereas the moral behaviors of close others may lead to vicarious licensing effects. Following this reasoning, the likelihood of vicarious moral cleansing and licensing effects should depend on the degree of interpersonal closeness: When individuals are close to one another they are more likely to vicariously balance the other’s moral behaviors than when individuals are less close to one another. In the remainder of the article, we will elaborate on the theoretical background for this proposition and report three studies supporting it.

Moral Licensing and Cleansing Effects

In general, individuals want to see themselves as moral, however, they do permit themselves morally questionable behavior from time to time (e.g., lying, engaging in environmentally unfriendly behavior, cheating; Mazar et al., 2008). Recent research suggests that in order to uphold their moral self-view, individuals feel the need for a justification to permit themselves such morally questionable behaviors. Engaging in a moral act may provide such a justification (e.g., De Witt Huberts et al., 2012; Effron et al., 2009; Effron et al., 2013; Khan & Dhar, 2006; Mazar & Zhong, 2010; Merritt et al., 2012; Merritt et al., 2010; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). By behaving morally, individuals establish moral credentials which boost their moral self-regard and subsequently ‘free’ them to behave morally questionable (Khan & Dhar, 2006; Miller & Effron, 2010; Monin & Miller, 2001). Therefore, individuals can behave relatively immorally, while maintaining their moral self-view. Consistent with this reasoning, individuals are more likely to behave in a racist or sexist fashion after they behaved in a non-racist or non-sexist fashion (Monin & Miller, 2001). Similarly, when individuals purchased environmentally friendly products they are subsequently more likely to cheat (Mazar & Zhong, 2010).

Balancing moral behaviors to maintain one’s moral self-regard can also occur the other way around, such that individuals behave relatively morally after a previous morally questionable behavior – a so called moral cleansing effect (e.g., Jordan et al., 2011; Sachdeva et al., 2009; Tetlock et al., 2000; Zhong, Liljenquist, & Daylian, 2009). For example, undermining one’s moral self-regard by recalling general immoral behaviors performed in the past leads
to moral behaviors in the present (Jordan et al., 2011; Sachdeva et al., 2009). Also, when individuals merely contemplate immoral behaviors their willingness to behave morally increases (Tetlock et al., 2000) and individuals may even literally feel the need to wipe their slate clean by use of hygiene products (Gollwitzer & Melzer, 2012; Zhong & Liljenquist, 2006). In sum, previous research has suggested that individuals balance their moral and immoral behaviors to maintain a moral self-view. We extend this notion by proposing that individuals not only take their own moral and immoral behaviors into account when striving for moral balance but may also take external sources into account, such as the moral and immoral behaviors of close others.

Inclusion of Others in the Moral Self

Whereas individuals may experience a connection with non-close others such as colleagues or acquaintances, they may actually experience a sense of 'oneness' with close others such as partners or relatives (Cialdini et al., 1997). Aron and Aron (1986) have argued that individuals’ sense of self can be expanded to include others which is especially the case when it concerns close others (see also Aron et al., 1991). When individuals experience oneness with a person they may actually perceive the other person to be part of the self and integrate the other's attributes, behaviors, and characteristics in the self (e.g., Aron et al., 1991; Goldstein & Cialdini, 2007).

Research, for example, shows that the self and close others may be incorporated in the same cognitive category (Hogg & Turner, 1987) such that individuals treat close others as if they are oneself (Aron et al., 1991). Accordingly, research has shown that individuals memorize words associated with the self to the same extent as words associated with close others and that the (monetary) resources of close others are perceived to be the resources of oneself (Aron et al., 1991). Such a highly overlapping mental construal may lead to vicariously experiencing depletion (Ackerman, Goldstein, Shapiro, & Bargh, 2009) and emotions (e.g., Batson, 2011; Davis, 1994; Welten, Zeelenberg, & Breugelmans, 2012). It may make individuals see themselves as possessing the same traits as close others (e.g., Davis, Conklin, Smith, & Luce, 1996; Goldstein & Cialdini, 2007) and even actions of close others may be perceived as the actions of oneself, changing one’s self-view through vicarious self-perception (Goldstein & Cialdini, 2007). Thus, when individuals feel close
to another person, they may act as if aspects and behaviors of this close other are in part also one’s own (Aron et al., 1992; Aron et al., 1991; Goldstein & Cialdini, 2007; see also Heider, 1958).

We expect that similar effects occur with moral and immoral behaviors of a close other: These may be perceived as one’s own and subsequently affect one’s own moral balance. Therefore, we hypothesize that the moral and immoral behavior of close others affect individuals’ own moral balance. As a result, individuals will actively balance the moral and immoral behaviors of a close other: When a close other behaves morally, individuals are ironically more likely to subsequently behave relatively immorally (i.e., vicarious moral licensing), whereas when a close other behaves immorally individuals are subsequently more likely to behave relatively morally (i.e., vicarious moral cleansing). By contrast, when there is little self-other overlap we expect that the immoral and moral behaviors of another person are less likely to be balanced, such that moral (vs. immoral) behaviors of non-close others will not instigate moral licensing (vs. cleansing) effects.

One recent study in the domain of racism provides initial support for our proposition. Specifically, Kouchaki (2011) showed that participants were less likely to rate a Latino as suitable for an ambitious, but stereotypical White job when individuals of the same subject pool had previously included the sole Latino in their list of preferred applicants in a hiring decision task. This suggests that non-racist behavior of one’s in-group may serve as an external source of justification to behave racist in a similar context. In the present article, we will test our hypothesis in a dyadic context, looking at vicarious licensing through close others in the domain of environmental friendly decision making.

We chose to test our hypotheses in the domain of environmentally friendly behavior, as environmentally friendly behavior is often seen as an ethical and morally right thing to do (Bratanova et al., 2012; Schmuck & Schultz, 2002). Furthermore, understanding the factors that influence individuals’ environmentally friendly behaviors is a first step in inducing long-lasting environmentally friendly behaviors. When and how others may affect one’s own environmentally friendly behaviors is not only relevant for gaining knowledge about vicarious moral licensing and cleansing, it also provides
important information about the dynamics of environmentally friendly behavior, and may therefore have important societal implications.

**Overview of Studies**

We conducted a series of studies to test our hypothesis that individuals show vicarious moral balancing effects and that these effects are more likely to occur when it concerns a close other than when it concerns a non-close other. Study 4.1 tested whether individuals feel vicariously licensed to behave environmentally unfriendly after a close other behaved in an environmentally friendly rather than in a conventional manner. Study 4.2 tested another aspect of our hypothesis and examined whether individuals are more likely to feel vicariously licensed when it concerns a close rather than a non-close other. Lastly, Study 4.3 tested the full hypothesis that individuals are likely to show moral balancing effects (i.e., licensing and cleansing) when it concerns close others but will be less likely to do so when it concerns non-close others.

**Study 4.1: Close others’ environmental behavior providing justification**

In this first study, we examined whether a close other purchasing an environmentally friendly product may serve as an external source of justification for being less willing to engage in environmentally friendly behavior.

**Method**

**Participants and design.** Seventy-one participants ($M_{age} = 34.18$ years, $SD_{age} = 12.00$, 70.4% female) completed our study on Amazon MTurk in exchange for a monetary reward. They were randomly assigned to one of two conditions (purchase: environmentally friendly purchase, conventional purchase) of a between-subjects design.

**Procedure.** First, we asked participants to think about a close other (for example their best friend or partner; Aron et al., 1991) and to think about how they complement each other. Hereafter, they were asked to write down the first name of this person. After writing down the name of the person they kept in mind, participants read a scenario regarding this person. We programmed
the scenario such that the name of the person the participants kept in mind (X) appeared in the scenario. In the conventional purchase condition participants read that X was going to buy a new fridge and that X’s eyes were set on two refrigerators with the same capacity and the same price. X decided to choose the one that fitted the design of his/her kitchen. In the environmentally friendly purchase condition participants read that X was going to buy a new fridge and that X’s eyes were set on two refrigerators with the same capacity and the same price, however, one was more environmentally friendly than the other. X decided to buy the environmentally friendly fridge as it was better for the environment. In order to check whether the participants read the scenario, we asked participants why X decided to buy the fridge with an open end question as a manipulation check. Eight participants gave nonsensical reasons (e.g., “because he wanted”) and were excluded for analyses. Please note that inclusion of these participants would have resulted in nearly identical, but slightly more significant, effects.

**Dependent measure.** Participants were then asked to complete a questionnaire regarding environmentally friendly intentions. Intentions were measured by using the Minton and Rose Behavioral Intentions scale (1997) with six items “I would be willing to pay more each month for electricity if it meant cleaner air” measured on a scale from 1 (completely disagree) to 7 (completely agree), Cronbach’s \( \alpha = .91 \).

**Results and Discussion**

As expected, an independent samples t-test showed that when a close other purchased an environmentally friendly fridge, participants were subsequently less likely to report environmentally friendly intentions (\( M = 4.54, SD = 1.36 \)) than when a close other purchased a conventional fridge (\( M = 5.17, SD = 1.29 \)), \( t(61) = -2.08, p = .041, \eta_p^2 = .066 \). These results are consistent with our reasoning that individuals feel vicariously licensed to report environmentally unfriendly intentions after a close other was environmentally friendly rather than non-environmentally friendly (i.e., conventional). This provides initial support for our hypothesis that individuals are likely to show vicarious moral balancing effects when it concerns a close other and that the
environmentally friendly behavior of close others may serve as an external source of justification for environmentally unfriendly behavior.

**Study 4.2: Close versus non-close others**

Study 4.2 extends Study 4.1 by testing whether individuals are more likely to show vicarious moral balancing effects (i.e., licensing effects) when it concerns a close other rather than a non-close other. In other words, whether there may be boundary conditions to using the behavior of others as an external source of justification.

**Method**

**Participants and design.** Sixty-two students ($M_{age} = 22.61$, $SD_{age} = 2.99$, 32.3% female) were randomly assigned to one of the conditions (closeness: close, non-close) of a between-subjects design.

**Procedure.** Participants were approached in several restaurants of the university and asked to participate in a paper-and-pencil study. We used an unrelated task paradigm (Higgins, Rholes, & Jones, 1977) and participants completed two tasks: The first task was called ‘Empathy in relationships,’ the second was called ‘Economic Decision Making.’ First, participants read that there are different kinds of relationships. Sometimes individuals feel close to each other and therefore feel like a unity, for example, best friends. In other cases individuals know each other well but do not feel that close to each other and feel more like separate individuals, for example, fellow students. In the close condition they were asked to imagine somebody being close to them like a best friend. To visualize this closeness, participants were provided with a figure based on Aron and colleagues (1992) in which the closeness was pictured by means of two overlapping circles, see Figure 4.1. In the non-close condition they were asked to imagine somebody they know and who is non-close to them, like a fellow student. This closeness was visualized by two non-overlapping circles, see Figure 4.1. Then participants wrote down the name of the person they kept in mind.
Next, the participants read that the researchers were interested in studying empathy in relationships. Therefore, they were asked to read an environmentally friendly behavior scenario describing how the person they kept in mind separated waste like bottles, cans, and paper. In order to keep up the ‘empathy’ study cover story, participants were then asked some bogus questions on how much trouble they had with imagining the person they kept in mind performing all the behaviors and how much work they thought the behaviors were.

**Dependent measure.** Hereafter, participants completed an environmentally friendly behavior task disguised as an economic decision making task. In this task they were confronted with a dilemma in which they had to choose between the environment and money. We used the scenario of Sachdeva, Iliev, and Medin (2009) in which participants were told that they are managing a manufacturing plant that pollutes the air via smokestacks. In order to prevent the release of pollutants, they could run filters at monetary costs. The more often the filters would run the better for the environment, but also the higher the financial costs. The participants learned that under pressure from environmentalist lobbyists and at the risk of a new law prescribing running the filters 100% at all times, all manufacturing plants agreed with the lobbyists to run the filters 60% of the time. Participants could choose to run filters for any 10% interval between 0% and 100%, with each incremental step
Results and Discussion

We used the percentage that the participants chose to run the filters as the dependent variable in an independent samples t-test. As expected, participants chose to run the filters for a lower percentage of the time after imagining that their close other was environmentally friendly (M = 58.06%, SD = 18.15) than after imagining that their non-close other was environmentally friendly (M = 67.00%, SD = 13.43), t(59) = 2.18, p = .033, ηp² = .075. The results thus show that environmentally friendly behavior of a close other leads to less environmentally friendly behavior than environmentally friendly behavior of a non-close other. Individuals are thus more likely to show vicarious moral licensing effects when it concerns a close rather than a non-close other. Whereas close others’ environmentally friendly behavior may thus serve as an external justification for environmentally unfriendly behavior, non-close others’ environmentally friendly behavior may not.

Study 4.3: Balancing the behaviors of close others

In Study 4.3, we test our full hypothesis that individuals actively balance the moral behaviors of close others such that they are likely to show vicarious licensing and cleansing effects when it concerns a close other, whereas they will be less likely do so when it concerns a non-close other.

Method

Participants and design. Ninety-two individuals (M_age = 24.80, SD_age = 8.73, 63.0% female) participated voluntarily in the study. They were randomly assigned to one of the conditions of a 2 (closeness: close, non-close) x 2 (words: moral, immoral) between-subjects design.

Procedure. Participants were sampled in two waves. First, we approached potential participants in several campus restaurants and the library of the university. In addition, we emailed potential participants to invite them to participate in our study. Sampling method did not affect the results. Similar to Study 4.2, we used an unrelated studies paradigm (Higgins et al., 1977). In
the close condition participants were asked to keep someone in mind that is close to them, for example, their best friend. To strengthen the manipulation, they were asked to think about their similarities for a while and to write down the name of the person they kept in mind (thinking of similarities is a common way to induce a sense of oneness; Cialdini et al., 1997). In the non-close condition participants were asked to keep someone in mind that they know, but is not too close to them, for example, a fellow student. They were asked to think about their dissimilarities for a while and to write down the name of this person. Subsequently, participants saw six words and were asked to apply those to the person they kept in mind. In the moral condition these were words like honest, compassionate, and helpful, in the immoral condition these were words like dishonest, selfish, and unhelpful (cf. Sachdeva et al., 2009).

**Dependent measure.** We measured environmentally friendly behavior using an organic food-shopping task. Previous research has shown that consumers associate organic products with caring for the environment and that individuals valuing the environment are more likely to choose organic products (Sparks & Shepherd, 1992; Thøgersen & Ölander, 2003). Therefore, we
operationalized environmentally friendly consumer behavior by measuring the number of organic food items that participants chose in this task. Participants were asked to imagine that they are shopping at a grocery shop. They were asked to look at eight sets of three products of existing brands that are available in the supermarket (e.g., milk, pasta, olive oil). In each set participants had to choose a product out of the three available options. One of the options was always organic (e.g., one organic olive oil bottle and two conventional olive oil bottles). We added the number of organic product participants chose so the scale ranges from 0 (none of the products chosen is organic) to 8 (all of the products chosen are organic).

Results and Discussion

Consistent with our hypothesis, a 2 x 2 ANOVA showed a significant interaction between closeness and morality $F(1, 87) = 4.79, p = .031, \eta^2 = .052$ (see Figure 4.2). One-tailed simple main effects showed that when participants thought of a moral close other they tended to choose less organic products ($M = 1.64, SD = 1.79$) than when they thought of a moral non-close other ($M = 2.73, SD = 2.60$), $p = .056$. By contrast, when participants thought of an immoral close other they tended to choose more organic products ($M = 2.52, SD = 2.10$) than when they thought of an immoral non-close other ($M = 1.55, SD = 2.42$), $p = .071$. In line with this, when participants thought of a moral close other they tended to choose less organic products ($M = 1.64, SD = 1.79$) than when they thought of a immoral close other ($M = 2.52, SD = 2.10$), $p = .091$ and when participants thought of a moral non-close other they tended to choose more organic products ($M = 2.73, SD = 2.60$) than when they thought of an immoral non-close other ($M = 1.55, SD = 2.42$), $p = .043$. Although the effects are only marginally significant, the means replicate the significant results of Study 4.1 and 4.2. The overall pattern of means (see Figure 4.2) and the significant interaction effect provide additional evidence for the notion that individuals balance their moral and immoral actions with those of close others, whereas individuals are less likely to balance the behaviors of non-close others.
**General Discussion**

In three studies we showed that individuals take close others into account when striving for moral balance. The moral and immoral behaviors of close others are therefore likely to spark respectively moral licensing and cleansing effects of the self. So if a close other behaves in a moral way, individuals are ironically more likely to subsequently behave in an environmentally unfriendly way. The same holds for the reverse: if a close other behaves immorally, individuals are subsequently more likely to be environmentally friendly. We argued that individuals actively balance close others’ moral and immoral behaviors when striving for moral balance, because of the self-other overlap in close relationships (Aron et al., 1991; Goldstein & Cialdini, 2007). Consistent with this, our studies demonstrated that individuals are less likely to show vicarious moral licensing and cleansing effects with non-close others (i.e., when there is less self-other overlap).

Our results contribute to previous research in several ways. First of all, we add to the literature on licensing and cleansing by showing that individuals not only seek balance in their own moral behaviors, but that they also seek balance with those close to them. Concerning close others there thus appears to be an interpersonal moral balancing effect. This is consistent with research that shows that others may be included in the self and may affect one’s moral self-view (e.g., Aron et al., 1991; Kouchaki, 2011). The current research shows that as a result of including close others in the self, individuals also feel the need to balance the moral behaviors of those close to them. Therefore, our results show an important new factor in when and why individuals are likely to behave morally.

Furthermore, in the current research we investigated whether both vicarious licensing and cleansing may be affected by other individuals' behaviors and their degree of closeness whereas most studies investigate moral licensing and moral cleansing effects independently (e.g., Catlin & Wang, 2013; De Witt Huberts et al., 2012; Effron et al., 2009; Khan & Dhar, 2006; Kouchaki, 2011; Mazar & Zhong, 2010; Monin & Miller, 2001; Mukhopadhyay & Johar, 2009; Tetlock et al., 2000; Tiefenbeck et al., 2013; but see Sachdeva et al., 2009; Jordan et al., 2011). Future research could investigate vicarious licensing versus cleansing effects in more details and study whether vicarious licensing effects may be more likely than vicarious cleansing
effects. Ample research has shown individuals’ tendency to be self-serving (e.g., Hastorf & Cantril, 1954; Kunda, 1987; Sanitioso et al., 1990; see also Study 4 - Gino & Galinsky, 2012). In other words, individuals probably like an external source of justification for justifying their immoral behaviors. Therefore, vicarious licensing effects could be more likely than vicarious cleansing effects – since permitting oneself a morally questionable or vice behavior by relying on other individuals’ morally laudable or virtuous choices seems to be more self-serving than compensating for other’s morally questionable or vice behavior by behaving morally laudable or virtuous oneself. Whether this asymmetry exists is an interesting question for future research.

Lastly, we proposed and showed that individuals balance moral (and immoral) behaviors of close others, whereas individuals are less likely to balance the moral and (immoral) behaviors of non-close others. The cross-over interaction in our third study additionally suggested that contemplating non-close others may be more likely to instigate social norm rather than balancing effects. Thinking of a moral non-close other (vs. an immoral non-close other) tended to lead to more rather than less environmentally friendly behavior. This is in line with social norm studies that have consistently shown that the behavior of others influences behaviors of the self such that individuals are likely to behave consistent with those around them (e.g., Cialdini et al., 1990; Goldstein et al., 2008). It thus appears to be the case that individuals balance others’ behavior when there is a large degree of self-other overlap (i.e., a close other) but show social norm effects when there is less self-other overlap (i.e., a non-close other). Although future research is warranted, we suggest that the degree of closeness is thus an important moderator in expecting balancing versus social norms effects in the moral domain.

Conclusion

Individuals are social beings and their behaviors are often influenced by others. Others’ moral behavior may inspire individuals to behave morally and be environmentally friendly (e.g., Gino & Galinsky, 2012; Goldstein et al., 2008). The current studies show that the reverse may also be true such that other’s moral or environmentally friendly behavior may serve as an external source of justification for immoral or environmentally unfriendly behavior. This is especially the case when it concerns close others. For non-close others
these balancing effects are less likely. Feeling close to another person may thus have the downside of feeling vicariously licensed to behave in a morally questionable manner. The other side of the coin is that the immoral behaviors of close others may inspire individuals to ‘make up for it’ by behaving morally. When trying to understand why individuals behave morally questionable it is thus important to not only take in account their own previous behaviors, but also those of close others as individuals are truly social beings.
This chapter is based on:
Media Science Reports Providing Justification

The climate is changing, but media coverage often appears to convey the message that science is one step ahead (e.g., Miller, Tegen, & Perlwitz, 2004; Rosenfeld et al., 2008). For instance, the media report on scientists inventing huge mirrors that will reflect the sunlight to evade the burning sun, on individuals that will live in floating cities when the sea level rises, and on solar powered cars that will crowd the roads by the time that the fossil fuels are exhausted. Research has indeed shown that the popular media often overstate the progress of science and its ability to generate technological advances and provide solutions to pressing problems such as climate change and disease (i.e., a progress frame; e.g., Corbett & Durfee, 2004; Nisbet et al., 2002; Stewart et al., 2009; Weaver et al., 2009). For example, diseases like cancer and HIV are still very difficult to combat, but are regularly portrayed as nearly ‘solved’ problems (Donovan, Carter, & Byrne, 2006). Since lay individuals’ knowledge about science is often based on popular media coverage of science (e.g., Caulfield, 2004; Elliott & Rosenberg, 1987; McInerney et al., 2004; Zimmerman et al., 2001), such a progress frame may affect their views on science as well as subsequent behaviors.
The current paper investigates whether overly optimistic reports on scientific progress might, ironically, contribute to the fact that individuals often fail to be environmentally friendly. Employing compensatory control theory (Kay et al., 2008) as our theoretical framework, we argue that a scientific progress frame functions as an order-providing psychological mechanism (Rutjens et al., 2013). Overstating the progress of science might enhance perceptions of order, which in turn decreases the motivation to engage in environmentally friendly actions. Therefore, media science reports using a progress frame may serve as an external source of justification, and as a result, justify environmentally unfriendly behavior. In the following, we will elaborate upon the theoretical foundations for this prediction.

**Compensatory Control Theory**

Research has shown that individuals are highly motivated to perceive the world as meaningful, orderly, and structured (e.g., Heine, Proulx, & Vohs, 2006; Kay et al., 2008; Kruglanski & Webster, 1996; Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006; Landau et al., 2004; Whitson & Galinsky, 2008). When they perceive the world to be less orderly than desired, they aim to alleviate these feelings of disorder as these are generally thought to be stressful and anxiety inducing (e.g., Kay et al., 2008; Pennebaker & Stone, 2004). Understanding the different ways in which individuals try to maintain perceptions of the world as orderly and controlled forms the basic tenet of compensatory control theory (Kay et al., 2008).

Compensatory control theory argues that individuals have the fundamental motivation to perceive order in the world (Kay et al., 2008). The theory distinguishes two main routes to maintain such order perceptions: *personal* control and *external* control (see also Rothbaum et al., 1982). In the case of personal control, it is the feeling that individuals are able to influence their environment that provides them with the notion of an orderly world. In the case of external control, it is the feeling that an external source (e.g., a God who actively intervenes and exerts control over the world or a powerful government) exerts influence over individuals’ environments and the world in general that provides similar perceptions of an orderly world that is under
control. Personal control and external control thus function as two separate routes to perceiving the world as orderly.

Importantly, compensatory control theory posits that these different routes to orderly world perceptions function in a hydraulic fashion. In other words, a threat to one source of order (e.g., external control) enhances the motivation to affirm an alternative means (e.g., personal control) and thus prevent perceptions of disorder. Kay and colleagues (2008) used an analogy of a full glass that represents sufficient order perceptions to explain this hydraulic nature of external and personal control. To reach the preferred level of order, personal control and external control together should fill up the glass. Strongly affirming an external source of control (e.g., believing in God) will largely fill the glass, leaving only little need to exert personal control. By contrast, when belief in such an external source of control is there to a lesser extent the glass will be far from full, which enhances the motivation to affirm personal control (see Figure 5.1).

Ample research has provided evidence for this hydraulic relation between personal and external control in satiating individuals’ need to perceive order. Specifically, studies have shown that when the controlling abilities of a particular external source are limited (e.g., governmental instability) individuals seek to reaffirm order by exerting (occasionally illusory) personal control or

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Figure 5.1. The figure on the left represents an analogy of compensatory control theory (Kay et al., 2008); a full glass represents sufficient levels of perceived order. When one source of order fluctuates (e.g., decreases), the other does so too (e.g., increases). The figure on the right represents our environmental version of compensatory control theory: when belief in scientific progress fluctuates (e.g., increases), the likelihood to engage in environmentally friendly behavior will fluctuate accordingly (e.g., decreases).
affirming their belief in alternative external sources of control (e.g., God). In a similar vein, when individuals lack personal control, they bolster beliefs in an external source of control to restore order perceptions (e.g., Kay et al., 2008; Kay, Shepherd et al., 2010; Laurin, Kay, & Moscovitch, 2008; Shepherd, Kay, Landau, & Keefer, 2011).

The majority of research sparked by compensatory control theory has shown that compensatory external control is observed in the domains of religious and socio-political beliefs (Kay, Gaucher et al., 2010; Kay et al., 2008; Kay, Shepherd et al., 2010; Rutjens, van der Pligt, & van Harreveld, 2010). Of importance to the current paper, however, is that recent research shows that belief in scientific progress can also function as compensation for low personal control (Rutjens, van Harreveld et al., 2010). This research showed that experimentally lowering personal control increases the tendency to defend the notion of progress, and generally increased faith in scientific and technological advances. Below we will elaborate on belief in scientific progress as an external source of control.

**External Control: Scientific Progress**

Scientific progress can be viewed as proof of humanity’s increasing ability to exert control over the world. Bolstering belief in scientific progress can therefore provide order (Rutjens, van Harreveld et al., 2010). A simple example would be the advances made in the medical and environmental sciences, which help to solve previously uncontrollable problems (e.g., natural disasters, disease). By being able to solve these problems, science as an institution exerts control over the world, and thus it could be argued that it functions as an external source of control that helps to maintain order perceptions. This suggests that the more one endorses science as an external source of control, the more order one perceives in the environment.

Whereas the research by Rutjens et al. (2010) showed that lowering personal control enhances belief in scientific progress, it did not yet provide evidence for the extent to which this belief actually helps to maintain order perceptions. Nor that, as a (hydraulic) consequence, this belief in scientific progress may reduce the motivation to exert personal control. In other words, evidence for the functional value of belief in science has not yet been reported.
In the current research, we aim to provide such evidence, and contend that the progress frame often used by media when communicating about science will affirm individuals’ belief in science and thus enhance order perceptions. Based on the hydraulic nature of compensatory control theory (Kay, Shepherd et al., 2010), we expect that this consequently lowers individuals’ need to engage in personal action. Related to this idea, recent research in the domain of religious compensatory control has observed that when individuals are reminded of a controlling God, their motivation to actively pursue goals is undermined (Laurin, Kay, & Fitzsimons, 2012). By contrast, when scientific progress is tempered and science thus does not provide a potent source of external control, feelings of order should come from elsewhere. One way to fill the glass (see Figure 5.1) and restore order perceptions would be to exert personal control. In sum, we posit that the way the media portrays science has effects on the extent to which individuals feel the need to exert personal control. Importantly, we argue that – in the context of environmental challenges and natural threats – one way to regain a feeling of personal control is through environmentally friendly behavior. Science communication might therefore have detrimental or beneficial effects on environmentally friendly behavior, depending on whether scientific progress is affirmed or tempered.

**Personal Control: Environmentally Friendly Behavior**

As pointed out before, besides endorsing external sources of order, another way to cope with the aversive experience of disorder is to affirm a sense of personal control. When individuals experience personal control, they feel that they are able to predict and influence their environment. The events in their lives, no matter whether they are positive or negative, are perceived to be caused by their own actions. This instills the belief that individuals live in a sense-making world in which events do not just happen haphazardly (Kay et al., 2008).

We posit that one way to restore order is to reaffirm personal control by being environmentally friendly, because – in the context of environmental challenges and natural threats – such behaviors boosts feelings of personal control through self-action. Engaging in environmentally friendly behavior will provide individuals with the perception that they are able to influence
outcomes in the world. Therefore, being environmentally friendly may work as an order-providing mechanism and thus help to alleviate feelings of disorder. There is some indirect evidence suggesting that such behavior enhances perceptions of order; a recent study shows that individuals tend to engage in pro-social behavior when the notion of an orderly world is threatened (Banfield, 2011). The idea is that behaving in a pro-social manner restores order because individuals experience personal control through influencing a certain outcome. We contend that being environmentally friendly will similarly give individuals a notion of order. Therefore, we expect that individuals will be more likely to engage in environmentally friendly behavior when they perceive disorder in the world, for example when external sources of control (e.g., belief in scientific progress) are threatened.

In sum, based on the basic tenet of compensatory control theory that personal and external feelings of control are substitutable (Kay, Shepherd et al., 2010) we contend that a strong belief in scientific progress (i.e., external control) and engaging in environmentally friendly behavior (i.e., personal control) are two substitutable sources of order. We hypothesize that media reports portraying science as rapidly progressing may have disadvantageous side-effects for environmentally friendly intentions and behavior. Since desired levels of order are already met through the endorsement of an external source of order (i.e., science), exerting personal control (i.e., being environmentally friendly) becomes less necessary.

Returning to compensatory control theory’s glass analogy, when belief in scientific progress is affirmed the glass is largely filled by external control, see Figure 5.1. This reduces the need to exert personal control. Therefore, communicating about science in a way that it appears infallible and rapidly progressing may cause inertia as individuals may use this as an external source of justification, justifying their environmentally unfriendly behaviors. By contrast, tempering scientific progress should lead to a relative increase in environmentally friendly intentions and behaviors. Since optimal levels of order are not provided by an external source of control, the motivation to exert personal control through environmentally friendly behavior is enhanced.
Overview of studies

We conducted four studies to experimentally test our environmental compensatory control hypothesis (see Figure 5.2). We began by examining whether reading a newspaper article that affirms (versus tempers) belief in scientific progress increases feelings of order (Study 5.1). In Study 5.2, we investigated whether implicitly priming order (versus disorder) perceptions, decreases the need to exert personal control by making environmentally friendly choices. In Study 5.3, we sought to demonstrate that being environmentally friendly indeed boosts feelings of personal control (i.e., can be seen as a way to exert control and therefore enhance generalized feelings of control). In our fourth and final study, we replicated and extended Studies 5.1 and 5.2 by testing our main hypothesis that communication affirming scientific progress enhances feelings of order and therefore reduces environmentally friendly attitudes, intentions, and behaviors. In other words, individuals may use the feeling that science has everything under control as an external source of justification, making environmentally friendly behaviors less likely. By contrast, when media look more critically at the power of science and communicate the limits of progress, this decreases feelings of order and therefore increases environmentally friendly attitudes, intentions, and behaviors. In other words, individuals are then unable to use the feeling that science has everything under control as an external source of justification, making environmentally friendly behaviors more likely.

Figure 5.2. Overview of the current research.
Study 5.1: Progress frame providing feelings of order

In this study, we tested whether participants whose belief in the progress of science was affirmed by reading a counterfeit newspaper article employing a progress frame were more likely to perceive order than participants whose belief in the progress of science was tempered by reading a counterfeit newspaper article.

Method

Participants and Design. One hundred and three university students ($M_{age} = 19.57$, $SD_{age} = 3.04$, 78.6% female) participated in the study in exchange of a monetary reward or partial course credit. The participants were randomly assigned to one of two conditions (newspaper article: affirmed versus tempered belief in scientific progress) of a between-subjects design. One participant only partially completed the questionnaire without answering the target measures and was therefore not included in the analyses.

Procedure. Participants were seated in individual cubicles and received a questionnaire booklet that ostensibly consisted of several unrelated questionnaires. They were asked to read all the instructions carefully and to ask for help if they had any questions. Participants first read a newspaper article about the progress of science, after which they completed a questionnaire on perceptions of order.

Belief in scientific progress manipulation. We created two counterfeit newspaper articles to manipulate belief in scientific progress. These articles were identical in length (420 words). Moreover, the lay-out and writing style were modeled after articles of a popular news website, such that they appeared to be regular newspaper articles downloaded from the internet. In the affirmed belief in scientific progress condition, we stressed that science progresses rapidly. The article described how diseases that used to have disastrous consequences, like tuberculosis, are now more easily combated. Furthermore, it described how the treatments for potential deadly diseases like HIV and cancer are improving and how science provides solutions for problems like climate change by inventions such as electric cars and floating cities.

In the tempered belief in scientific progress condition, we stressed that while scientific progress does occur, its pace is often insufficient to provide solutions to urgent problems. The article described how diseases that used to
have disastrous consequences, like tuberculosis, are now more easily combated, just like in the affirmed belief condition. However, the article stressed that although the treatments for potential deadly diseases like HIV and cancer are improving, these diseases are still hard to combat. Moreover, it was posited that although science is starting to provide initial solutions for climate change issues, these solutions do not yet suffice. For example, electric cars still require energy and therefore still contribute to climate change.

**Dependent measures.** After reading one of the newspaper articles, the participants completed a questionnaire that included several items measuring perceptions of order, a manipulation check item, and several filler items. All items were measured on a scale from 1 (*completely disagree*) to 7 (*completely agree*). To verify that our manipulation of a tempered versus affirmed belief in scientific progress was effective, we measured participants’ belief in science with the item: *to what extent do you think science is capable of solving climate-related problems?* Participants’ perceptions of order were measured by the following items: *to a great extent my life is controlled by accidental happenings and our lives are ruled by randomness* (reverse coded – see Kay et al., 2008), $r = .56$, $p < .001$. After completing the questionnaires, participants were thanked for their participation and debriefed.

**Results and Discussion**

Results of a one-way ANOVA indicated that we successfully manipulated belief in scientific progress; participants who read the article that affirmed belief in scientific progress believed more strongly in the ability of science to solve climate-related problems ($M = 5.24$, $SD = 1.06$) than participants who read the article that tempered belief in scientific progress ($M = 4.85$, $SD = 0.89$), $F(1, 100) = 4.12$, $p = .045$, $\eta^2_p = .04$.

Next, we averaged the scores on the two order items into an index and used this as the dependent variable in an ANOVA, which yielded a significant effect of condition, $F(1, 100) = 6.88$, $p = .010$, $\eta^2_p = .06$. As expected, participants who read the newspaper article which tempered belief in scientific progress experienced lower feelings of order ($M = 3.99$, $SD = 1.04$) than participants who read the newspaper article which affirmed progress ($M = 4.51$, $SD = 0.96$). Study 5.1 thus shows that reading a newspaper article that affirms
belief in scientific progress heightened feelings of order compared to reading a
ewspaper article that tempers belief in scientific progress. The study thus
provides initial evidence for the idea that employing a progress frame in science
communication increases belief in scientific progress, which comprises an
effective external source of control that enhances perceptions of order.

Study 5.2: Order and environmentally unfriendly behavior
In a second study we investigated the relationship between order and
environmentally friendly behavior. Therefore, we built on the results of Study
5.1 and investigated whether directly priming feelings of order lowers
environmentally friendly intentions, compared to directly priming feelings of
disorder.

Method
Participants and design. One hundred and seven participants (M_{age} =
19.86, SD_{age} = 2.17, 73.8% female) participated in the study in exchange for a
monetary reward or partial course credit. They were randomly assigned to one
of two conditions (order versus disorder) of a between-subjects design. One
participant inaccurately completed the priming task that was used to
manipulate order and therefore could not be included in the analyses.

Procedure. Participants came into the lab for a series of unrelated
experiments and completed our questionnaire on a personal computer.
Participants first completed a scrambled sentence task (Srull & Wyer, 1979)
that either primed the concept of order or disorder (Kay, Moscovitch, &
Laurin, 2010). Participants unscrambled sixteen word sets, each set consisting
of five words of which four words had to be used to form a sentence. Eight
word sets were related to order or disorder (depending on condition). In the
order condition, participants unscrambled word sets such as the orderly door
meeting proceeds (the meeting proceeds orderly), whereas in the disorder condition
these were sets such as the chaotically door meeting proceeds (the meeting proceeds
chaotically).

Next, participants read that a research institute affiliated with their
university was interested in students’ opinions regarding environmental issues.
This comprised the dependent measure that tapped into environmentally
friendly attitudes (e.g., we have to take the greenhouse effect seriously) and behavioral intentions (e.g., the next time it is cold inside I will turn up the thermostat rather than put on a sweater – reverse coded) consisting of twelve items on a seven point-scale ranging from 1 (completely disagree) to 7 (completely agree), $\alpha = .80$. Finally, participants were thanked and debriefed.

Results and Discussion

We averaged the scores on the attitudes and behavioral intentions items into an index and used this as the dependent variable in an ANOVA. As expected, participants who unscrambled the order sentences displayed less positive environmental attitudes and intentions ($M = 4.97, SD = 0.87$) than participants who unscrambled the sentences concerning disorder ($M = 5.35, SD = 0.76$), $F(1, 104) = 5.78, p = .018, \eta_p^2 = .05$. Study 5.2 thus supports our hypothesis that activating feelings of order (vs. disorder) enhances the likelihood of making environmentally friendly choices.

Study 5.3: Environmental behavior providing feelings of personal control

Study 5.2 confirmed that individuals are less likely to make environmentally friendly choices when confronted with order compared to disorder. As elaborated upon in the introduction, we suggest that disorder perceptions increase environmentally friendly behavior because engaging in such behavior boosts feelings of personal control through self-action. In Study 5.3, we therefore investigated whether engaging in environmentally friendly behavior can be understood as an order-providing mechanism, by directly testing whether making environmentally friendly choices boosts individuals’ generalized feelings of personal control.

Method

Participants and design. Fifty-eight university students ($M_{age} = 21.02, SD_{age} = 2.40, 59.6\%$ female) participated in the study in exchange for a monetary reward. They were randomly assigned to one of two conditions (order of tasks: environmentally friendly behavior first versus personal control first) of a between-subjects design. One participant failed to follow instructions and was excluded from the analyses.
**Procedure.** Participants came to the lab for a series of unrelated experiments and completed our questionnaire on a personal computer. We balanced the order of the following tasks: a task concerning environmentally friendly choices and a questionnaire measuring personal control. So, half of the participants first completed two tasks on environmentally friendly behavior and then completed a questionnaire on generalized perceptions of control, whereas the other half first completed a questionnaire on perceptions of control and then completed two tasks on environmentally friendly behavior. By reversing the task order, we provided half of the participants with the chance to be environmentally friendly prior to reporting levels of perceived levels of personal control, whereas the other half was not provided with this chance. This enabled us to test our hypothesis that performing environmentally friendly behavior enhances perceptions of personal control.

**Environmental behavior tasks.** Participants read that a research institute interested in students’ opinions regarding environmental issues. Participants completed the same measures of environmentally friendly attitudes and intentions used in Study 5.2, $\alpha = .75$. Participants then completed a task in which they imagined managing a manufacturing plant that pollutes the air via smokestacks (Sachdeva et al., 2009; see also Tenbrunsel & Messick, 1999). In order to prevent the release of pollutants they could run filters at monetary costs. Under pressure from environmental lobbyists all manufacturing plants agreed with the lobbyists to run the filters at 60% of the time (at a cost of €1.2 million). The participants were told that they could stick with this agreement but could also choose to run the filters for any 10% interval between 0% and 100%, with each incremental step costing €0.2 million. The more often the filters would run the better this would be for the environment, but also the higher the financial costs.

**Personal control questionnaire.** We measured generalized feelings of personal control with the items ‘are you the actor in, or the director of, your own life?’, ranging from 1 (actor) to 7 (director), and ‘to what extent do you feel that you can control what happens in your life?’, ranging from 1 (not at all) to 7 (totally), $r = .58$, $p < .001$ (Rutjens, van der Pligt et al., 2010). The task measuring feelings of personal control was disguised as a separate study and also contained some filler items.
Results and Discussion

As expected, the results of an ANOVA showed that the order of tasks had a significant effect on participants’ reported feelings of personal control, $F(1, 55) = 4.15, p = .046, \eta^2 = .07$. Participants who first engaged in the environmental tasks experienced higher levels of personal control ($M = 5.23, SD = 1.03$) than participants who first completed the questionnaire regarding personal perceptions of control ($M = 4.62, SD = 1.22$). In other words, participants who engaged in environmentally friendly behavior experienced higher levels of general personal control than participants who did not have the chance to engage in environmentally friendly behavior. This implies that behaving in an environmentally friendly way indeed boosts more general perceptions of personal control.

Finally, we checked whether the extent to which participants expressed their environmentally friendly attitudes and intentions and engaged in environmentally friendly behavior differed between the two conditions. As expected, there were no differences of task order on expressing environmentally friendly attitudes and intentions, $F < 1$, nor in engaging in environmentally friendly behavior, $F < 1$.

Study 5.4: Progress frames providing justification

So far, our studies show that reading a newspaper article affirming (versus tempering) belief in scientific progress increases perceptions of order (Study 5.1) and that implicitly priming order (versus disorder) decreases the intention to engage in environmentally friendly behavior (Study 5.2). Furthermore, we observed that being environmentally friendly boosts perceptions of personal control (Study 5.3) – which is one route to maintaining order perceptions according to compensatory control theory (Kay et al., 2008). In our final study, we conducted a full test of our hypothesis that media reports affirming scientific progress enhance feelings of order and consequently reduce environmentally friendly attitudes, intentions, and behaviors, whereas media reports tempering scientific progress diminish feelings of order and consequently heighten environmentally friendly attitudes, intentions, and behaviors. Thus, in Study 5.4, we investigated whether the effects of reading a newspaper article that affirms (vs. tempers) scientific progress on
environmentally friendly behavioral intentions is mediated by perceptions of order.

Method

Participants and design. Forty three university students ($M_{age} = 24.68$, $SD_{age} = 6.91$, 70.7% female) participated in the study in exchange for a monetary reward. They were randomly assigned to one of the conditions (newspaper article: affirmed versus tempered belief in scientific progress) of a between-subjects design. Two extremes (i.e., multivariate outliers) were excluded based on the Mahalanobis Distance method (Pallant, 2001; Tabachnick & Fidell, 2007).

Procedure. Upon arrival in the lab participants received a paper-and-pencil questionnaire that ostensibly consisted of several unrelated questionnaires. Participants first read one out of two counterfeit newspaper articles concerning the progress of science. In one condition the progress of science was affirmed whereas in the other condition the progress of science was tempered (see Study 5.1). Next, participants were asked to complete a questionnaire that measured order perceptions with the item *our lives are ruled by randomness* (reverse coded, see Kay et al., 2008), on a seven-point scale from 1 (*completely disagree*) to 7 (*completely agree*). Hereafter, participants answered six items measuring environmentally friendly attitudes and behavioral intentions (e.g., *I intend to wash my clothes at a lower temperature for the sake of the environment; I believe waste sorting is unnecessary* – reverse coded) that were measured on a seven-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*), $\alpha = .79$.

Next, participants continued with an additional task pertaining to environmental consumer behavior. Previous research has shown that consumers associate organic products with caring for the environment and that environmental consumers are more likely to purchase organic products (Sparks & Shepherd, 1992; Tacken et al., 2007; Thøgersen & Ölander, 2003). Therefore, we operationalized environmentally friendly consumer behavior by measuring the number of organic food items that participants chose in this task. Participants were asked to imagine that they are shopping at a grocery shop that was unknown to them. They were asked to look at six product categories (e.g.,
spinach and beans). For each category, they were instructed to choose one product out of three available options. One of the options was always an organic, environmentally friendly option. Lastly, participants were thanked and debriefed.

Results and Discussion

Disorder. First, we replicated the results of Study 5.1 that shows that affirming (vs. tempering) belief in scientific progress heightens perceptions of order. An ANOVA showed that participants who read a newspaper article affirming scientific progress experienced stronger feelings of order ($M = 4.86$, $SD = 0.73$) than participants who read a newspaper article that tempered belief in scientific progress ($M = 3.90$, $SD = 1.17$), $F(1, 39) = 10.06$, $p = .003$, $\eta^2_p = .21$.

Environmentally friendly attitudes and intentions. Next, we averaged the scores on the attitudes and intentions items into an index and used this as the dependent variable in an ANOVA, which yielded a significant effect, $F(1, 39) = 9.40$, $p = .004$, $\eta^2_p = .19$. As expected, participants who read an article affirming belief in scientific progress displayed less environmentally friendly attitudes and intentions ($M = 5.11$, $SD = 0.95$) than participants who read an article tempering belief in scientific progress ($M = 5.93$, $SD = 0.73$). Hereafter, we assessed whether feelings of disorder mediate the effect of belief in scientific progress on environmentally friendly attitudes and intentions. We performed a mediation analysis and computed three regression equations (see Figure 5.3). A bootstrapping analyses with 5000 samples (see Preacher & Hayes, 2004) confirmed mediation through feelings of disorder (indirect effect = .26, $SE = .14$, 95% confidence interval = .039 to .624). This result confirms our hypothesis that communication that tempers (vs. affirms) belief in scientific progress increases environmentally friendly behavior via perceptions of disorder.

Organic food preference. We added the number of organic products that participants chose in the grocery shopping task and entered this as a dependent variable in ANOVA, which revealed a marginally significant effect, $F(1, 39) = 3.91$, $p = .055$, $\eta^2_p = .09$. Participants who read an article affirming belief in scientific progress chose less organic products ($M = 1.95$, $SD = 1.63$) than participants who read an article tempering belief in scientific progress ($M$
The amount of environmentally friendly products that participants chose correlated significantly with participants’ environmentally friendly attitudes and intentions, $\beta = .31, p = .0486$.

General Discussion

Although most individuals understand the importance of environmentally friendly behavior, they generally appear to have difficulty putting this into practice (Dunlap, Gallup, & Gallup, 1993; Meijers & Van Dam, 2012; Tanner & Kast, 2003). The current research demonstrates that one explanation for this lies in the way science communication is framed. A strong focus on a rapidly progressing science that has the potential to provide solutions to pressing problems negatively affects environmentally friendly intentions and behavior, as it may provide individuals with an external source of justification. By contrast, tempering scientific progress results in a relative increase in disorder perceptions, which in turn triggers the motivation to

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$^6$ Although the main effect of belief in scientific progress on organic food preference was marginal, we tested whether order might (partially) mediate this effect, similar to the mediation effect on attitudes and intentions. This was not the case; a bootstrapping analysis with 5000 samples revealed an indirect effect of .13 (CI -.89 to .45). This lack of mediation might be due to the main effect of condition that was marginal, which might have been caused by a) low sample size; DV consisting of series of nominal choices b) participants having already affirmed their intentions on the previous task.
restore order via personal actions such as engaging in environmentally friendly behavior.

The current results complement recent research on how environmentally friendly behavior may be influenced by communication (see e.g., Feinberg & Willer, 2011; Gifford & Comeau, 2011; Nisbet & Mooney, 2007; Rabinovich, Morton, & Birney, 2011; Ter Mors, Weenig, Ellemers, & Daamen, 2010). Research has, for example, shown that perceptions of the scientific agenda when communicating about climate change influence individuals’ willingness to perform environmentally friendly behaviors and that the way climate change is framed influences engagement in environmental issues (O’Neill & Nicholson-Cole, 2009; Rabinovich et al., 2011). Our paper advances knowledge on the effects of (science) communication by showing that the often employed progress frame negatively impacts on individuals’ environmentally friendly attitudes, intentions, and behaviors.

So far, most research has focused on the effects of science communication on individuals’ attitudes and beliefs toward science (Hwang & Southwell, 2009). How individuals’ beliefs about science affect their subsequent behaviors has, however, been largely unstudied. The current research fills this gap by showing that beliefs about scientific progress influence environmentally friendly behavior. Second, this paper underpins the importance of investigating how media and science communication affect individuals’ environmentally friendly behavior. There is not much known yet on how science-related uncertainties and contradictions influence individuals’ environmentally friendly attitudes and behaviors (but see e.g., Lewandowsky, Gignac, & Vaughan, 2013; Morton et al., 2011). It could be argued that media reports on contradictory scientific results and even fraud might decrease individuals’ belief in science as an institution, which in turn increases feelings of disorder and – somewhat ironically – the likelihood of engaging in environmentally friendly behavior. Alternatively, it could also be the case that such reports increase skepticism and perhaps even a disregard for science all together (Gleick et al., 2010). As a consequence, this might undermine the idea that environmentally friendly behavior is necessary in the first place and therefore decrease environmentally friendly behavior – especially among the scientific illiterate (Nisbet et al., 2002). This poses an interesting question for future research.
The current paper also contributes to the understanding of order motivation and compensatory control. First, it shows that affirming belief in an external source of control has a downside in the sense that individuals are less likely to take control themselves; they become more passive. It is plausible that this is not only the case for a strong belief in scientific progress, but also holds in the context of strong beliefs in God, government, and other external agents or institutions that may provide order (Laurin et al., 2012). Therefore, it may be interesting for future research to investigate how a strong belief in governmental institutions could affect the motivation to exert personal control over outcomes in a wide range of domains. Other types of personal action in different domains are likely to increase feelings of control as well.

At the same time we believe that environmentally friendly behaviors and pro-social behaviors in general are particularly potent providers of control. For example, as Banfield (2011) has argued and shown in her research, these behaviors give individuals the possibility to influence not only an outcome in their personal life but also instill the notion that they can exert control over their environment. This sense of being able to influence or alter the environment likely renders such behaviors especially suitable for providing individuals with a sense of control over outcomes. Moreover, it is likely that the substitutability of personal and external control is strongest when these concern similar domains, as is the case with environmentally friendly behavior and scientific progress. Second, this research is among the first to provide evidence for the functional value of affirming external sources of order (i.e., whether it actually helps to enhance perceptions of order; Rutjens et al., 2013). Notably, the psychological value of affirming external control (enhanced order perceptions) is accompanied by inertia.

Finally, our research complements other work that documents variables that have ironic effects on environmentally friendly behaviors (such as recent work suggesting that validating the purchase of green products hampers subsequent green behaviours; Meijers, Noordewier, & Avramova, 2013). Previous research mainly showed how internal sources may serve as a justification for environmentally unfriendly behavior. For example, how individuals’ previous environmentally friendly behaviors may ironically justify environmentally unfriendly behaviors (see Chapter 2 and 3 of this dissertation). Our research shows that also external sources (such as the
progress of science as depicted in media reports) may serve as a justification for environmentally unfriendly behaviors and therefore impair environmentally friendly behavior.

Alternative Explanations

It could be argued that there are alternative explanations for our results, particularly those of Studies 5.1 and 5.4. When individuals learn about science progressing at a rapid rate they might simply infer from this information that their personal actions against climate change are redundant as the problem is beyond their control. Such an explanation would converge with previous research in the domain of compensatory control theory, which has shown that belief in a controlling God leads to decreases in active goal pursuit (personal action; Laurin et al., 2012) because outcomes are influenced by God and are therefore perceived to be beyond the individual’s control. Other research also has shown that individuals experience a reduced sense of personal agency when being primed with God (Dijksterhuis, Preston, Wegner, & Aarts, 2008). It could thus be the case that our participants outsourced responsibility to science when they learned about rapid progress because they perceive the environmental problem to be beyond their control.

We, however, deem this alternative explanation less likely than our hypotheses concerning order and justification. In Study 5.1, one of our filler items was a question regarding how much individuals think they themselves can contribute to a better environment. In contrast to the alternative hypothesis, we observe that participants in both conditions (e.g., science is progressing rapidly versus science is progressing rapidly but is not there yet) feel they are able to influence the environment to the same extent7. So, we believe that it is unlikely that individuals feel their behavior becomes redundant because they perceive the problem as beyond their control, instead, they no longer feel the need to exert personal control as order perceptions are already met – which they therefore may use as a justification. This is also supported by our results in Study 5.2 and 5.3 and the results of the mediation analysis in Study 5.4.

7 Affirmed (M = 5.40, SD = 1.07) versus tempered belief in scientific progress (M = 5.15, SD = 1.13), F(1, 101) = 1.31, p = .255.
Multiple Motives

We do not argue that a fulfilled need for order in itself provides individuals with a justification for environmentally friendly behaviors. Instead, we argue that these two motives (justification and need for order) together may provide an explanation for individuals’ environmentally unfriendly behaviors. Importantly, they do appear to be interrelated. Consider the example of rapid progress in science that helps in finding solutions to environmental problems, however, these solutions come with potentially hazardous consequences and the potential for disorder and chaos (e.g., rapid technological advances in the domain of genetically modified food or nuclear energy). In this case, science will unlikely function as an external source of control, but also will be unlikely to function as an external course of justification – albeit for different, but related, reasons.

If the progress of science potentially creates disorder, it unlikely functions as an external source of control, as it does not help fulfill the motivation of order. Similarly, if the progress of science potentially comes with hazardous consequences the environment, it unlikely functions as an external source of justification, as this does not appear to be a valid source for justification. Although individuals appear to be able to use all sorts of justifications, even irrational ones, they do require to be valid reasons (Shafir et al., 1993). So, if science progresses rapidly, but this comes with negative consequences it would not sufficiently help the environment in the end. Therefore, it would be unlikely that individuals will be able to justify their environmentally unfriendly behaviors by such an external source of justification.

It would be interesting for future research to pull these two different motives (justification and order) for environmentally unfriendly behaviors apart. Based on our results in Chapter 3 (i.e., individuals with a strong environmental self-identity do not show justification effects), it could be argued that media reports using a progress frame will not decrease individuals’ environmentally friendly behaviors when individuals have a strong environmental self-identity. So, even if for individuals with an environmental self-identity order motivations would be fulfilled by media science reports, they would still perform environmentally friendly behaviors as they are unlikely to
use it as a source of justification. In this way, the differential effects of these two distinct motivations could be investigated.

As we stated in the introduction of this dissertation, individuals may use sources of justification flexibly to be able to justify their desired behavior (Hsee, 1995; Kunda, 1987 - see also De Witt Huberts, Evers, & De Ridder, 2014). Previous research suggests that potentially everything could function as a justification, even trivial or irrational reasons (De Witt Huberts et al., 2014; Shafir et al., 1993). It is important though that the justifications sound plausible and valid (Shafir et al., 1993), therefore we believe there may be constraints on using justifications. In Chapter 3, we showed that there may be personal constraints to this, as individuals with a strong environmental self-identity do not use a justification for environmentally unfriendly behavior. Similarly, in the current chapter, we show that there may be situational constraints to using justifications: not every potential source indeed justifies environmentally unfriendly behaviors; it should be a valid source of external justification. Investigating in more detail the personal and situational constraints of justifying environmentally friendly behaviors appears a promising endeavor for future research.

Conclusion

Our results have important practical implications for understanding how environmentally friendly behavior can be increased and encouraged. When media outlets paint a picture of omniscient science and unconditional and ongoing progress, individuals may use this as an external source of justification for environmentally unfriendly behavior. Instead, looking more critically at the power of science and the limits of progress could – somewhat ironically – encourage individuals to take matters in their own hands and make environmentally friendly choices.
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Door klimaatveranderingen ontstaat er droogte in Afrika en zijn er tegelijkertijd overstromingen in Azië, veel dieren worden met uitsterven bedreigd en de luchtvervuiling en afvalbergen nemen toe (Asia, Jegede, Jegede, Ize-Iyamu, & Akpasubi, 2007; Boko et al., 2007; Cruz et al., 2007; Kelly et al., 2009; Levin et al., 2010; Moore & Dwyer, 1974; Osuji, Adesiyan, & Obute, 2004; Rosenfeld et al., 2008; Thomas et al., 2004). Deze milieuproblematiek wordt grotendeels door de mens veroorzaakt en om deze problemen tegen te gaan, is het van belang dat het gedrag van mensen gaat veranderen (Barnett et al., 2008; Karl & Trenberth, 2003; Santer et al., 2007; Weber & Matthews, 2008). Het idee dat er iets gedaan moet worden, vindt steeds meer gehoor. Bedrijven, overheden en natuurbeschermingsorganisaties proberen dan ook mensen te overtuigen om zich milieuvriendelijker te gedragen.

milieuvriendelijke producten en initiatieven, zoals kleding van gerecyclede PET-flessen en het gebruik van biologisch katoen. Mensen worden dus op verschillende manieren gestimuleerd zich milieuvriendelijk te gedragen. De vraag is echter of deze initiatieven echt effectief zijn. Mensen zullen zich misschien eenmalig milieuvriendelijk gedragen, maar leidt het ook tot langdurig milieuvriendelijk gedrag?

In dit proefschrift laten we zien dat langdurig milieuvriendelijk gedrag niet altijd zo vanzelfsprekend is. Zoals mensen excuses weten te vinden om vandaag niet te hoeven sporten (“omdat het regent”) of toch dat koekje te pakken (“omdat het weekend is”), weten ze ook excuses te vinden om zich niet milieuvriendelijk te hoeven gedragen. Het kopen van een milieuvriendelijk shirtje van gerecyclede PET-flessen kan bijvoorbeeld als excuus dienen om de milieuvriendelijke keuze te maken om met de auto in plaats van de bus te gaan.


**Milieuvriendelijk gedrag**

Met milieuvriendelijk gedrag bedoelen we gedrag dat de natuur en het milieu zo min mogelijk belast of zelfs ten goede komt (Steg en Vlek, 2009). Voorbeelden zijn afval scheiden, groene energie gebruiken en het openbaar vervoer nemen in plaats van de auto. Al deze handelingen zijn minder schadelijk voor het milieu dan hun alternatieven. Er zijn echter ook voorbeelden die niet zo duidelijk onder het kopje milieuvriendelijk te scharen.
zijn, zoals de aankoop van biologisch vlees. Aan de ene kant is het milieuveenvriendelijker, omdat het veevoer geen chemicaliën bevat en duurzamer, omdat de dieren een beter leven zouden hebben. Aan de andere kant is het minder milieuvriendelijk, omdat de koeien langer leven en er daarom meer veevoer verbouwd moeten worden en de koeien meer CO₂ produceren. Is het kopen van biologisch vlees dus milieuvriendelijk gedrag of niet? In dit proefschrift beschouwen wij het als milieuvriendelijk gedrag, omdat mensen het zien als milieuvriendelijk gedrag (Sparks & Shepherd, 1992; Tacken et al., 2007; Thøgersen & Ölander, 2003). Kortom, in dit proefschrift nemen we een bredere definitie van milieuvriendelijk gedrag en definiëren het als gedrag dat minder schadelijk voor het milieu is of als minder schadelijk voor het milieu gezien wordt. De reden voor deze bredere definitie is dat gedragingen die strikt genomen niet milieuvriendelijk zijn, toch ook milieuvriendelijk gedrag kunnen rechtvaardigen, omdat ze als milieuvriendelijk gezien worden.

Maar waarom zouden mensen zich milieuvriendelijk willen gedragen? Een van de redenen is dat milieuvriendelijk gedrag niet altijd de gemakkelijkste weg is. Zo is milieuvriendelijk gedrag vaak duurder (denk maar aan de extra kosten die biologische producten met zich meebrengen) en minder comfortabel (de trein nemen duurt vaak langer dan de auto nemen en afval scheiden kost meer moeite dan alles in een grote zak gooien). Daarnaast zijn de effecten van milieuvriendelijk gedrag vaak pas waarnembaar op de lange termijn. Om het nog gecompliceerder te maken, is het ook nog vaak zo dat het duurzame gedrag van één persoon geen zoden aan de dijk zet. In plaats daarvan moeten grote groepen mensen hun gedrag veranderen. Wanneer één persoon besluit de auto te laten staan, zal dit geen grote veranderingen teweeg brengen, zowel op korte als lange termijn niet. Het komt er dus op neer dat wanneer het om duurzaam gedrag gaat, mensen vaak moeten kiezen tussen iets dat ze zelf nu willen, of iets dat ze voor anderen willen op de lange termijn. (Fujita et al., 2013; Lindenberg & Steg, 2007; Van Dam & Fischer, 2013). Ter illustratie, Hennie kan op een frisse ochtend besluiten een korte, koude douche te nemen voor een beter milieu, of een lekker, lange, warme douche, waar ze nu zelf meteen blij van wordt. Aangezien milieuvriendelijk gedrag met enige regelmaat aantrekkelijker is, is het voor mensen ook aanlokkelijker dit milieuvriendelijke gedrag te vertonen, vooral wanneer ze het kunnen rechtvaardigen.
Rechtvaardigingen

Onderzoek suggereert dat wanneer mensen voor zichzelf willen kiezen in plaats van voor het milieu, ze een soort van excuus of rechtvaardiging nodig hebben (Miller & Effron, 2010; Sachdeva et al., 2009; Tiefenbeck et al., 2013). Milieuvriendelijk gedrag wordt namelijk vaak als iets goeds gezien en mensen willen zichzelf ook als een goed persoon zien (e.g., Bratanova et al., 2012; Mazar et al., 2008; Schmuck & Schultz, 2002; Schwartz, 1992; Steele, 1988; Stern et al., 1999). Dus wanneer mensen in conflict zijn met zichzelf over of ze zich wel of niet milieuvriendelijk zullen gedragen, zullen ze voor de (aantrekkelijkere) milieuonvriendelijke optie gaan, maar alleen als ze het kunnen rechtvaardigen (Hsee, 1995; Kunda, 1987; Okada, 2005; Shafir et al., 1993; zie ook De Witt Huberts, Evers, & De Ridder, 2014).

Neem ter illustratie het volgende voorbeeld: John en Hennie hebben hun verjaardag gevierd. De volgende ochtend moet John snel naar zijn werk, dus Hennie ruimt het huis op. Ze stopt al het inpakpapier in de papieren doos. Dan verzamelt ze de lege flessen in een krat en stopt ze de plastic flesjes en bakjes in de Plastic Heroes zak. Tot slot loopt ze de tuin in om het groenafval weg te gooien. Ze is even bezig geweest, maar al het afval is netjes gescheiden en het huis ziet er weer tip top uit. Vervolgens realiseert Hennie zich dat ze nog even iets in de winkel moet halen. Normaal gesproken zou ze de fiets nemen, maar vandaag neemt ze de auto, want heeft ze zich vandaag niet al milieuvriendelijk genoeg gedragen?

Dit voorbeeld illustreert hoe mensen soms hun milieuonvriendelijke gedrag rechtvaardigen aan de hand van hun eerdere milieuvriendelijke gedrag. Het milieuvriendelijke gedrag van mensen kan zo vreemd genoeg leiden tot milieuonvriendelijk gedrag. Hoe iemands eerdere (milieuvriendelijke) gedrag kan leiden tot milieuonvriendelijk gedrag hebben we onderzocht in Deel I van dit proefschrift (Interne rechtvaardiging).

Deel I: Interne Rechtvaardiging

In Hoofdstuk 2 en 3 hebben we onderzocht hoe iemands morele gedrag kan leiden tot milieuvriendelijk gedrag. Hierbij bouwden we voort op onderzoek dat laat zien dat wanneer iemand moreel gedrag vertoont, dit als een rechtvaardiging kan dienen voor minder moreel wenselijk gedrag (e.g., De Witt Huberts et al., 2012; Effron et al., 2009; Effron et al., 2013; Khan & Dhar,
2006; Mazar & Zhong, 2010; Merritt et al., 2012; Merritt et al., 2010; Miller & Effron, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). Zo laat onderzoek zien dat wanneer mensen aangeven voor Obama te zullen gaan stemmen (waarmee ze indirect laten zien dat ze niet racistisch zijn aangezien ze voor een gekleurde president kiezen), ze zich vervolgens racistischer gedragen (Effron et al., 2009). Verder laat onderzoek zien dat wanneer mannen aangeven dat vrouwen niet alleen op de kinderen kunnen passen, maar capabele werkneemster zijn, deze mannen zich vervolgens sexistischer gedragen (Monin & Miller, 2001) en dat wanneer mensen aangeven vrijwilligerswerk te willen doen, ze zich vervolgens te goed doen aan luxe producten (Khan & Dhar, 2006). Dit rechtvaardigingseffect is ook gevonden met betrekking tot milieuvriendelijk gedrag. Zo laat onderzoek zien dat wanneer mensen milieuvriendelijke producten kopen, ze vervolgens eerder geneigd zijn te liegen (Mazar & Zhong, 2010) en dat mensen minder milieuvriendelijke keuzes maken als ze denken aan hun eerdere morele gedrag (Sachdeva et al., 2009).

De meeste van deze rechtvaardigingsonderzoeken zijn echter in het laboratorium gedaan, waar mensen willekeurig aan condities toegewezen worden en waar ze gemotiveerd worden zich op een bepaalde manier te gedragen (e.g., Mazar & Zhong, 2010; Monin & Miller, 2001; Sachdeva et al., 2009). Het is daarom onduidelijk of zulke rechtvaardigingsprocessen ook plaats vinden in het dagelijks leven. Een uitzondering op de laboratoriumexperimenten is een veldstudie waarbij de water- en elektriciteitsconsumptie van bewoners geregistreerd werd. Bewoners kregen wel of geen feedback op hun waterconsumptie van de onderzoekers. De bewoners die feedback kregen op hun waterconsumptie, verminderden weliswaar hun watergebruik, maar vervolgens verbruikten ze meer elektriciteit. Het verminderen van hun watergebruik gaf hen dus een rechtvaardiging om meer elektriciteit te verbruiken. Hoewel het een veldstudie betrof, werd ook in deze studie de bewoners echter ongevraagd feedback gegeven (Tiefenbeck et al, 2013). De vraag is dan ook of rechtvaardigingseffecten wel bestaan in het dagelijkse leven, waar mensen kiezen zich wel of niet moreel wenselijk te gedragen in plaats van dat ze dingen opgelegd krijgen. Het zou namelijk zo kunnen zijn dat rechtvaardigingsprocessen (gedeeltelijk) verklaard zouden kunnen worden door een gevoel van weerstand ten opzichte van de onderzoeksprocedure.

**Hoofdstuk 2: Doneren kan dienen als een rechtvaardiging**

In Hoofdstuk 2 bestudeerden we of mensen zich ook milieuvriendelijker zouden gedragen wanneer ze er zelf voor kozen zich in eerste instantie moreel te gedragen. Om dit te onderzoeken, bestudeerden we of doneren aan een goed doel de kans op milieuvriendelijk gedrag verkleind. Dit hebben we onderzocht door middel van een veldstudie met een quasi-experimenteel design. We hebben mensen op straat benaderd met de vraag of ze gedoneerd hadden aan Serious Request. Serious Request is een jaarlijks terugkerend evenement dat zes dagen voor Kerstmis plaatsvindt, waarbij donaties geworven worden voor het Rode Kruis. Een aantal dj’s van 3FM neemt plaats in het Glazen Huis, waar vanuit ze 24 uur per dag radio maken terwijl ze vasten. Mensen kunnen geld doneren aan Serious Request door bijvoorbeeld een verzoeknummer aan vragen waarvoor ze dan een bepaald bedrag doneren.

We vroegen de respondenten of ze gedoneerd hadden ja of nee en in welke mate ze bereid waren zich milieuvriendelijker te gedragen, bijvoorbeeld om meer te betalen voor groene energie of milieuvriendelijke merken te boycotten. De resultaten lieten zien dat respondenten die aan Serious Request gedoneerd hadden, vervolgens minder bereid waren zich milieuvriendelijk te gedragen. Met andere woorden, respondenten gebruikten doneren aan Serious Request als een rechtvaardiging voor milieuvriendelijk gedrag. Rechtvaardigingseffecten zijn dus niet alleen te verklaren door weerstand ten opzichte van de manipulaties die in veel rechtvaardigingsonderzoeken gebruikt worden. Deze effecten treden ook op in een veldonderzoek met een natuurlijke
quasi-experimentele setting waarin mensen kiezen om het eerste morele gedrag te vertonen. Hoofdstuk 2 onderstrept op deze manier de ecologische validiteit en de robuustheid van het rechtvaardigingseffect.

Het rechtvaardigingsfenomeen staat echter recht tegenover een rijke onderzoekshistorie die laat zien dat wanneer mensen zich op een bepaalde manier gedragen (bijvoorbeeld moreel, pro-sociaal, milieuvriendelijk), ze dit vaak blijven doen, een zogenaamd consistente effect (e.g., Burger & Caldwell, 2003; Freedman & Fraser, 1966; Gawronski, 2012; Snyder & Cunningham, 1975; Steele, 1988). Zo benadrukken veel klassieke theorieën dat mensen zich consistent willen gedragen: cognitieve dissonantie theorie (Festinger, 1957), voet-in-de-deur principe (Freedman & Fraser, 1966) en zelf-perceptie theorie (Bem, 1967) voorspellen allemaal dat mensen in lijn handelen met hun eerdere gedrag. Dit gaat in tegen de bevindingen van het rechtvaardigingseffect. Een belangrijke vraag is dan ook, wanneer treden rechtvaardigingseffecten op en wanneer consistentie effecten? In Hoofdstuk 3 hebben we deze vraag beantwoord door de rol van zelfidentiteit te onderzoeken in rechtvaardigingsprocessen.

**Hoofdstuk 3: Zelfidentiteit en rechtvaardiging**

Zelfidentiteit is de manier waarop mensen zichzelf zien en de labels die ze gebruiken om zichzelf te beschrijven (e.g., Aquino & Reed, 2002; Markus & Zajonc, 1985; Reed et al., 2012; Tajfel & Turner, 1986; Whitmarsh & O’Neill, 2010). Onderzoek heeft in het verleden veelvuldig laten zien dat mensen zich gedragen op een manier die congruent is met hun zelfidentiteit (Bem, 1967; Eagly & Chaiken, 1993; Markus & Zajonc, 1985; Reed et al., 2012; Taylor, 1975; Zajonc, 1968). Zo zijn mensen met een milieuvriendelijke identiteit ook eerder geneigd zich milieuvriendelijk te gedragen (Fielding et al., 2008; Gatersleben et al., 2002; Nigbur et al., 2010; Sparks & Shepherd, 1992; Van der Werff et al., 2013a; 2013b; Whitmarsh & O’Neill, 2010). Op basis van deze literatuur verwachten we dan ook dat mensen met een sterke milieuvriendelijk identiteit geen rechtvaardigingseffecten laten zien. Met andere woorden, we verwachten dat deze mensen helemaal geen milieuvriendelijk gedrag willen rechtvaardigen, omdat ze milieuvriendelijkheid als een belangrijk onderdeel zien van wie ze zijn.
Dit is inderdaad wat uit de drie studies in Hoofdstuk 3 naar voren is gekomen. In één van de drie studies mochten respondenten bijvoorbeeld een outfit kopen in een webwinkel. We hadden daarvoor verschillende H&M webwinkels opgezet. In de ene conditie mochten respondenten een outfit uitzoeken in een H&M webwinkel met kleding van biologisch katoen en in de andere conditie een outfit in een H&M webwinkel met kleding van regulier katoen, zonder enige referentie aan milieuvriendelijkheid. Wanneer respondenten een outfit van biologisch katoen gekocht hadden, waren ze vervolgens minder bereid zich milieuvriendelijk te gedragen dan wanneer ze een outfit van regulier katoen gekocht hadden. Het kopen van een milieuvriendelijke outfit diende dus als rechtvaardiging voor milieuonvriendelijk gedrag. Echter, wanneer respondenten een sterke milieuvriendelijke identiteit hadden, trad dit rechtvaardigingseffect niet op. In dat geval waren ze bereid zich milieuvriendelijk te gedragen, ongeacht of ze een milieuvriendelijke outfit gekocht hadden of niet. In het domein van milieuvriendelijkheid zijn rechtvaardigingseffecten dus onwaarschijnlijk voor mensen met een milieuvriendelijke identiteit.

Het onthullen van zelfidentiteit als moderator is een belangrijke aanvulling op eerder onderzoek naar rechtvaardigingsprocessen, doordat het nu duidelijker is wanneer rechtvaardiging en wanneer consistentie effecten te verwachten zijn. Eerder onderzoek heeft reeds geprobeerd om uit te zoeken wanneer rechtvaardigingseffecten en wanneer consistentie effecten waarschijnlijker zijn (Conway & Peetz, 2012; Gneezy et al., 2012). Het blijkt bijvoorbeeld dat wanneer mensen in abstractere termen denken of meer betalen voor een product, ze minder geneigd zijn rechtvaardigingsprocessen te vertonen. De onderzoekers suggereerden dat wanneer mensen in abstractere termen denken over bepaalde gedragingen of bereid zijn meer geld en tijd te investeren, mensen geneigd zijn dit gedrag te interpreteren in termen van zelfidentiteit (Conway & Peetz, 2012; Gneezy et al., 2012). Deze eerdere bevindingen kunnen dus verklaard worden door zelfidentiteit en zo ondergebracht worden in ons model met zelfidentiteit als moderator.

**Deel II: Externe rechtvaardiging**

Deel I van dit proefschrift laat zien dat mensen hun milieuonvriendelijke gedrag kunnen rechtvaardigen wanneer ze zich eerder
moreel wenselijk gedragen hebben. Op deze manier kan het eigen moreel wenselijke gedrag van mensen leiden tot milieunvriendelijk gedrag. In Deel II van dit proefschrift bekeken we hoe externe bronnen als een rechtvaardiging kunnen dienen voor milieunvriendelijk gedrag.

Denk nog even terug aan het voorbeeld van Hennie die al het afval gescheiden had. Stel dat John (die gelukkig getrouwd is met Hennie) hoort van al het milieuvriendelijke gedrag van Hennie terwijl hij op het werk was. Terwijl hij het dorp inwandelt, wordt hij aangesproken door een fondsenwerver van het Wereld Natuur Fonds. John is een vrijgevig persoon die de natuur belangrijk vindt. Deze keer besluit hij echter niet te doneren aangezien hij het gevoel dat zij (als een koppel) vandaag wel genoeg gedaan hebben voor het milieu. In Hoofdstuk 4 hebben we onderzochten of mensen hun eigen milieunvriendelijke gedrag kunnen rechtvaardigen door middel van het gedrag van anderen en zo ja, met welke anderen.

**Hoofdstuk 4: Anderen als een bron van rechtvaardiging**


Op basis van dit onderzoek, dat laat zien dat de gedragingen van een hechte ander, gezien kunnen worden als de gedragingen van iemand zelf, verwachten we dat het morele gedrag van een hechte ander kan dienen als een rechtvaardiging voor iemands eigen milieunvriendelijke gedrag. Het gedrag van de hechte ander wordt gedeeltelijk gepercipieerd als iemands eigen gedrag (“ik heb ook mijn steentje bijgedragen, want mijn partner heeft zich milieuvriendelijk gedragen”) en kan zo dienen als een externe bron van
rechtvaardiging. Daarentegen verwacht ten we dat het morele gedrag van een niet-hechte ander minder snel als externe bron van rechtvaardiging zal dienen, omdat er minder overlap is tussen een niet-hechte ander en iemand zelf (Aron et al., 1992; Aron et al., 1991; Goldstein & Cialdini, 2007). Het morele gedrag van de niet-hechte ander zal minder snel worden gezien als het morele gedrag van iemand zelf en kan dan ook minder snel als externe bron voor rechtvaardiging dienen. Deze hypothesen hebben we in drie studies getest.

De studies bevestigen dat het morele gedrag van een hechte ander kan leiden tot het milieuonvriendelijke gedrag van iemand zelf. Wanneer de respondenten zich voorstelden hoe een hechte ander (zoals iemands beste vriend) bijvoorbeeld een milieuvriendelijke koelkast aanschafte, waren ze daarna minder bereid zichzelf milieuvriendelijk te gedragen. Het morele gedrag van een niet-hechte ander daarentegen diende minder snel als een externe bron voor rechtvaardiging. Wanneer respondenten zich voorstelden hoe een niet-hechte ander (bijvoorbeeld een studiegenoot) afval recyclede, leidde dit, in tegenstelling tot een hechte ander die recyclede, niet tot minder milieuvriendelijk gedrag.

Naast interne bronnen bestaan er dus ook externe bronnen die mensen kunnen gebruiken om hun milieuonvriendelijke gedrag te rechtvaardigen, daarmee voegt ons onderzoek een nieuwe dimensie toe aan de bestaande rechtvaardigingsliteratuur die tot nog toe vooral rechtvaardigingsprocessen binnen personen bekeek. In het vijfde hoofdstuk keken we of ook andere externe bronnen milieuonvriendelijk gedrag kunnen rechtvaardigen. We keken daarbij naar hoe de media, die over de vooruitgang van wetenschap berichten, als een externe bron van rechtvaardiging kunnen dienen.

**Hoofdstuk 5: Berichten over wetenschap in de media als rechtvaardiging**

De populaire media benadrukken vaak de vooruitgang van wetenschap en scheppen zo een positief beeld over de mogelijkheid van wetenschap om problemen als klimaatverandering en ziektes op te lossen: een zogenaamd vooruitgangsframe (e.g., Corbett & Durfee, 2004; Nisbet et al., 2002; Stewart, et al., 2009; Weaver, et al., 2009). Zo berichten de media over hoe grote spiegels zonnestralen kunnen weerkaatsen tegen opwarming van de aarde, hoe mensen in drijvende steden kunnen wonen wanneer het water te
veel zou stijgen en hoe kunstmatige bomen CO₂ zouden kunnen opnemen (Burns, 2009; IMECE, 2009; Kraaijvanger, 2014). Voor veel mensen zijn deze mediaberichten de primaire bron met betrekking tot de kennis die zij over wetenschap hebben. Het vooruitgangsframe dat de media gebruiken, kan daardoor het beeld van mensen van de wetenschap beïnvloeden, en hun daaruit volgende gedrag beïnvloeden (e.g., Caulfield, 2004; Elliott & Rosenberg, 1987; McInerney et al., 2004; Zimmerman et al., 2001).

In vier studies hebben we onderzocht hoe het vooruitgangsframe dat door de media wordt gebruikt, het milieuvervriendelijke gedrag van mensen kan beïnvloeden. Gebaseerd op compensatoire controle theorie (Kay et al., 2008 zie ook; Kay, Gaucher et al., 2010; Kay, Shepherd et al., 2010; Rutjens, van Harreveld et al., 2010; Rutjens et al., 2013), verwachtten we dat wanneer mensen het gevoel hebben dat de wetenschap alles onder controle heeft, zij minder snel gemotiveerd zijn om zelf ook nog een steentje bij te dragen. Zij kunnen de wetenschap dan namelijk als een externe bron van rechtvaardiging gebruiken. Dit bleek ook het geval te zijn: wanneer respondenten bijvoorbeeld een krantenartikel lazen dat de vooruitgang van wetenschap benadrukte, waren ze vervolgens meer geneigd dit als een externe bron van rechtvaardiging te gebruiken en gedroegen zich daardoor minder milieuvervriendelijk. Wanneer respondenten daarentegen een krantenartikel lasen dat beschreef hoe wetenschap vooruitgaat, maar dat dit met horten en stoten gaat, waren ze vervolgens minder geneigd dit als een externe bron van rechtvaardiging te gebruiken. Hierdoor waren ze vervolgens juist meer geneigd zich milieuvervriendelijk te gedragen.

Onze resultaten laten dus zien dat, net als hechte anderen, mediaberichten over wetenschap als een externe bron van rechtvaardiging kunnen dienen en zo milieuvervriendelijk gedrag kunnen rechtvaardigen. Dit is een belangrijke aanvulling op het huidige onderzoek met betrekking tot massamediacommunicatie, met name op wetenschapscommunicatie onderzoek. Wetenschapscommunicatie onderzoek concentreert zich vaak op hoe wetenschap en wetenschappers in de media afgebeeld worden (e.g., Dudo et al., 2011; Long & Steinke, 1996) en hoe wetenschapscommunicatie de attitudes van mensen ten opzichte van wetenschap beïnvloedt (e.g., Hwang & Southwell, 2009). Hoe de overtuigingen van mensen over wetenschap hun (ongerelateerde) gedrag beïnvloedt was tot nog toe onderbelicht. Ons onderzoek vult het
eerder onderzoek aan door te laten zien dat de manier waarop media de wetenschap neerzetten, invloed kan hebben op milieuvriendelijke gedrag.

**Praktische Implicaties**

Dit proefschrift laat zien dat mensen bedreven zijn in het vinden van excuses om hun milieuvriendelijke gedrag te rechtvaardigen. Betekent dit dat het geen zin heeft om mensen over te halen om zich milieuvriendelijk te gedragen en dat de vele campagnes nutteloos zijn? Dat denken we niet. We zijn echter wel van mening dat er bepaalde factoren zijn waar men rekening mee kan houden bij bijvoorbeeld het ontwikkelen van campagnes of het communiceren over de wetenschap met het grote publiek. Deze zullen we hieronder bespreken.

**Campagne ontwikkeling**

Ten eerste is het van belang dat bij het ontwikkelen van campagnes onderkend wordt dat het niet het geval is dat wanneer mensen zich eenmaal milieuvriendelijk gedragen, dat ze dit dan zullen blijven doen. Ons onderzoek laat zien dat mensen zowel interne als externe bronnen van rechtvaardiging kunnen gebruiken als excuus zodat ze zich niet langer milieuvriendelijk hoeven te gedragen. Ook in de wetenschap wordt het meeste onderzoek naar milieuvriendelijk gedrag bestudeerd, zonder rekening te houden met de invloed van gedragingen voor- of na het milieuvriendelijke gedrag (e.g., Carrico & Riemer, 2011; Cialdini, 2003; Kareklas, Carlson, & Muehling, 2014; Kong & Zhang, 2013; Meijers, Verlegh, & Smit, 2014; Peloza, White, & Shang, 2013; Rabinovich, Morton, Postmes, & Verplanken, 2009; Schuhwerk & Lefkoff-Hagius, 1995; Tucker, Rifon, Lee, & Reece, 2012). Dit proefschrift laat echter zien dat er niet zomaar vanuit gegaan kan worden dat wanneer iemand zich eenmaal milieuvriendelijk gedraagt, dat dit zo zal blijven.

In Hoofdstuk 3 hebben we laten zien dat milieuvriendelijk zelfidentiteit een belangrijke factor is die beïnvloedt of mensen meer of minder geneigd zijn zich consistent milieuvriendelijk te gedragen. Mensen met een milieuvriendelijke zelfidentiteit zijn namelijk minder geneigd om milieuvriendelijk gedrag te (willen) rechtvaardigen. Wanneer mensen dus een product kopen zoals ecologisch wasmiddel, omdat zij milieuvriendelijk zijn, zullen ze zich erna hoogstwaarschijnlijk nog steeds milieuvriendelijk gedragen.
Wanneer mensen echter een milieuvriendelijk product kiezen omdat ze anderen willen imponeren (Griskevicius et al., 2010) en niet zozeer omdat ze milieuvriendelijk zijn, zullen ze eerder geneigd zijn zich vervolgens milieuonvriendelijk te gedragen doordat ze dat kunnen rechtvaardigen. Onze resultaten laten dus zien dat het van groot belang is dat mensen zichzelf zien als een milieuvriendelijk persoon, want op deze manier zullen ze zich consistenter milieuvriendelijk gedragen. Wanneer er campagnes ontwikkeld worden is het dan ook belangrijk dat naast dat mensen overtuigd worden zich milieuvriendelijk te gedragen, dat deze campagnes ook een milieuvriendelijke zelfidentiteit bewerkstelligen, op deze manier zal de kans op langdurig milieuvriendelijk gedrag vergroot worden.

Een manier om dit te bewerkstelligen is met de sociale etiketteringstechniek (Kraut, 1973). Bij de sociale etiketteringstechniek, krijgen mensen een spreekwoordelijk etiket op zich geplakt (e.g., Allen, 1982; Bem, 1967; Goldman, Seever, & Seever, 1982; Kraut, 1973; Strenga & Dejong, 1981), bijvoorbeeld “jij bent een milieuvriendelijk persoon”. Dit etiket zorgt er vervolgens voor dat mensen zich ook daadwerkelijk zo gaan zien (“ik ben milieuvriendelijk) en zich ook zo gaan gedragen (“ik gedraag me dus ook milieuvriendelijk”). Door dit etiket op mensen te plakken, wordt er dus een bepaalde identiteit bewerkstelligd die het vervolggedrag beïnvloedt. Een voorbeeld zou zijn dat bedrijven op verpakkingen van milieuvriendelijke producten kunnen aangeven dat de consument blijkbaar om het milieu geeft en een milieuvriendelijk persoon is, aangezien deze het product gekocht heeft. Onderzoek laat zien dat dit soort etikettering effectief kan zijn, zelfs als de consument het product in eerste instantie om andere redenen dan milieu redenen gekocht heeft (Cornelissen et al., 2007; Cornelissen et al., 2008) – bijvoorbeeld een spaarlamp kopen omdat deze op de lange termijn goedkoper is, in plaats van dat deze op de lange termijn energiezuiniger is. Zoals Hoofdstuk 3 laat zien zal het bewerkstelligen van een milieuvriendelijke identiteit dan leiden tot minder rechtvaardigingseffecten en meer langdurig milieuvriendelijk gedrag.

**Media communicatie met betrekking tot wetenschap**

Een andere implicatie van dit proefschrift is dat het belangrijk is hoe de media communiceren over wetenschappelijke ontwikkelingen en
vooruitgang. De manier waarop media communiceren over wetenschap kan namelijk onbedoelde negatieve effecten hebben op milieuvriendelijk gedrag. Door het vooruitgangsframe dat vaak gebruik wordt door de journalisten (Long & Steinke, 1996; Nisbet et al., 2002), kunnen mensen het gevoel krijgen dat de wetenschap almachtig is (Nelkin, 1995; Nisbet et al., 2002. Dit kan er toe leiden dat mensen het gevoel krijgen dat milieuproblemen wel opgelost worden door de wetenschap.

Wanneer er bijvoorbeeld in de media bericht wordt over geo-engineering en hoe dit de klimaatproblematiek zou kunnen oplossen, kunnen mensen het gevoel krijgen dat hun eigen milieuvriendelijke gedrag overbodig is. Om een voorbeeld te geven, het openbaar vervoer nemen in plaats van de auto om het broeikaseffect tegen te gaan, voelt minder nodig wanneer het mogelijk is het broeikaseffect tegen te gaan door reusachtige spiegels te plaatsen die het zonlicht reflecteren. Deze geo-engineering technieken kunnen echter hoge kosten en risico’s met zich meebrengen en zelfs contraproducentief zijn (Keller et al., 2014). Daarom is het belangrijk, om wanneer er gecommuniceerd wordt met het publiek over geo-engineering, niet alleen te benadrukken wat er bereikt zou kunnen worden, maar ook dat de technieken nog verfijnd moeten worden en dat de gedragsverandering van mensen van groot belang blijft om milieuproblematiek te voorkomen. Op deze manier zullen mensen eerder het belang van milieuvriendelijk gedrag inzien, waardoor ze minder geneigd zullen zijn wetenschap als een externe bron van rechtvaardiging te gebruiken en ook milieuvriendelijk gedrag blijven vertonen.