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### On justifying eco-unfriendly behaviors

Meijers, M.H.C.

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# Chapter 1

Dissertation Overview



## 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, Adesiyani, & 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 environmental 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)<sup>1</sup>. 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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<sup>1</sup> 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 ( $M_{age} = 22.12$  years,  $SD_{age} = 4.83$ , 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 ( $M = 4.96$ ,  $SD = 0.87$ ),  $F(1, 175) = 29.89$ ,  $p < .001$ ,  $\eta_p^2 = .15$ . Additionally, in the second study, 150 participants ( $M_{age} = 20.37$  years,  $SD_{age} = 2.47$ , 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 ( $M = -4.74$ ,  $SD = 12.52$ ),  $t(146) = 7.86$ ,  $p < .001$ ,  $\eta^2 = 0.30$ .

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; Pelozo, 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 other 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 (Albarracín & 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 environmental 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<sup>2</sup>. 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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<sup>2</sup> Six hundred and ten participants ( $M_{age} = 30.52$ ,  $SD_{age} = 10.00$ , 37.5% female) 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),  $F(1, 596) = 16.21$ ,  $p < .001$ ,  $\eta p^2 = .03$ . 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,  $b = .97$ ,  $se = .07$ ,  $t(604) = 14.36$ ,  $p < .001$ . A simple slope analysis showed that this effect was more pronounced for participants with a strong environmental self-identity,  $b = .20$ ,  $se = .05$ ,  $t(608) = 3.98$ ,  $p < .001$ .

environmentally friendly behavior appears to be 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<sup>3</sup>.

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; McNerney, 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 environmental unfriendliness. To explain this phenomenon, we used the

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<sup>3</sup> 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.