

THE INFLUENCE OF MORAL CREDENTIALS AND SOCIOPOLITICAL IDEOLOGY ON
THE NEGATIVE SPILLOVER OF ENVIRONMENTAL BEHAVIOURS

by

Shannon Currie

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The Influence of Moral Credentials and Sociopolitical Ideology on the Negative Spillover of Environmental Behaviours

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Shannon Currie

Psychology

Ryerson University

Abstract

The present thesis investigated whether *negative spillover* of environmental behaviours (i.e., when engaging in one green behaviour decreases engagement in subsequent pro-environmental behaviours) can be explained within the framework of the moral credentials phenomenon (i.e., when engaging in one moral behaviour reduces engagement in further moral behaviours). Specifically, the goal was to test whether a boost in self-esteem following a green behaviour increased the likelihood of a moral credential negative spillover effect, and whether this effect was more likely for left-wingers (*vs.* right-wingers), because they perceive green behaviours as more moral. Study 1 found, as predicted, that left-wingers (*vs.* right-wingers) perceived green behaviours as more moral and that positive feelings associated with engaging in green behaviours mediated this relation. Furthermore, Study 2 found there was a *marginally* significant moral credential negative spillover effect. However, the proposed moderating effect of political orientation and mediating effect of self-esteem were not found.

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Introduction

The Issue

Recently a United Nations (UN) Intergovernmental Panel, a body comprised of hundreds of scientists, economists and other experts on climate change (i.e., significant problematic changes in global climate patterns, attributed substantially to the increased amounts of carbon dioxide and other green house gases released into our atmosphere) around the world, concluded that current global efforts to fight climate change are falling short (Gillis, 2014). The report published by the panel concluded that unless drastic action is taken to mitigate contributors to climate change, a 'point of no return' will be reached where, short of developing miraculous technologies, it will be impossible to stop the devastating effects to the Earth. Scientists on the panel cautioned that without aggressive action, rising temperatures could produce severe outcomes, including the collapse of ice sheets, a rapid rise in sea levels, food shortages, huge die-offs of forests and mass extinctions of plant and animal species. According to the UN report, if countries continue to stall on tougher climate change policies, trillions of dollars will need to be invested in the future to return to a state of climate stabilization (Gillis, 2014). Based on this report, it is evident that measures need to be taken to encourage governments and individuals to prioritize environmentally friendly behaviours.

Many countries have started to respond more seriously to the pressing need to revolutionize environmental policies. In 2014, The United States and China, for example, reached a ground breaking climate action agreement to take critical steps to reduce their greenhouse gas emissions by 2030 (e.g., by increasing reliance on renewable energy, Hansen, 2014). In addition, world leaders convened in December 2014 in Lima, Peru to develop an action plan to fight climate change. After extensive negotiations, top officials from nearly 200 nations

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agreed to a deal that committed every country in the world to reduce fossil fuel emissions (e.g., the United States has pledged to cut emissions by as much as 28% by 2025) that contribute to climate change (Davenport, 2014). Beyond pledging to take action within their own country to reach their goal, China and the United States also agreed to cooperate on clean energy and environmental protection initiatives, and they encouraged other countries to follow suit by joining them in signing the Paris climate accord, which was introduced at the 2015 UN climate change conference (Hansen, 2014; Volcovici, 2016).

Despite being one of the countries in attendance at the Lima conference and committing to reduce fossil fuel emissions, Canada is falling far behind other first-world nations in terms of its climate change initiatives. According to the 2014 Climate Change Performance Index, an annual report published by the environmental group called Climate Action Network, Canada is ranked second, only to Australia, for having the worst climate policy among all wealthy nations (Readfearn, 2014). This status has not improved in the years since this report was published; the 2015 Climate Change Performance Index found that Canada is still second only to Australia for worst climate policy among industrial nations and further that Canada has failed to take steps to improve its standing and will likely miss its 2020 emissions reduction target by about 20% (Burck, Marten, & Bals, 2015). In contrast, the U.S. successfully reduced greenhouse gas levels by approximately 10% between 2005 and 2012, and the European Union (EU) is likewise on track to reduce their greenhouse gas levels by 20% in 2020 compared to their levels in 1990 (Chan, 2014). Thus, Canada, unlike other wealthy nations, has so far failed to make meaningful strides towards achieving its environmental goals.

Canada's failure to implement adequate environmental policies has severe consequences for Canadians. The Canadian Medical Association (CMA) published a report stating that climate

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change is both a health threat and a financial burden for Canadian citizens (Sieniuc, 2014). For example, a recent study conducted by the CMA found that the impact of climate change on the environment is one of the most pressing health issues facing Canadians, due in part to new vector-borne diseases, an increase in Lyme disease as a result of the changing insect habitat patterns and respiratory problems as a consequence of poor air quality. In addition, they noted that poor air quality alone cost Canada approximately \$8 billion due to an increase in individuals seeking medical care for illnesses that developed as a consequence of the problematic air quality in 2008, with these costs expected to rise to \$250 billion by 2031. One notable conclusion drawn from the CMA's report is that more money and effort need to be put towards prevention. Chief medical health officer, Eilish Cleary, eloquently summarized, "prevention is cheaper than the cure" (Sieniuc, 2014, para. 6). This emphasis on prevention mirrors the main conclusion of the 2014 UN report.

The burden is often placed primarily on political leaders and governments to institute pro-environmental policies and to create infrastructure that encourages *green* behaviours (e.g., improving public transportation). However, in a democratic society, individuals have the responsibility of choosing political leaders that will support environmental initiatives and of engaging in public discourse to advocate for environmental developments. Thus, without individual support, governments are limited in the steps they can take to protect the environment. For example, the Canadian government has been stalled in implementing various renewable energy projects, because communities are opposed to wind farm projects being developed in the area where they live (McVeigh, 2016). In addition, individual action is necessary to combat climate change, because individuals' behaviours are partly responsible for the problematic state of the environment. A report by Natural Resources Canada found that transportation accounts for

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30% and residential energy use accounts for 17% of the energy consumption in Canada, suggesting to successfully combat climate change individuals would have to alter their energy use and transportation habits (Natural Resources Canada, 2008). This behaviour change is only one example of how individuals can impact the environment (see Gardner & Stern, 2010 for others). In summary, it is apparent that it has become increasingly urgent to address issues that inhibit individuals and communities from taking steps to fight climate change by behaving pro-environmentally.

Spillover of Pro-Environmental Behaviours

Modernizing climate change policy and norms in Canada requires the support of Canadian citizens, because, as mentioned previously, in order for a policy to come to fruition it must first garner the support of the Canadian voters. Engaging in pro-environmental (i.e., *green*) behaviours does not automatically facilitate subsequent green actions (i.e., positive spillover); in fact, engaging in one green behaviour can actually *reduce* the likelihood of subsequent green actions (i.e., negative spillover) (e.g., Barr, Shaw, Coles & Prillwitz, 2010; Catlin & Wang, 2013). Several studies have investigated the phenomenon of spillover in an attempt to determine whether engaging in one pro-environmental behaviour encourages individuals to engage in further pro-environmental actions that are not necessarily related to the first action. Thus far the results have been mixed (for an extensive review see Truelove, Carrico, Weber, Raimi, & Vandenberg, 2014).

On the one hand, there is evidence for positive spillover: The phenomenon where individuals who engage in one green behaviour, such as recycling, will be more likely to engage in other environmentally friendly activities, such as composting. For example, Berger (1997) analyzed the responses to a Statistics Canada survey on household environmental behaviours and

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found that among those who had access to recycling facilities, recyclers were more likely to buy recycled paper, compost their waste, conserve energy and water, and use reusable bags in comparison to individuals who did not recycle. The positive correlation identified in Berger's study between recycling and other related pro-environmental behaviours indicates positive spillover of green behaviours.

In a more direct, empirical investigation of positive spillover, Thøgersen (1999) hypothesized that performing one pro-environmental behaviour would increase the likelihood that an individual would engage in other *similar* green actions. He focused on the relation between two specific green behaviours: Recycling and avoiding packaging waste (through strategic purchases). Telephone interviews with a random sample of Danish residents were conducted. Thøgersen found that separating household waste for recycling did lead to positive spillover, such that individuals who recycled were more likely to avoid purchasing goods with unnecessary packaging.

Additional studies have similarly uncovered evidence for positive spillover in the environmental domain. For example, individuals who turn off the lights when leaving the room during a hotel stay are also more likely to hang up their used towels (as an indication they will reuse them), hang more towels and hang a higher percentage of used towels than those who do not turn off the lights (Baca-Motes, Brown, Gneezy, Keenan, & Nelson, 2013). Further, those who are more engaged in green consumerism behaviours (e.g., those who buy eco-labelled products, recycle and buy energy efficient products) are also more likely to support large-scale environmental initiatives (e.g., the implementation of wind power) and engage in further small-scale environmental behaviours (e.g., recycling) (Thøgersen & Noblet, 2012; Lanzini & Thøgersen, 2014). The majority of studies investigating positive spillover are correlational in

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nature, presumably because they are measuring daily life activities (e.g., Van der Werff, Steg, & Keizer, 2013; Harland, Staats, & Wilke, 1999; Whitmarsh & O'Neill, 2010). Thus, there is no causal evidence, to date, showing that engagement in one pro-environmental behaviour leads to engagement in other green behaviours.

There is also evidence for negative spillover: When engaging in one green behaviour decreases the likelihood that an individual will engage in further pro-environmental behaviours. Research on negative spillover has relied on correlational and experimental designs. Using a correlational design, Jacobsen, Kotchen and Vandenberg (2012) found that those who opted to participate in a green electricity program at a minimal level (i.e., incurring the lowest costs possible while still participating) increased electricity consumption by 2.5% compared to when they were not involved in the program. Similarly, Klöckner, Nayum and Mehmetoglu (2013) found that individuals who purchased environmentally friendly electric cars drove more often compared to when they only owned conventional cars. Both of these examples demonstrate that engaging in one pro-environmental behaviour can inhibit individuals from engaging in a second environmentally friendly action.

Extending correlational findings (e.g., Jacobson et al., 2012; Klöckner et al., 2013), Catlin and Wang (2013) conducted two experimental studies. In Study 1, participants were invited into the lab and informed that they would be evaluating a new pair of scissors. They were given a stack of paper and told that they could use as much paper as they needed to adequately test the scissors. Participants were randomly assigned to one of two conditions: In the recycling bin condition, a recycling bin and a trash bin were present in the testing room; in the trash bin condition, only a trash bin was present. Participants in the recycling bin condition used significantly more paper when testing the scissors in comparison to participants in the trash bin

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condition. Thus, the opportunity to recycle resulted in increased consumption of resources. Even though participants are choosing to recycle the paper, which could be perceived as a pro-environmental behaviour, their increased consumption is more damaging to the environment than their choice to recycle, because, reducing waste is far more beneficial to the environment than recycling (Environmental Protection Agency, 2013).

In a follow-up study, Catlin and Wang (2013, Study 2) investigated whether similar results would be found in a field study with greater ecological validity. They hypothesized that the opportunity to recycle bathroom paper hand towels would result in increased paper towel usage in comparison to when there was no option to recycle. For 15 business days, data on the daily amount of paper towels used were collected in a men's washroom when only a trashcan was present. Following this baseline data collection, data was collected for 15 additional business days after a recycling bin was introduced to the washroom (with signs indicating its presence and explaining that certain campus washrooms were participating in a paper hand towel recycling program). To help control for any bias due to bathroom traffic, a small counting device was installed inside of the bathroom door to monitor how often it was opened. The results mirrored those of the lab study: The weight of paper towels used was significantly greater when a recycling bin was present than when it was absent. Hence, they again found negative spillover: As a consequence of being able to recycle, people were more likely to increase their consumption of paper towels.

To investigate the effect of distinct environmentally significant behaviours on each other, Tiefenbeck, Staake, Roth and Sachs (2013) conducted a controlled field study at a multifamily residence with 200 apartments. The goal of the study was to determine whether decreased water consumption as a consequence of a water conservation campaign resulted in the unintentional

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increase in electricity use. To manipulate water usage by the residents, the researchers first implemented a water conservation campaign that included information on ways to better conserve water, as well as individual feedback for participating apartments on their water usage. Half of the participating apartments were provided with this feedback once a week and the other half were only informed of their utility consumption at the conclusion of the study (thus, they acted as the control group and were not included in the intervention). Water consumption in each of the apartments was measured every day and electricity consumption was measured each week. Following two weeks of baseline data collection, the water conservation campaign commenced and lasted seven weeks. Consistent with negative spillover, the residents who were included in the water conservation campaign significantly reduced their water usage during the study relative to the control group. However, those in the conservation campaign group simultaneously increased their electricity consumption compared to the control group during the intervention period. Therefore, similar to Catlin and Wang (2013) Tiefenbeck et al. (2013) found that individuals' engagement in one green behaviour *reduced* their likelihood of engaging in a second pro-environmental behaviour.

Consistent with the literature review presented here, Truelove et al. (2014) in their review of negative and positive spillover noted that the literature to date has been too reliant on correlational studies and research conducted in small one-off lab studies. They argued that more experimental field studies are needed to better understand spillover effects and their influence on pro-environmental behaviours. It is also evident that current literature is sparse and largely atheoretical. While it is interesting that the only experimental field studies conducted on spillover in the environmental domain (i.e., Catlin & Wang, 2013; Tiefenbeck et al., 2013) support negative (*vs.* positive) spillover phenomenon, broad conclusions are premature. Overall, to better

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understand the influence and significance of spillover on environmental behaviours, more research is needed to identify when and why negative and positive spillover occurs and how it should be operationally defined.

Moral Credentials

Moral Credentials Phenomenon

Tiefenbeck et al. (2013) suggested that one possible explanation for negative spillover could be that those who engage in a pro-environmental behaviour feel authorized to abstain from participating in further pro-environmental behaviours. That is, because people already fulfilled their moral obligation to behave in an environmentally friendly manner by completing a pro-environmental behaviour, this fulfillment may have led people to act morally uninhibited when the opportunity to engage in a further green behaviour was presented. Tiefenbeck et al.'s assertion is consistent with what is known as moral licensing, or more broadly, the moral credentials phenomenon (Monin & Miller, 2001). Moral credentials could provide a much-needed theoretical framework for investigating negative spillover.

According to moral credentials theory, proposed by Monin and Miller in 2001, when a person first performs an action they consider moral, they subsequently feel licensed to act immorally or abstain from a second moral act. In their inaugural moral credentials study, Monin and Miller, hypothesized that participants would be *more* willing to express prejudicial attitudes when their previous actions had established their non-prejudiced credentials. They conducted three studies to test their hypothesis. In Study 1, male participants who first were given the opportunity to disagree with blatantly sexist statements compared to male participants who were given the opportunity to disagree with ambiguous sexist statements, were consequently more likely to indicate that a male candidate would be better suited for a job than a female candidate.

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Monin and Miller argued that this exhibited their proposed moral credentials phenomenon: Men who demonstrated that they were not sexist on an earlier task felt “licensed” to respond to a subsequent activity in a more sexist way.

In Study 2, the researchers tested whether the licensing effect would generalize to the domain of racism. As expected, participants who first had the opportunity to and did select an African American as the most suitable candidate for a hypothetical job over a White man later were more likely to select a White man for a second hypothetical job opening over an African American than were those who did not have the opportunity to select an African American in the first task. Again only those who were given the opportunity to establish their non-prejudicial credentials in the initial task subsequently acted in a prejudicial way, supporting Monin and Miller’s (2001) moral credentials theory.

In Monin and Miller’s (2001) Studies 1 and 2, participants were assured that their responses would be kept completely confidential. However, to rule out the possibility that the experimenter’s presence during both parts of the study influenced the participants’ responses, the final study employed different experimenters to administer each task. In Study 3, there were two experimental conditions: A credentials one-audience condition (same experimenter administered both tasks) and a credentials two-audience condition (each task was administered by a different person). Consistent with the findings of the previous two studies, after recruiting an African American candidate for a job in the first task, participants were more likely than those who selected a White candidate in the first task, to choose a White candidate for a hypothetical job in a successive task. That is, they again found a moral credentials effect.

Critically, Monin and Miller (2001, Study 3) also found that there was no difference in responses based on whether participants were in the one-audience or two-audience conditions,

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suggesting that the phenomenon is independent of impressions of others. The moral credentials effect demonstrated in Monin and Miller's studies has since been supported by subsequent researchers showing that establishing a non-prejudiced identity through one action increases the likelihood of an individual successively behaving in a prejudicial manner (e.g., Effron, Cameron, & Monin, 2009; Effron, Miller, & Monin, 2012; Kaiser, Drury, Spalding, Cheryan, & O'Brien, 2009; Mann & Kawakami, 2011).

Blanken, van de Ven, and Zeelenberg (2015) recently conducted a meta-analysis on the moral credentials phenomenon. They examined published and unpublished studies that included experimental comparisons between a control condition and a moral credentials condition. Blanken et al. found a small to medium overall average effect size of $d = 0.31$ (Cohen, 1992). They further investigated the conditions under which the moral licensing effect was likely to occur by analyzing the following moderators: The type of moral licensing induction (related to prior moral traits versus prior moral actions), the behaviour measured in the dependent variable (actual behaviours versus hypothetical behaviours), the domain in which the behaviours took place (same versus different), article status (published versus unpublished) and nature of the control condition (recalling a past neutral behaviour versus recalling a past negative behaviour). Blanken et al. found no difference in the size of the moral credentials effect for any of the moderators tested, with the exception of article status. Not surprisingly, moral licensing studies that were published tended to have larger effect sizes than studies that did not appear in published articles. Taken together, Blanken et al.'s findings reveal that the moral credentials effect is robust and consistent across different domains and methodological designs.

In addition, Ebersole et al. (2015) successfully replicated Monin and Miller's (2001) first study on moral credentials across many labs and 3,134 participants, suggesting that the licensing

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effect is reliable. The moral credentials effect has even been observed outside the lab in more ecologically valid settings. Hofmann, Wineski, Brandt and Skitka (2014) investigated moral and immoral acts in a large community sample ($N=1,252$) using an ecological momentary assessment task (participants were randomly signalled five times daily on their smartphones and asked questions about their moral behaviour). The researchers found a moral credentials pattern, in that people who committed a moral act had a larger likelihood of committing an immoral act later that day. Thus, the moral credentials effect appears to be a robust and reliable phenomenon.

Competing Theories

There are some well-established psychological theories inconsistent with the tenets and findings of the moral credentials literature. Self-perception theory postulates that individuals develop attitudes based on observations of their own behaviour, which in turn influence their subsequent behaviour (Bem, 1972). Thus, according to self-perception theory, if an individual engages in one green act, such as recycling, they are likely to perceive themselves as a green person and engage in subsequent green behaviours, such as composting. The foot-in-the-door effect (Freedman & Fraser, 1966), the phenomenon whereby an individual who complies with a small request (e.g., agreeing to lend another person a pen) is subsequently more likely to agree to a larger related request (e.g., agreeing to lend that same person their notes), also suggests that individuals are motivated to act consistently. Many studies have found evidence to support the foot-in-the-door theory (for review see Burger, 1999). Cognitive dissonance theory (Festinger, 1957) similarly supports the notion that individuals prefer to act consistently. Cognitive dissonance refers to the discomfort individuals feel when their beliefs or attitudes conflict; individuals seek to eradicate this discomfort by either changing one of their contradictory beliefs or attitudes, or avoiding or ignoring information that contradicts already held beliefs or attitudes.

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Thus, inherent in this theory is the implication that people desire and seek out internal consistency.

These theories clearly contradict the moral credentials theory (Monin & Miller, 2001), which postulates that in some situations individuals will act inconsistently; specifically, after engaging in a moral behaviour people feel licensed to subsequently act immorally. Although the moral credentials theory is at odds with other established theories, the meta-analysis conducted by Blanken et al. (2015) demonstrated that its effect is robust. Possibly as a consequence of moral credentials being a relatively young theory, research has not yet elucidated under what conditions individuals are more likely to act consistently and under what conditions they are likely to exhibit the moral credentials effect. Of note, positive spillover is most consistent with theories like self-perception theory, whereas negative spillover is most consistent with moral credentials theory. The reason for this divergence is beyond the scope of this thesis. Presently, I focus on negative spillover, more narrowly. Therefore, although the present thesis does not broadly address this paradox, it will explore whether individuals act consistently or exhibit the moral credentials effect under the specific parameters established in Study 2 (see methods).

A Potential Mediator of the Moral Credentials Effect

Expanding on the work of Monin and Miller (2001), Khan and Dhar (2006) investigated whether the moral credentials effect generalizes to moral behaviours unrelated to prejudice. They conducted five studies to achieve this goal. In the first two studies, participants in the credentials condition first selected and provided justification for their selection of a charity to imagine dedicating time or donating money to, whereas those in the control group completed a neutral word scramble task. After completing these tasks, those in the credentials condition were more likely than those in the control condition to hypothetically spend money on a luxury item

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(designer jeans in Study 1 and pricey sunglasses in Study 2) instead of an item of necessity (a vacuum cleaner in Study 1 and cheap utilitarian sunglasses in Study 2). Similar to Monin and Miller's initial moral credentials study, these studies revealed that individuals who engaged in a moral behaviour subsequently felt licensed to behave in a way that was unconstrained by moral obligation.

Khan and Dhar (2006) also explored possible mediating mechanisms for the moral credentials effect. Specifically, they tested whether completing a moral behaviour led participants to experience a boost in self-esteem, and whether this boost could explain why people were presumably morally uninhibited when later deciding how to act. In a follow-up investigation, 68 participants who were not part of the original Study 1 were randomly assigned to the same license (i.e., participants had to choose and justify their choice of a charity to volunteer with on a weekly basis) and control (i.e., participants had to complete a neutral word scramble task) conditions used in Study 1. Following the completion of these first tasks, participants indicated how much they agreed with four statements: "I am compassionate," "I am sympathetic," "I am warm," and "I am helpful." Results showed that those who had been assigned to the license condition rated themselves significantly more positively than those who had been assigned to the control condition.

In a separate experiment (Study 5), Khan and Dhar (2006) tested whether participants' enhanced self-esteem mediated the moral credential effect. The study design was similar to Study 1 with participants choosing a charity and indicating whether they would buy designer jeans (the luxury item) or a vacuum cleaner (the utilitarian item). The findings were consistent with Studies 1 and 2, such that those in the credentials condition were more likely to subsequently choose the luxurious designer jean option. In addition, mediation analyses showed

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that participants' commitment to a charitable act boosted their self-concept, which in turn led to a preference for the luxury item over the item of necessity. In other words, the boost in self-esteem felt by participants after imagining helping a charity, later freed them to choose a luxurious item over a utilitarian item.

Khan and Dhar (2006, Study 3) also tested the generalizability of their findings in a more realistic scenario. Participants were assigned to a control or license condition. In the credentials condition participants were asked if they would be willing to commit a couple hours of their time to help tutor a foreign student who was struggling with course material (all of the participants committed to helping). Next, participants in the credentials condition completed a filler task. Those in the control condition only completed the filler task and were not asked if they would help a fellow student. Participants were then asked whether they would be willing to donate part or all of the \$2 they were given for completing the study to charity. Those in the credentials condition donated significantly less money to charity compared to those in the control condition. Hence, even when dealing with their own money (vs. hypothetical money), participants who had initially performed a moral behaviour were subsequently less likely to donate their own money demonstrating the moral credential phenomenon. In a follow-up to Study 3, Khan and Dhar assigned a separate group of students to the credentials and control conditions and asked them to complete the same questionnaire that was used in the follow-up to Study 1 and in Study 5. Consistent with the previous studies, those in the license condition rated themselves more positively than those in the control condition, suggesting that a self-esteem boost accounts for the moral licensing phenomenon.

Kouchaki (2011) explored whether enhanced self-concept was a possible mediator of the moral credentials phenomenon, using a unique methodological approach. Participants were

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assigned to different conditions, including a credentials and control condition; however, rather than having participants in the credentials condition engage in a moral behaviour, participants were told that a recent study had found that students at their university were more moral than samples of students from other universities. This manipulation presumably fostered a *vicarious licensing effect*, whereby participants related their moral self-concept to the apparent moral superiority of a group they strongly identified with (vs. just themselves) – in this case students attending their university. Those in the control group were informed that a recent study found no difference in the level of morality between students at their school and students attending other universities. Kouchacki also included two other conditions: An intelligent condition, in which participants were informed that a recent study found that students their university were more intelligent compared to those at schools and a competitive condition, in which participants were told that students at their university were more competitive. In line with the previous research on moral credentials, Kouchaki found that when participants believed that a group they identified with (i.e., the student body at their university) was morally superior to other groups, they were more likely to engage in prejudicial behaviour. In this case, the participants in the credentials condition were more likely to select a White applicant than a Black applicant as better suited for a job compared to those in the control, competitive and intelligent conditions.

Kouchacki (2011) conducted a second study to test whether a boost in moral self-concept mediated the moral credential effect found in Study 1. All participants were required to choose between hypothetical candidates (who were either White or Hispanic) for a job. Those in the vicarious credentials condition were told that other students in their cohort had ranked the Hispanic candidate as most suited for the job, whereas those in the no-credentials condition were not given information on other students' rankings. Participants then completed filler

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questionnaires (unrelated to the hypotheses of the study), a measure of moral identity (to assess participants' moral self-concept), and indicated whether the Hispanic or White candidate was better suited for the hypothetical job. Participants in the vicarious credentials condition, who were aware that other students they identified with behaved non-discriminatorily, rated themselves more highly on the moral self-concept measure and were more likely than those in the no-credentials condition to show a prejudicial attitude toward the Hispanic applicant. In other words, participants who were led to believe that a group they identified with was unprejudiced felt a boost in self-concept and, consequently, felt licensed to select a White candidate for a hypothetical job over a Hispanic candidate. Thus, similar to Khan and Dhar's (2006) findings, Kouchaki's findings suggest that people who develop a more positive view of themselves as a consequence of engaging in or identifying with others who engaged in a moral act feel licensed to subsequently act immorally.

Moral Credentials in the Environmental Domain

Most research on the moral credential effect has been investigated in the prejudice domain, however some moral credentials research has been investigated in the environmental domain (Mazar & Zhong, 2010; Meijers, Verlegh, Noordewier, & Smit, 2015; Tiefenbeck et al., 2013; Susewind & Hoelzl, 2014). Mazar and Zhong (2010), for example, investigated whether individuals who purchased green products were subsequently more likely than those who purchased conventional products to cheat and steal. To first determine if engagement in green consumerism was considered a moral act, the researchers conducted an online study in which students were randomly assigned to rate how cooperative, ethical and altruistic either a person who purchased conventional foods and products was or a person who purchased organic foods and environmentally friendly products was. Participants rated the target that purchased green

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products and organic foods as more cooperative, altruistic and ethical than the target that purchased conventional products and foods. The researchers argued this finding demonstrated that people attach greater moral value to green consumerism than conventional consumerism.

Having confirmed that participants believe individuals who purchase green products are more moral, Mazar and Zhong (2010) conducted a second study to test experimentally whether those who engaged in green consumerism were more likely to cheat and steal when consequently given the opportunity. Participants were first randomly assigned to make either green or conventional purchases. After their purchase, they completed an ostensibly unrelated visual perception task, for which they could earn small amounts of money for successfully completing each trial of the task. To investigate the moral credentials effect, participants were subtly made aware of the fact that they could cheat on the task to appear more successful to the experimenters than they actually were and thus earn more money. Results showed that those who were in the green consumerism condition were more likely to cheat and steal than those in the conventional consumerism condition. Therefore, participants that bought environmentally responsible products followed a moral credentials pattern by consequently acting immorally.

Mazar and Zhong's research (2010) provides preliminary evidence that the moral credentials phenomenon may influence environmentally relevant behaviours. However, since the dependent variable in their study was outside the environmental domain (i.e., whether the participants decided to cheat and steal in the visual perception task), the conclusions that can be drawn on how engagement in one pro-environmental behaviour affects other pro-environmental behaviours are limited. The negative spillover literature (e.g., Catlin & Wang, 2013; Tiefenbeck et al., 2013), however, shows that engagement in a pro-environmental behaviour can limit engagement in further green initiatives. Thus, it could be argued that some individuals may

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exhibit negative spillover as a result of a boost in self-esteem (e.g., see Khan & Dhar, 2006; Kouchaki, 2011) following the completion of a green act; a boost that licenses them to abstain from engaging in further pro-environmental behaviours. The present thesis will test this possibility, and whether the strength of this proposed effect is influenced by a person's sociopolitical ideology.

How Green are Liberals versus Conservatives?

Defining Sociopolitical Ideology

Broadly, ideology has been defined as the “belief system of [an] individual that is typically shared with an identifiable group and that organizes, motivates, and gives meaning to political behaviour” (Jost, 2006, p. 653). More narrowly, political orientation is often operationalized using the parsimonious left-right, or liberal-conservative, continuum. Jost, Nosek and Gosling (2008) characterized *right-wingers* (i.e., conservatives) as individuals who support political views that are “supportive of the status quo, and hierarchical in nature,” whereas, *left-wingers* (i.e., liberals) are individuals who support “progressive social change and egalitarian ideals” (p. 127). However, it has been argued that this unidimensional structure is insufficient to adequately represent individuals' political orientation (Ashton et al., 2005; Choma, Ashton, & Hafer, 2010; Eysenck, 1954; Ferguson, 1939; see also Jost, Federico, & Napier, 2009). Rather, political ideology may be better captured by two “relatively stable, core dimensions” that “capture the most meaningful and enduring differences between liberal and conservative ideologies” (Jost, 2006, p. 654): Preferences for social change versus traditionalism and preferences for equality versus inequality. With respect to the two dimensions, conservatives prefer tradition and inequality, whereas liberals prefer social change and equality. To measure these two dimensions of sociopolitical ideology, two scales are often used: The Right-Wing

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Authoritarianism Scale (Altemeyer, 1981, 1988) and the Social Dominance Orientation Scale (Pratto, Sidanius, Stallworth & Malle, 1994).

Right-Wing Authoritarianism (RWA) is an ideological belief developed by Bob Altemeyer (1981). RWA is a refinement of previous research investigating an *authoritarian* personality (see Adorno, Frenkel-Brunswik, Levinson and Sanford, 1950). RWA, specifically, is characterized by the presence of three related attitudinal clusters (1996). First, individuals who more strongly endorse RWA readily submit to authorities that they consider legitimate in their society (i.e., authoritarian submission). Moreover, individuals higher in RWA are characterized by a high degree of authoritarian aggression, such that they have a tendency to aggress towards other people when that aggression is perceived as sanctioned by the authorities to which they submit (i.e., authoritarian aggression). Finally, individuals who endorse RWA are likely to have a strong acceptance of and commitment to the conventional social norms perceived to be endorsed by the society they belong to and its established authorities (i.e., conventionalism). Altemeyer believed that the degree to which an individual endorses RWA was dependent on their social learning (1981, 1988, 1996). Thus, individuals' interactions with their parents and friends, for example, would influence whether or not they endorse RWA.

The RWA Scale developed by Altemeyer (1981, 1988) captures these three attitudinal clusters and reflects the preference for traditionalism versus social change dimension of sociopolitical ideology. Conservatives tend to score higher on RWA than liberals (McHoskey, 1996).

To assess the second dimension of sociopolitical ideology, social dominance orientation (SDO) is often measured. According to Social Dominance Theory (SDT; Sidanius, 1993; Sidanius & Pratto, 1993), societies are able to minimize group conflicts by unanimously

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endorsing ideologies that promote the superiority of one group over others. Sidanius and Pratto have classified ideologies that are widely accepted in a society and promote or maintain group inequality as *hierarchy-legitimizing myths*. The endorsement of these myths minimizes group conflict by providing cues to individuals and institutions on how resources of positive or negative social value should be allocated (Pratto et al., 1994). In contrast to hierarchy-legitimizing myths, other ideologies attenuate the degree of inequality. If these *hierarchy-attenuating myths* are widely endorsed, there should be greater social equality. According to SDT, social dominance orientation (SDO) provides insight into whether individuals support or reject these hierarchy-legitimizing or hierarchy-attenuating myths (Pratto et al., 1994). SDO “refers to the degree to which people desire and strive for superiority of the ingroup over the outgroup and oppose egalitarianism” (Sidanius & Pratto, 1993, p. 178).

To measure SDO, Pratto et al. developed the SDO scale, which measures the extent to which individuals prefer and desire a group that is dominant over and superior to other groups (1994). Individuals who score higher on SDO are more likely to support the dominance of high-status groups and they are more likely to want to maintain or increase social inequality (Pratto, Sidanius, & Levin, 2006). In contrast, those who score lower on SDO tend to favour hierarchy-attenuating policies and tend to have a desire to reduce inequality. That is, SDO assesses preferences for hierarchical rather than egalitarian intergroup relationships, reflecting the preference for inequality versus equality dimension of sociopolitical ideology. The SDO Scale was recently revised to better account for the sub-dimensions of SDO (Ho et al., 2015). Specifically, the new measure more effectively and precisely measures the sub-dimensions of SDO-Dominance (SDO-D) and SDO-Egalitarianism (SDO-E), which were shown to be theoretically distinct dimensions and predictive of different intergroup outcomes. The SDO-D

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dimension is characterized by a preference for group-based dominance hierarchies (i.e., those who endorse SDO-D believe that dominant groups should oppress subordinate groups). SDO-D is more predictive of aggressive behaviours and oppressive attitudes directed toward subordinate groups, a strong focus on group competition and concern for threat to the dominant group. The SDO-E dimension is characterized by a strong opposition to group equality. This second dimension is more predictive of political conservatism and opposition to policies that would encourage group equality. Similar to RWA, conservatives tend to score higher on SDO than liberals (Pratto et al., 1994). Together, these two components, assessed by SDO and RWA, respectively, provide a more coherent assessment of political ideology.

Liberals' and Conservatives' Environmental Attitudes and Behaviours

McCright and Dunlap (2011), building on their respective past reviews that suggested liberals were more likely to believe in climate change and support pro-environmental policies compared to conservatives (e.g., McCright, 2011; Dunlap, Xiao, & McCright, 2001), conducted a study examining the politicization of climate change. Specifically, they examined political polarization of attitudes on climate change among Americans. They collected data from ten Gallup surveys spanning the years 2001-2010. Gallup surveys are annual polls that include questions on several topics including pro-environmental attitudes collected from the Gallup Organization each March. The data were collected through phone interviews with nationally representative samples of over 1000 adults in the U.S. A number of notable patterns regarding liberals' and conservatives' disparate views on climate change emerged. First, liberals were more likely to report beliefs that align with the scientific consensus on global warming: In particular, that it is happening and is a consequence of human activity. Second, liberals reported feeling more concerned about climate change compared to their conservative counterparts. Furthermore,

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according to the Gallup Polls, the degree of this political divide grew considerably over the decade studied.

More recent research (e.g., Unsworth & Fielding, 2014) also supports the notion that conservatives are more sceptical of the existence and anthropogenic cause of climate change and less supportive of efforts to curb climate change overall compared to liberals. In fact, PEW research published in June 2014 showed that even though 61% of the American public agreed there is convincing evidence that the average temperature is rising on Earth, 75% of Steadfast Conservatives (i.e., those who are staunch critics of government and are very socially conservative) and 71% of Business Conservatives (i.e., those who have a preference for limited government, but support Wall Street and business, immigration reform and are more moderate on social issues than Steadfast Conservatives) reported there is insufficient evidence that the Earth is warming. In addition, 75% of Steadfast Conservatives and 70% of Business Conservatives reported that the U.S. has put too much effort into protecting the environment. In contrast, 78% of Next Generation Left (i.e., those who are very liberal on social issues, but have reservations about cost of social programs), 70% Faith and Family Left (i.e., those who have confidence in government and support federal programs, but who also tend to be very religious and uncomfortable with some untraditional social changes) and 91% of Solid Liberals (i.e., those who express liberal attitudes across almost every realm) believed that the temperatures had been rising. Furthermore, 90% of Next Generation Left, 82% of Faith and Family Left and 96% of Solid Liberals believed that America should do whatever it takes to protect the environment. Therefore, in the U.S. there is a clear divide between liberals and conservatives on their perceptions of climate change.

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Similar ideological divisions have been found among left-leaning and right-leaning politicians in Australia. Fielding, Head, Laffan, Western and Hoegh-Guldberg (2012) invited Federal, State and Territory members of parliament and local government authorities to complete an online survey assessing beliefs about climate change. Results from 311 responses (a response rate of 22%) revealed that left-wing politicians reported beliefs that more closely endorsed scientists' beliefs about the causes and impacts of climate change and gave greater priority to climate change in their political work than conservative politicians. Thus, there is an ideological divide on beliefs about and support of climate change among politicians and laypeople.

Extending this research, Choma, Hanoach, Gummerum and Hodson (2013) investigated how risky conservatives perceived climate change to be compared to liberals. A community sample of Americans completed measures of political conservatism (*vs.* liberalism), RWA and SDO, and rated their perceived risk of several hazards, including climate change. Participants who identified as politically conservative (*vs.* liberal) and were higher (*vs.* lower) on RWA and SDO perceived climate change as less risky. This finding shows that liberals may be more concerned about climate change and perhaps empathetic towards climate change initiatives compared to conservatives, in part because they perceive climate change as riskier than conservatives.

In addition, a recent study conducted by Hoffarth and Hodson (2016) found that environmentalist threat (i.e., a perception that environmentalists and environmentally friendly social changes are a threat to society) significantly mediated the relations between right-wing (*vs.* left-wing) ideologies, measured using RWA, SDO and Republican identity, and climate change beliefs. Specifically, they found that those who identified as right-wing (*vs.* left-wing) were more likely to report that climate change is not happening, is not caused by human interference, and

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does not need to be addressed by political action, and that this relation was mediated by environmentalist threat. Thus, conservatives (*vs.* liberals) are less likely to support environmental issues, because they feel that environmental initiatives and those that support them threaten their way of life.

Beyond examining liberals' and conservatives' disparate views on climate change, in their study looking at the results of Gallup surveys, McCright and Dunlap (2011) further extended past research on ideological differences on climate change perceptions by investigating how political orientation moderated the effects of climate change education. The results of their study indicated that the relation between climate change education and personal concern over and belief in the existence of climate change was *positive* for liberals, but *weaker or negative* for conservatives. In other words, when liberals are educated on climate change, they become more convinced of and concerned about its existence. However, when conservatives are educated about climate change they can become *less* convinced of its existence and *less* concerned about its impact. Thus, conservatives are unlikely to change their sceptical attitudes towards climate change when provided with further information on or evidence of its existence.

A similar pattern of results was found when investigating liberals (*vs.* conservatives) attitudes towards hydraulic fracturing (i.e., fracking; Choma, Hanoach, & Currie, 2016). Fracking is one step in the process of drilling for natural gas from shale rock, which, beyond contributing to climate change, has also been shown to present serious environmental and health risks. Choma et al. found that among those who were more knowledgeable about fracking, conservatives (*vs.* liberals) perceived fracking as less risky and more economically beneficial. Thus, knowledge about the negative impacts of fracking on the environment did not diminish conservatives' support of fracking; rather it increased their support of fracking, suggesting that conservatives

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who are more highly educated about environmental issues do not show more support for environmental initiatives, and may in fact be less supportive.

To summarize, research suggests that liberals generally believe that climate change is occurring and risky, is a consequence of human interference, that climate change is concerning and that governments and people should be doing whatever is necessary to protect the environment. In contrast, conservatives generally do not believe in the existence or anthropogenic roots of climate change, do not believe it is risky, are not as concerned about climate change and they think the government should be doing less to protect the environment.

Green Identity and Political Orientation

In addition to individual differences in attitudes toward environmentally friendly actions, people can also differ in the extent to which they identify as “green”. Self-identity can be defined as a “label used to describe oneself...[that] is influenced both by personal motivations (for self-esteem, self-enhancement, and self-understanding) as well as social interaction in the form of demands and expectations of others and the various roles we perform” (Whitmarsh & O’Neill, 2010, p. 306). Whitmarsh and O’Neill developed a pro-environmental (or green) self-identity scale based on this definition and measures adapted from previous research on self-identity (e.g., Cook et al., 2002; Sparks & Shepherd, 1992). The scale comprises 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’ (scoring reversed), and ‘I would not want my family or friends to think of me as someone who is concerned about environmental issues’ (scoring reversed).

Although Whitmarsh and O’Neill’s (2010) study did not investigate whether conservatives and liberals differ in green identity, results described earlier suggest that liberals

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might have a stronger pro-environmental identity than conservatives. More specifically, given that liberals believe in and are concerned by the existence and severity of climate change, they might be more likely to think of themselves as “green”. In contrast, given that conservatives are less likely to believe in the existence and anthropogenic cause of climate change and are generally unconcerned about its influence, they might be less likely to identify as “green”. The present thesis will test whether liberals are more likely than conservatives to identify as *green*.

Morality

Issues people perceive as *moral* are “closed to compromise and are especially tied to people’s motivations to become politically engaged to either proactively stand up for what they believe is right, or reactively fight against what they believe to be fundamentally wrong” (Skitka, 2010, p. 267). They are attitudes an individual holds as “self-evident and fundamental truths about [what is] right and wrong” (Skitka, 2010, p. 267). In other words, moral beliefs or *moral mandates* guide individuals’ beliefs on what is right and what is wrong. To delve even deeper into what defines morality and what differentiates moral mandates from mere preferences or normative conventions, Skitka, Bauman and Mullen (2008) developed an integrated theory of moral conviction (ITMC) based on insights from theory and research on moral development. The ITMC identifies unique characteristics of moral mandates that differentiate them from equally strong, but non-moral attitudes. First, individuals believe their moral mandates are universally and objectively true. In addition, moral mandates are more autonomous (i.e., they reflect what an individual personally believes ‘ought’ or ‘should’ be done, independent from the beliefs of the groups they identify with), inherently motivating and self-justifying than preferences or conventions. Consequently, moral mandates strongly influence what people think, feel and do. Finally, moral mandates have a stronger relation to affect than preferences or conventions. In

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other words, people feel a stronger intensity of emotion in conjunction with their moral convictions than with non-moral attitudes.

To measure moral mandates, Skitka and her colleagues have predominantly used a single-item and face valid measure of moral conviction, to avoid confounding the measure with other aspects of attitudes (Skitka, 2010). Specifically, people rate their agreement with an item (X) such as, ‘My feelings about X are a reflection of my core moral beliefs and convictions,’ where X refers to the attitude object of interest (Skitka, 2010). Research suggests this construct has discriminant validity, convergent validity and is a reliable measure (e.g., Skitka, Bauman, & Sargis, 2005; Skitka, 2010).

Ideological Differences in Perceptions of the Morality of Green Behaviours

There is evidence that some individuals view pro-environmental behaviours as moral. For example, individuals who acknowledge the consequences of environmental degradation, recognize the anthropogenic cause of climate change, identify as more pro-environmental and perceive environmental protection as a moral imperative (Karp, 1996; Markowitz, 2012; Schultz & Zelezny, 1998; Stern, Dietz, Abel, Guagnano, & Kalof 1999; van der Werff, 2013; Van Liere & Dunlap, 1978). Given that liberals (*vs.* conservatives) are more likely to hold these views (e.g., Choma et al., 2013; Fielding et al., 2012; Hoffarth & Hodson, 2016; McCright and Dunlap, 2011; Unsworth and Fielding, 2014), it is possible that liberals (*vs.* conservatives) are more likely to view environmentally friendly behaviours as moral imperatives.

Few studies have examined whether liberals are more likely to perceive pro-environmental behaviours as moral compared conservatives. In one exception, Feinberg and Willer (2013) conducted two studies to test whether liberals perceive green behaviours as more moral than conservatives. In their first study, 187 participants from 15 different cities in the U.S.

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completed an online survey. After reporting their political ideology (a single-item scale from liberal to conservative), participants read one of three vignettes that outlined the average day of a target individual. In the recycle condition, after eating his lunch, the target individual chooses to put his plastic water bottle in a recycling bin. In the not-recycle condition, he chooses to put the plastic bottle in the garbage. Finally, in the control condition there was no mention of the bottle. Participants then rated the target on how moral they perceived the target to be. Results revealed that liberal participants in the not-recycle condition rated the target as significantly less moral than liberal participants in either the recycle or control conditions. However, conservative participants did not significantly differ in their ratings of the target individuals across conditions. This finding suggests that liberals perceive recycling as a moral issue, whereas conservatives may not.

In a second online study, Feinberg and Willer (2013, Study 2) examined whether liberals viewed green behaviours as more moral than conservatives using a different task. After completing a measure of political ideology, participants indicated how important they believed it was to behave pro-environmentally and explained why in two to three sentences. Coders who were blind to the study hypotheses coded participants' answers based on how much each response contained "moral reasons" and "perceptions of right and wrong". These two items were averaged together to establish a morality composite. Findings indicated that liberals were significantly more likely to rely on moral reasons as explanations for why they thought it was important to behave in pro-environmental ways compared to conservatives. These results provide preliminary support for the notion that liberals perceive green behaviours as more moral than conservatives. This thesis will extend this research by investigating political differences in perceptions of the morality of pro-environmental behaviours.

Hypotheses

In summary, when an individual engages in one pro-environmental (*green*) behaviour, they are less likely to engage in a subsequent green behaviour (e.g., Catlin & Wang, 2013; Tiefenbeck et al., 2013). This *negative spillover* might be explained by the moral credentials phenomenon (Monin & Miller, 2001), whereby individuals who first complete a moral behaviour subsequently feel licensed to abstain from a further moral behaviour. Identifying psychological underpinnings of negative spillover will facilitate future research on how best to overcome this obstacle to promoting much-needed pro-environmental behaviours.

Given that the moral credentials phenomenon is stronger for those who perceive the behaviour as moral, and research suggests that liberals are more likely than conservatives to view pro-environmental behaviours as moral (Feinberg & Willer, 2013), the purpose of the present thesis was to investigate whether the moral credentials effect could explain negative spillover and test whether sociopolitical ideology moderates the moral credentials effect. Specifically, the present thesis addressed three main questions: First, whether those who endorse left-wing (vs. right-wing) ideologies, investigated with both uni-dimensional (i.e., with a left vs. right continuum) and bi-dimensional (i.e., with RWA and SDO) measures, perceive green behaviours as less moral. Second, whether heightened self-esteem following a green action predicted negative spillover, consistent with a moral credential framework. And, third whether the proposed moral credential negative spillover effect was more likely among liberals (vs. conservatives) given that liberals perceive green behaviours as more moral than conservatives. Two studies were conducted. Study 1 tested whether liberals (vs. conservatives) perceived green actions as more moral and Study 2 tested whether a heightened sense of self-concept as a result of

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performing a pro-environmental behaviour increased the likelihood of showing the negative spillover effect, and whether this effect was more likely for liberals than conservatives.

Study 1

To test whether liberals (*vs.* conservatives), those lower (*vs.* higher) in RWA, and lower (*vs.* higher) in SDO perceive green actions as more moral a sample of American adults were recruited. It was expected that those who self-identify as liberal (*vs.* conservative) and those lower (*vs.* higher) in RWA and SDO would rate environmental behaviours as more moral, report more positive feelings about the self when considering their own pro-environmental contributions, and identify more strongly as ‘green’ (H1). It was further hypothesized that the relation between lower RWA, lower SDO and greater liberalism (*vs.* conservatism) with perceiving green behaviours as more moral would be mediated by the positive feelings associated with engaging in green behaviours (H2). In other words, it was expected that those who have lower RWA and SDO scores and who identify more strongly as liberal (*vs.* conservative) would associate more positive feelings with engaging in green behaviours, and would consequently perceive green behaviours as more moral.

Method

Participants

Participants were adults from the United States, recruited using Amazon’s Mechanical Turk (MTurk) who received \$0.50US in exchange for their participation (*M*_{age} = 40.40; *SD* = 12.88; 50.0% female, 48.7% male, 1.3% unspecified). Power analysis using three predictors and, based on the meta-analysis by Blanken et al. (2015), an expected medium effect size, recommended a minimum sample size of 76 participants. Therefore, data from 150 participants was collected.

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Procedure

Participants were informed the purpose of the study was to examine the link between socio-political orientation and pro-environmental attitudes. After providing consent, participants completed measures of sociopolitical orientation, green identity, perceptions of the morality of green behaviours, how frequently they engage in those behaviours, and feelings associated with engaging in green behaviours. Finally, participants read a debriefing form. The entire study took approximately 20 minutes.

Measures

Sociopolitical orientation. Participants indicated their political self-identification on a three-item scale from 1 (*extremely liberal*) to 9 (*extremely conservative*) in terms of their general outlook, social policy and economic policy ($M = 3.98$, $SD = 2.04$, *Range*: 1.00-9.00; Choma et al., 2010; Skitka et al., 2002; Appendix A). A composite Left vs. Right score was computed by calculating the mean of the three items ($\alpha = .91$). Higher scores indicated greater political conservatism. In addition, participants completed a 12-item version of the RWA scale ($M = 2.80$, $SD = 1.37$, *Range*: 1.00-6.67; Altemeyer, 1996, Appendix B) to measure preferences for traditionalism versus social change (e.g., one of the items included in the measure was “Our country will be destroyed someday if we do not smash the perversions eating our moral and traditional beliefs”). Participants further completed the 16-item SDO Scale ($M = 2.20$, $SD = 1.17$, *Range*: 1.00-5.31) Pratto et al., 1994, Appendix C), which measures preferences for equality versus inequality (e.g., an item included in this scale was “Some groups of people are just more worthy than others”). Both of these scales have shown high reliability and validity (e.g., Pratto et al., 1994, Altemeyer, 1996). Participants responded to both measures on a scale from 1 (*strongly*

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disagree) to 7 (*strongly agree*). For each scale, items were averaged with higher scores reflecting greater RWA ($\alpha = .92$) and SDO ($\alpha = .94$), respectively.

Green identity. Green identity was measured using the 4-item scale developed by Whitmarsh and O'Neill (2010; $M = 3.94$, $SD = 0.77$, *Range*: 1.50-5.00; Appendix D). Participants rated their degree of agreement, on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with the following statements: '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' (scoring reversed), and 'I would not want my family or friends to think of me as someone who is concerned about environmental issues' (scoring reversed). A composite green identity score was computed by first reverse coding relevant items and calculating the mean ($\alpha = .77$). Higher scores indicated a stronger green identity.

Perceptions of the morality of green behaviours. Participants were provided with a list of 15 pro-environmental behaviours (e.g., recycling, taking public transit) and rated whether engaging in the behaviour was a reflection of the participants' core moral beliefs and convictions ($M = 3.65$, $SD = 0.75$, *Range*: 1.00-5.00; based on Skitka, 2010, Appendix E). Participants responded using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The responses to each item were averaged and higher scores indicated that the participant perceived green behaviours as more moral ($\alpha = .94$, this variable will be referred to as Morality throughout the thesis).

Frequency of green behaviours. Participants were provided the same list of 15 pro-environmental behaviours as the one provided in the measure on perceptions of the morality of green behaviours and asked on a scale from 1 (*never*) to 5 (*all the time*) how frequently they engage in each behaviour ($M = 3.15$, $SD = 0.68$, *Range*: 1.40-4.73; Appendix E). The responses

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to each item were averaged with higher scores indicating the respondent engaged in the green action more frequently ($\alpha = .86$, this variable will be referred to as Frequency throughout the thesis).

Feelings associated with engaging in green behaviours. Participants were provided with a modified version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988; Appendix F). The modified scale listed 16 different emotions (including 8 positive emotions and 8 negative emotions) and required participants to indicate on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*) the extent to which they have felt each emotion while engaging in pro-environmental behaviours ($M = 3.79$, $SD = 0.65$, *Range*: 1.94-5.00). The responses to the negative affect words were averaged and reverse scored and then combined with the positive affect words, after they were averaged, to create one positive versus negative affect score ($\alpha = .90$, this variable will be referred to as Positive Feelings throughout the thesis). Higher scores indicated higher positive affect and lower scores indicated lower negative affect associated with engaging in pro-environmental acts.

Results

Descriptive Statistics and Correlations

Means, standard deviations and zero-order correlations of study variables are shown in Table 1. Age and sex have been shown to relate to political ideology (Knight, 1999; PEW Research Center, 2014; Pratto, Stallworth, & Sidanius, 1997); therefore, the association of age and sex with Left vs. Right was examined. Gender did not correlate with Left vs. Right ($r = .01$, $p = .872$), but the correlation between getting older and greater conservatism was marginally significant ($r = .16$, $p = .051$). Past research has also found that RWA is related to a participants' age (Altemeyer, 1996) and SDO is related to gender (Pratto et al., 1994; Pratto, Stallworth, &

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Sidanius, 1997) Therefore, associations of age with RWA and sex with SDO were also examined. In contrast to expectations, RWA did not relate to age ($r = .04, p = .258$), but as expected, being male correlated with higher SDO ($r = -.17, p = .041$). Consequently, age and gender were controlled for in the regression analyses.

Correlations with Sociopolitical Orientation

Individuals who identified as conservative (vs. liberal), perceived green behaviours as less moral ($r = -.22, p = .007$), identified less strongly as “green” ($r = -.37, p < .001$) and had less positive feelings associated with green behaviours ($r = -.21, p = .010$), in line with the hypotheses. In addition, as predicted, higher (vs. lower) SDO was significantly related to perceiving green behaviours as less moral ($r = -.24, p = .003$), identifying less strongly as green ($r = -.40, p < .001$) and having less positive feelings associated with pro-environmental behaviours ($r = -.24, p = .003$). In contrast to expectations, higher (vs. lower) RWA did not significantly correlate with Morality ($r = -.05, p = .576$) or Positive Feelings ($r = .07, p = .428$). However, as hypothesized, those with higher (vs. lower) RWA identified less strongly as green ($r = -.24, p = .003$).

Frequency of Green Behaviours

Frequency of green behaviours did not significantly correlate with RWA, SDO or the Left vs. Right variable (see Table 1). An examination of the means of the scale items suggested that any results on the frequency variable should be considered cautiously. The Frequency measure was problematic; because the behaviours described varied widely in terms of how often they are actually conducted. For example, one of the items asked how frequently participants turn off the lights before leaving a room (a behaviour that is likely conducted multiple times a day), whereas another item asked how frequently participants install green appliances (a

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behaviour that likely only conducted once every few years). Thus, the Frequency variable may not be adequately measuring the frequency of *pro-environmental* behaviours, but rather be measuring simply how frequently specific behaviours are engaged in compared to other behaviours. The means for the items that make up the Frequency variable supports this supposition: The items that refer to behaviours people are more likely to engage in, such as turning off the lights when leaving a room ($M = 4.31$) or recycling ($M = 3.82$), have much higher means than items that refer to behaviours people engage in rarely, such as avoiding air travel ($M = 2.83$) or installing green appliances ($M = 2.76$). Thus, it is possible the Frequency measure lacks construct validity. Due to the issues with this variable, the correlations between each individual item from the Frequency variable and the sociopolitical ideology variables were investigated, but none of the individual items consistently related to the ideology variables (see Appendix J).

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Table 1

Means, standard deviations, and correlations among variables in Study 1

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1. Age	40.40 (12.88)	--							
2. Gender	--	-.09	--						
3. RWA	2.80 (1.37)	.04	.05	--					
4. SDO	2.20 (1.17)	-.01	-.17*	.55**	--				
5. Left vs. Right	3.98 (2.04)	.16‡	.01	.62**	.54**	--			
6. Positive Feelings	3.79 (0.65)	.00	.24**	.07	-.24**	-.21*	--		
7. Perceived Morality	3.65 (0.75)	.03	.09	-.05	-.24**	-.22**	.66**	--	
8. Green Identity	3.94 (0.77)	.06	.11	-.24**	-.40**	-.37**	.59**	.58**	--
9. Frequency	3.15 (0.68)	.11	.11	.13	-.06	-.08	.59**	.72**	.51**

Note. $N = 150$. ** $p < .01$; * $p < .05$; ‡ $p = .051$, two-tailed.

Path Analysis Results

To determine whether a boost in self-esteem mediated the relation between sociopolitical ideology and Morality, path analyses using IBM AMOS version 22.0 software were conducted. Two path analyses were run, one with RWA and SDO as simultaneous predictors and one with left-right ideology as the predictor variable. Hence, in order to explore both the single-dimension and two-dimension conceptualizations of political ideology, two separate path analyses were conducted.

In the two-dimensional model (Figure 1) RWA and SDO were modelled as correlated predictors of Morality and the proposed mediator, Positive Feelings, and had the following specifications: (1) RWA predicted Morality; (2) SDO predicted Morality; (3) RWA predicted Positive Feelings; (4) SDO predicted Positive Feelings; and (5) Positive Feelings predicted Morality. In the single-dimensional estimated mediation model (Figure 2), Left *vs.* Right was modelled as a predictor of Morality and the proposed mediator, Positive Feelings, and had the following specifications: (1) Left *vs.* Right predicted Morality; (2) Left *vs.* Right predicted Positive Feelings; (3) Positive Feelings predicted Morality. Both models were fully saturated ($df = 0$) therefore fit indices are not reported. Indirect (i.e., mediated) effects were estimated based on bias-corrected estimates derived from 1,000 bootstrap samples computed using maximum likelihood procedures.

With respect to the two-dimensional model, neither SDO ($-.06, p = .447$) nor RWA ($-.07, p = .382$) had direct effects on Morality. However, both RWA ($+.27, p = .003$) and SDO ($-.40, p < .001$) had a direct effect on Positive Feelings ($R^2 = .12$). Indicating that, in contrast to the hypothesis, individuals higher (*vs.* lower) in RWA reported *higher* positive affect associated with engaging in pro-environmental behaviours, and, as hypothesized, higher (*vs.* lower) SDO

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predicted lower positive affect when considering green behaviours. Furthermore, Positive Feelings had a direct effect on Morality ($+ .65, p < .001, R^2 = .44$), suggesting that individuals who reported higher positive affect associated with behaving pro-environmentally perceived green behaviours as more moral. Finally, RWA ($-.26, p = .003$) and SDO ($+.17, p = .001$) had indirect effects on Morality, indicating, as hypothesized, that Positive Feelings mediated the effect of RWA and SDO on Morality.

In the two-dimensional path model, RWA had a significant direct effect on Positive Feelings, even though the correlation between RWA and Positive Feelings was only .07. To explore these conflicting results, two separate path analyses were conducted, one with only RWA modelled as a predictor of Morality and Positive Feelings and one with only SDO modelled as a predictor of Morality and Positive Feelings (see Appendix I). When only RWA was modelled as a predictor of Positive Feelings and Morality, RWA no longer had a significant direct effect on Positive Feelings ($+.06, p = .494, R^2 = .00$). In addition, RWA no longer had an indirect effect on Morality ($+.02, p = .470$). However, in the model with only SDO as a predictor, SDO still had a direct effect on Positive Feelings ($-.25, p = .002, R^2 = .06$) and an indirect effect on Morality ($-.10, p = .002$). Therefore, RWA may not predict Positive Feelings.

In the single-dimensional model, Left vs. Right did not have a direct effect on Morality ($-.01, p = .118$). Left vs. Right did, however, have a direct effect on Positive Feelings ($-.22, p = .005, R^2 = .05$). That is, greater political conservatism predicted lower positive feelings associated with engaging in a pro-environmental behaviour. Positive Feelings also had a direct effect on Morality ($+.63, p < .001, R^2 = .44$), showing that those who experience more positive feelings associated with behaving pro-environmentally perceive green behaviours as more moral.

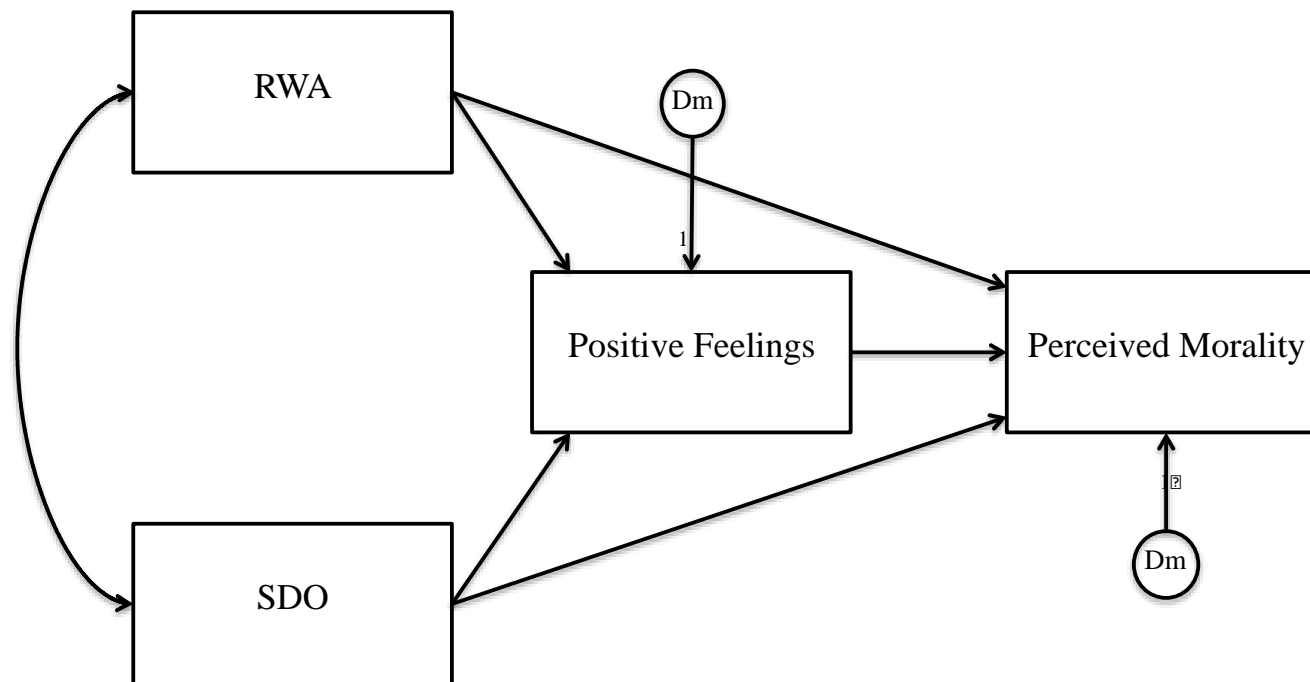
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In addition, Left *vs.* Right had a significant indirect effect on Morality ($-.14, p = .011$). Thus, as hypothesized, Positive Feelings mediated the effect of Left *vs.* Right on Morality.

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Figure 1

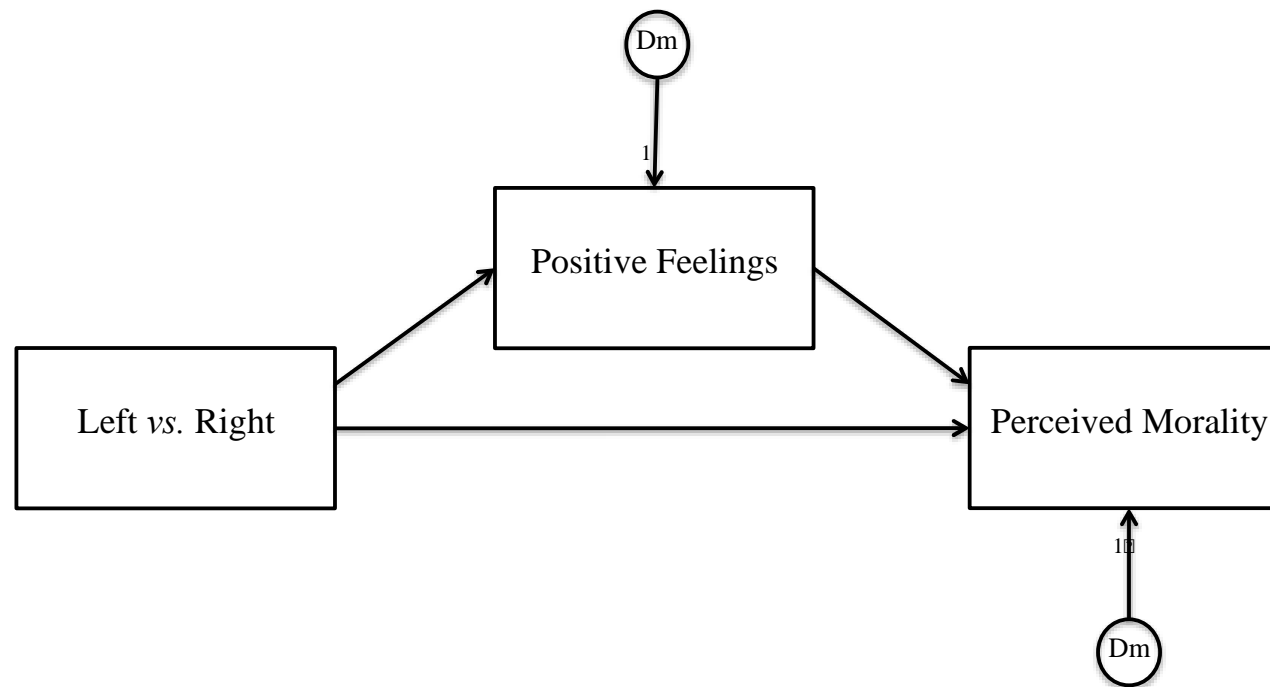
Mediation model linking RWA and SDO with Morality, mediated by Positive Feelings



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Figure 2

Mediation model linking Left vs. Right with Morality, mediated by Positive Feelings



Discussion

The purpose of Study 1 was to determine whether liberals (*vs.* conservatives) were more likely to perceive green behaviours as more moral and whether positive feelings associated with engaging in green behaviours mediated this relation. Consistent with Hypothesis 1, American adults who identified as more liberal (*vs.* conservative) and those lower (*vs.* higher) in SDO perceived green behaviours as more moral, identified more strongly as green and experienced more positive feelings associated with green behaviours. Those lower (*vs.* higher) in RWA also identified more strongly as green, as predicted. However, contrary to the hypothesis, RWA was unrelated to perceptions of the morality of pro-environmental behaviours or positive feelings associated with engaging in green behaviours. Therefore, consistent with the findings from Feinberg and Willer's (2013) study that found liberals (*vs.* conservatives) perceive green behaviours as more moral, Study 1 also indicates that left-right ideology and, extending on Feinberg and Willer's findings, the preference for equality (*vs.* inequality) dimension of political ideology related to perceiving green behaviours as more moral.

In addition, Study 1 tested the novel hypothesis that the link between sociopolitical ideology and morality might be explained by higher positive feelings associated with engaging in green behaviours. As predicted, positive feelings associated with green behaviours mediated the relation between sociopolitical orientation variables and perceiving green behaviours as moral, such that those who associated more positive (*vs.* negative) feelings with green behaviours consequently perceived green behaviours as more moral. Specifically, the relation between liberalism (*vs.* conservatism) and lower (*vs.* higher) SDO with perceiving green behaviours as moral was mediated by positive feelings associated with green behaviours. These findings are consistent with research that suggests liberals (*vs.* conservatives) and those low (*vs.* high) in SDO

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are more concerned about environmental issues, supportive of environmental initiatives, and feel more responsible for the state of the environment (e.g., Choma et al., 2013; Fielding et al., 2012; Häkkinen & Akrami, 2014; Hoffarth & Hodson, 2016; McCright and Dunlap, 2011; Milfont, Richter, Sibley, Wilson & Fischer, 2013; Unsworth and Fielding, 2014).

The finding that RWA had a significant direct effect on Positive Feelings when both RWA and SDO were entered in the path model is likely a result of the shared variance between RWA and SDO, which were strongly correlated. Separate path analyses revealed that, consistent with the correlation findings, RWA did not predict Positive Feelings suggesting RWA was only a direct predictor of Positive Feelings when both RWA and SDO were entered into the model *because* of the strong relation between RWA and SDO. The influence of SDO on RWA in the two-dimensional model may also explain why, inconsistent with the hypothesis, those higher (*vs.* lower) in RWA reported higher positive affect when considering engaging in green behaviours.

Study 2 extended correlational findings of Study 1 by investigating experimentally whether liberals (*vs.* conservatives) were more likely to show the moral credentials effect after considering their past green behaviour, because, unlike conservatives, liberals perceive green behaviours as moral.

Study 2

Study 2 investigated whether a heightened sense of self-esteem as a result of performing a pro-environmental behaviour increases the likelihood of showing the negative spillover effect (i.e., after first engaging in a green behaviour, failing to engage in a subsequent green behaviour when given the opportunity), and whether this effect is more likely for liberals than conservatives. In line with past moral credentials research, it was hypothesized that those who were assigned to a Credentials condition (in which participants were asked to consider their

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recent pro-environmental behaviour) would indicate that they would be willing to donate significantly less money to a green charity than those in a Control condition (who were not first asked to consider a moral behaviour, H2). In addition, one of the hypotheses tested in Study 1 was retested in Study 2; specifically, the hypothesis that liberals perceive green actions as more moral and identify more strongly as green than conservatives (H1). Based on the findings from Study 1 and past research (e.g., Feinberg & Willer, 2013) that suggest individuals who identify as liberal are more likely than those who identify as conservative to perceive pro-environmental behaviours as moral, it was predicted the moral credentials effects would be stronger for liberals than conservatives (i.e., those who identify as liberal would donate significantly less in the Credentials condition compared to the Control condition, whereas those who identify as conservative would donate similar amounts in both conditions H3). Finally, it was hypothesized that self-esteem would mediate the relation between the condition participants were assigned to and the amount they donated, such that those in the Credentials (vs. Control) condition would be less likely to donate money, because of a boost in self-esteem, and that these effects would be stronger for liberals than for conservatives (H4).

Method

Participants

Participants ($n = 200$) were first-year undergraduate students at Ryerson University, in Toronto, Ontario, Canada recruited from the psychology research participant pool ($M_{age} = 19.58$; $SD = 3.94$; 82.5% female, 17.0% male, 0.5% unspecified). Participants were given course credit in exchange for their participation. A power analysis using four predictors and an expected medium effect size recommended a minimum sample size of 84 participants per condition. However, the meta-analysis by Blanken et al. (2015) concluded that 165 participants are needed

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per condition in moral credentials experiments to have 80% statistical power to find an effect of $d = .31$. To reconcile the conflicting suggestions of the power analysis and the meta-analysis, 100 participants were recruited per condition.

Procedures

Prior to the experimental session (so as not to have students link the questionnaires with the study and reduce demand characteristics), participants completed measures of green identity, perceptions of the morality of green behaviours, and general green behaviour online as a part of Ryerson University's Sona system prescreen. Several weeks later, participants completed the second part of the study in the lab. They were told the study was about "attitudes and past behaviours". When participants arrived at the lab the study was verbally explained to them, and they were asked to read and sign a consent form outlining their rights as a participant and general information about the study's procedures. Once they provided consent, participants were randomly assigned to either a Credentials or Control condition. All participants completed measures of sociopolitical ideology on a computer. Then, borrowing from past studies – that have demonstrated when participants simply think and write about past moral behaviours they show the moral credentials effect and are less likely to act morally when subsequently given the chance (e.g., Conway & Peetz, 2013; Effron, Monin & Miller, 2013; Greene & Low, 2014; Joosten, van Dijke, Van Hiel, & De Cramer, 2014; Young, Chakroff & Tom, 2012) – those in the **Credentials condition** ($n = 100$) listed 10 pro-environmental behaviours they engaged in over the past month. Those in the **Control condition** ($n = 100$) listed 10 behaviours they engaged in after waking up in the morning to prepare for their day on paper. All participants then completed, on a computer, a measure of self-esteem and the HEXACO-Personality Inventory-Revised (HEXACO-PI-R), which was included as a filler measure to reduce demand characteristics by

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making the hypotheses of the study less apparent. Like past studies that have used a hypothetical charity selection and money allotment task and found evidence of the moral credentials effect (Conway & Peetz, 2012; Sachdeva, Iliev, & Medin, 2009; Young et al., 2012), upon completion of the questionnaire, the participants were told that the study was over and presented with a “general exit survey” ostensibly unrelated to the study. Specifically, participants were told:

“This study is being conducted by the SPP lab at Ryerson. We like to think of our lab as the Green lab. The Green lab is considering implementing an option at the end of all studies that would give participants the opportunity to make a small donation (up to \$20) to an environmental charity of their choice. However, before we go forward with this plan, we would like to know if anyone would take advantage of it. To help us, please indicate if you would make a donation to any of the following green charities (the following were presented in a list: Global Greengrants Fund, EcoWatch Canada, World Wildlife Fund, Sierra Club Canada Foundation, Earthsave Canada, Greenpeace Canada, Friends of the Earth Canada, other, I would not want to donate), and if so, which one you would donate to and how much would you be willing to donate (not exceeding \$20 total).”

Finally, prior to leaving the lab, participants were fully debriefed.

Measures

The same measures of Left vs. Right ($\alpha = .84$, $M = 3.95$, $SD = 1.52$, *Range*: 1.00-8.00), RWA ($\alpha = .90$, $M = 2.98$, $SD = 0.89$, *Range*: 1.00-5.75), SDO, ($\alpha = .85$, $M = 2.12$, $SD = 0.75$, *Range*: 1.00-4.88), green identity ($\alpha = .46$, $M = 3.80$, $SD = .54$, *Range*: 2.00-5.00), perceptions of the morality of green behaviours ($\alpha = .89$, $M = 3.85$, $SD = 0.54$, *Range*: 1.00-5.00) and frequency of green behaviours ($\alpha = .75$, $M = 3.28$, $SD = 0.47$, *Range*: 2.13-4.67) that participants completed

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in Study 1 were completed in Study 2. The details of measures not included in Study 1, but included in Study 2, are described below.

Self-Esteem. Participants completed the Rosenberg Self-Esteem Scale ($M = 2.81$, $SD = 0.53$, *Range*: 1.10-4.00; Rosenberg, 1965, Appendix G). This 10-item scale has been shown to be a highly reliable and valid measure of global self-esteem (Gray-Little, Williams, & Hancock, 1997). Participants indicated their agreement on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*) for items related to self-esteem (e.g., “On the whole, I am satisfied with myself”). Responses to the items were averaged across the 10 items, after reverse coding pertinent items, with higher scores indicating higher self-esteem ($\alpha = .88$, this variable will be referred to as Self-Esteem throughout the thesis).

General Green Behaviour.¹ Participants completed an 8-item measure of pro-environmental behaviour adapted from the Attitudes towards Climate Change and Science Instrument ($M = 3.80$, $SD = 0.56$, *Range*: 2.13-5.00; see Dijkstra & Goedhart, 2012). Participants indicated their agreement on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) on various items (e.g., ‘I am careful not to waste water’, Appendix H). The participants’ responses were averaged and higher scores reflect higher engagement in green behaviours ($\alpha = .73$, this variable will be referred to as Green Behaviour throughout the thesis).

The HEXACO Personality Inventory-Revised (HEXACO-PI-R). Participants completed the 60-item HEXACO-PI-R (Ashton & Lee, 2009). This scale has been shown to be a reliable and valid measure of personality (Ashton & Lee, 2009). Participants completed this filler questionnaire assessing the six dimensions of personality to reduce the likelihood of demand

¹ Green Behaviour was not included in the main analyses of Study 2.

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characteristics. Scores were not calculated as this measure was included only as a filler measure and is not relevant to the hypotheses tested.

Donation. As described above, participants selected how much money they would hypothetically be willing to donate, if any, to a green charity of their choice up to \$20.00 presented in \$1.00 increments (e.g., 5 cents-\$1.00, \$1.01-\$2.00, \$2.01-\$3.00, etc.). The resulting dependent variable had a non-normal distribution, so a median split was made into a categorical variable using a median split. The first category included participants who selected \$0-\$8.00 and the second included participants who selected \$8.01-\$20.00 (this variable is referred to as Donation throughout the thesis).

Results

Donation

The Donation variable (the dependent variable) had a non-normal distribution, likely because the majority of participants who were interested in donating money to a green charity selected a donation amount that was a multiple of five: 13% selected “I would not be willing to donate any money”, 27.5% selected between \$4.01-\$5.00 or \$5.01-\$6.00, 23% selected \$9.01-\$10.00 or \$10.01-\$11.00, 7.5% selected \$14.01-\$15.00 or \$15.01-\$16.00 and 18% selected \$19.01-\$20.00. Therefore, 89% of participants selected only 8 of the 21 options. To address the non-normality of the variable, hierarchical regressions were first conducted using bootstrapping, but none of the effects were significant (see Appendix K). Next, the variable was transformed using a log transformation and a square root transformation and neither improved the non-normal distribution. Therefore, a new Donation variable was created using \$5 intervals (i.e., separated into 5 categories: those who did not donate any money, those who donated 5 cents-\$5.00, \$5.01-\$10.00, \$10.01-\$15.00, and \$15.01-\$20.00), however, the distribution was still significantly non-

normal. It was consequently decided to make Donation into a categorical variable using a median split.

Descriptive Statistics and Correlations

Table 2 shows the means, standard deviations and zero-order correlations for the Study 2 variables. As in Study 1, the association between age² and sex with Left vs. Right, RWA and SDO were examined. Gender related to RWA, specifically being female correlated with higher RWA scores ($r = .18, p = .010$). In addition, age was related to both RWA ($r = -.16, p = .027$) and Left vs. Right ($r = -.18, p = .015$), such that older individuals reported lower RWA scores and greater liberalism. Therefore, age and gender were controlled for in the logistic regression analyses.

The means, standard deviations and zero-order correlations by condition³ are also reported in Table 3. Independent samples t-tests were conducted to determine whether there were any significant differences between conditions on any of the variable scores, but no significant differences were found (see Table 4). In addition, Table 5 shows the mean amount of money participants indicated they would hypothetically be willing to donate by condition and by ideology. As can be seen in Table 5, the mean amount of money donated by participants in the Credentials condition is lower than the amount donated by participants in the Control condition.

Correlations with Sociopolitical Orientation

In line with the hypotheses and findings from Study 1, lower RWA related to lower Morality ($r = -.23, p = .001$) and less Green Identity ($r = -.20, p = .005$), indicating that participants lower (vs. higher) in RWA perceived pro-environmental behaviours as more moral

² Six participants did not indicate their age and, therefore, were not included in the regression analysis.

³ See Appendix L for correlation tables showing the number of behaviours participants listed overall and by condition related to the other Study 2 variables.

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and identified more strongly as green. Similarly, SDO significantly correlated with lower Morality ($r = -.20, p = .005$) and less Green Identity ($r = -.16, p = .023$), suggesting that participants with lower (vs. higher) SDO also perceived green behaviours as more moral and identified more strongly as green. In contrast to the hypothesis, the correlations of liberalism (vs. conservatism) with Morality ($r = -.10, p = .175$) and liberalism (vs. conservatism) with Green Identity ($r = -.05, p = .531$) were not significant.

Frequency of Green Behaviours

Similar to Study 1, how frequently participants engaged in green behaviours did not relate to RWA, SDO or the Left vs. Right variable. However, the Frequency measure likely lacks construct validity. In parallel to Study 1, the means of the individual items that people are likely to engage in very frequently, such as turning off the lights before leaving a room ($M = 4.29$) and recycling ($M = 3.97$) were much higher than the means for items that people engage in likely very rarely, such as avoiding air travel ($M = 2.24$) and installing green appliances ($M = 2.49$). These results suggest that the Frequency variable likely measured how frequently specific behaviours are performed compared to other behaviours, regardless of whether or not they are environmental. As a consequence of the issues with the Frequency variable, the correlations between each item that made up the measure and the sociopolitical ideology variables were investigated, but none of the items consistently related to RWA, SDO or the Left vs. Right variable (See Appendix J).

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Table 2

Means, standard deviations, and correlations among variables in Study 2

	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10
1. Age	19.58 (3.94)	--									
2. Gender	--	-.23**	--								
3. RWA	2.98 (0.89)	-.16*	.18**	--							
4. SDO	2.11 (0.75)	-.05	-.03	.36**	--						
5. Left vs. Right	3.95 (1.52)	-.18*	.08	.40**	.23**	--					
6. Self-Esteem	2.81 (0.53)	.16*	-.07	-.00	.02	.16*	--				
7. Green Behaviour	3.80 (0.56)	-.05	.04	-.00	-.10	-.06	.05	--			
8. Frequency	3.28 (0.47)	.02	.07	-.10	-.07	.00	.04	.53**	--		
9. Morality	3.85 (0.54)	-.06	.10	-.23**	-.20**	-.10	-.06	.53**	.52**	--	
10. Green Identity	3.80 (0.54)	.09	-.07	-.20**	-.16*	-.05	.04	.30**	.30**	.45**	--
11. Donation	--	-.13	.10	.05	.02	-.07	-.15*	.01	.01	.01	.00

Note. $N = 200$. ** $p < .01$; * $p < .05$ two-tailed.

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Table 3

Means, standard deviations, and correlations among variables in Study 2 by condition

	<i>M (SD) Control</i>	1	2	3	4	5	6	7	<i>M (SD) Credentials</i>
1. RWA	2.98 (0.91)	--	.47**	.46**	-.10	-.21*	-.30**	.02	2.98 (0.87)
2. SDO	2.02 (0.73)	.26**	--	.33**	-.05	-.22*	-.22*	.04	2.21 (0.76)
3. Left vs. Right	3.82 (1.49)	.35**	.11	--	.30**	-.11	-.27**	-.08	4.01 (1.53)
4. Self-Esteem	2.79 (0.51)	.08	.09	.01	--	-.01	-.00	-.14	2.84 (0.55)
5. Perceived Morality	3.87 (0.51)	-.25*	-.16	-.07	-.12	--	.44**	-.01	3.82 (0.57)
6. Green Identity	3.76 (0.56)	-.11	-.13	.15	.08	.49**	--	.08	3.85 (0.51)
7. Donation	--	.08	-.05	-.05	-.14	.02	-.05	--	--

Note. $N = 100$ per condition. ** $p < .01$; * $p < .05$ two-tailed. Values for the control condition are presented below the diagonal and the Credentials condition above the diagonal.

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Table 4

Results of Independent t-tests: Differences by condition for study variables

	<i>M (SD) Control</i>	<i>M (SD) Credentials</i>	df	<i>t</i>	<i>p</i>
RWA	2.98 (0.91)	2.98 (0.87)	198	.00	1.00
SDO	2.02 (0.73)	2.21 (0.76)	198	-1.77	.078
Left vs. Right	3.82 (1.49)	4.01 (1.53)	198	-1.26	.208
Self-Esteem	2.79 (0.51)	2.84 (0.55)	198	-.72	.475
Perceived Morality	3.87 (0.51)	3.82 (0.57)	198	.60	.548
Green Identity	3.76 (0.56)	3.85 (0.51)	198	-1.18	.239

Note. $N = 100$ per condition.

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Table 5

Mean amount of money participants indicated they would donate by condition and ideology

	Left vs. Right		SDO		RWA	
	Left-Wing	Right-Wing	Low SDO	High SDO	Low RWA	High RWA
Control	\$10.11 (N = 65)	\$7.08 (N = 13)	\$9.20 (N = 46)	\$10.19 (N = 32)	\$9.88 (N = 42)	\$9.28 (N = 36)
Credentials	\$8.70 (N = 63)	\$5.22 (N = 18)	\$8.00 (N = 31)	\$7.88 (N = 50)	\$8.00 (N = 42)	\$7.85 (N = 39)

Note. Left-Wing includes all participants whose Left vs. Right score was under 5.00 (the midpoint of the scale) and Right-Wing includes all participants whose Left vs. Right score was over 5.00 (those whose score was exactly 5 (n = 15) are not included in the table). Low SDO includes all participants whose SDO score was under 2.00 (the median score) and High SDO includes all participants whose SDO score was over 2.00 (those whose score was exactly 2.00 (n = 6) were not included in the table). Low RWA included all participants whose RWA score was over 3.00 (the median score) and High RWA includes all participants whose RWA score was under 3.00 (those whose score was exactly 3.00 (n = 6) were not included in the table).

Regression Results

To investigate whether condition (Control *vs.* Credentials) predicted donation amount and whether this relation was moderated by ideology, two logistic regressions were conducted with Donation as the dependent variable. Gender and age were entered in the first step for both analyses as controls. Then, in the two-dimensional regression analysis, RWA, SDO and Condition (with the Control group coded as 0 and the Credentials group coded as 1) were entered into the second step and the interactions of RWA by Condition, SDO by Condition, and RWA by SDO were entered into the third step.⁴ In the single-dimension regression, Left *vs.* Right and Condition were entered into the second step and the interaction of Left *vs.* Right by Condition was entered in the third step.

For the first step of the two-dimensional logistic regression, the overall model was only marginally significant, $X^2(2) = 4.84, p = .089$. Neither gender ($b = -.07$, Wald $X^2(1) = 2.31, p = .284$) nor age ($b = .44$, Wald $X^2(1) = 1.15, p = .128$) were significant predictors of donation amount. In the second step, there was no improvement to the model, $X^2(5) = 7.76, p = .170$. In contrast to the hypothesis, RWA ($b = .07$, Wald $X^2(1) = .14, p = .713$) and SDO ($b = -.07$, Wald $X^2(1) = .11, p = .740$) did not significantly predict donation amount. Condition showed a non-significant trend, $b = -.48$, Wald $X^2(1) = 2.58, p = .108$ consistent with the hypothesis, suggesting those in the Control condition donated more than those in the Credentials condition. In the final step (see Table 6), the model again did not improve, $X^2(8) = 8.24, p = .410$. In addition, the hypotheses were not supported, as none of the interactions were significant.

⁴ A separate regression was conducted with RWA by SDO by Condition entered into a fourth step. This 3-way interaction not a significant predictor of donation amount ($b = -.20$, Wald $X^2(1) = .18, p = .676$).

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The single-dimensional logistic regression with Left *vs.* Right followed a similar pattern of results. As described above, the overall model of the first step of the regression with Age and Gender entered was only marginally significant, $X^2(2) = 4.84$, $p = .089$. The model marginally improved when Condition and Left *vs.* Right were added in the second step, $X^2(2) = 9.30$, $p = .054$. Even though neither Condition ($p = .127$) nor Left *vs.* Right ($p = .194$) were significant predictors of donation amount, the pattern of effects were in the anticipated direction, suggesting that those in the Control condition donated more than those in the Credentials condition, $b = -.45$, Wald $X^2(1) = 2.33$, and that liberals donated more overall than conservatives, $b = -.13$, Wald $X^2(1) = 1.69$. Finally, the model did not significantly improve with the addition of the interaction term Condition by Left *vs.* Right, $X^2(2) = 9.30$, $p = .098$ (see Table 7), although it again trended towards significance, and the interaction was not a significant predictor of donation amount as hypothesized.

Mediation and Moderated Mediation Results

Even though Condition was only a *marginally* significant predictor of Donation amount, a mediation analysis was conducted based on the analysis outlined by Mackinnon and Dwyer (1993) to test the hypothesis that self-esteem mediated the relation between Condition and donation amount. The results of the Sobel test were insignificant ($z = -.68$, $p = .499$), suggesting that self-esteem was not a significant mediator of the influence of Condition on donation amount.

A more significant goal of this thesis was to determine whether the mediating influence of self-esteem on the relation between Condition and Donation depended on whether individuals identified as left-wing (i.e., low in SDO, low in RWA, and liberal) versus right-wing (i.e., high in SDO, high in RWA and conservative). Specifically, it was hypothesized that those who identified as left-wing (*vs.* right-wing) would have higher self-esteem when considering their

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past green behaviours (*vs.* when thinking about what they did earlier that day) and that, as a result of their ideologically influenced higher self-esteem, they would donate hypothetically less (*vs.* more) to a green charity. This expected pattern of results is consistent with a moderated mediation effect (e.g., Muller, Judd, & Yzerbyt, 2005). Inherent in the definition of moderated mediation is the assumption that a significant mediation effect was found. Since the mediation analysis was insignificant, a moderated mediation analysis cannot be conducted (Muller et al., 2005). Therefore, no moderated mediation results are reported.

Discussion

The first goal of Study 2 was to test if the correlations between the ideology variables and green variables found in Study 1 would be replicated. As predicted and in line with Study 1, those with lower (*vs.* higher) SDO and, as predicted but in contrast to Study 1, those with lower (*vs.* higher RWA) perceived green behaviours as more moral and more strongly identified as green. However, contrary to the hypothesis and the Study 1 findings, greater left (*vs.* right) ideology did not relate to individuals' perceptions of the morality of green behaviour or their green identity.

The second goal of Study 2 was to investigate whether liberals (*vs.* conservatives) would be more likely to exhibit a negative spillover moral credentials effect since liberals perceive pro-environmental behaviours as more moral than conservatives. In partial support of the hypothesis, those assigned to the Control condition (i.e., those who listed behaviours they engaged in earlier that day) indicated they would donate more money than those in the Credentials condition (i.e., those who were asked to list their past pro-environmental behaviours); however, this difference was only a non-significant trend. Thus, this finding *cautiously* provides further support of the moral credential and negative spillover of pro-environmental behaviours effect (e.g., Catlin &

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Wang, 2013; Monin & Miller, 2001; Tiefenbeck et al., 2013). Furthermore, greater liberalism (vs. conservatism) did show a non-significant trend toward influencing donation amount, such that liberals donated more than conservatives, overall. However, contrary to the hypotheses RWA, SDO and the interactions of Left vs. Right, RWA and SDO by Condition failed to significantly predict donation amount.

Finally, it was predicted that a boost in self-esteem would mediate the effect of condition on the amount participants donated. In contrast to this hypothesis, the mediation analysis was not significant, suggesting self-esteem did not mediate the relation between condition and donation amount.

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Table 6

Final step of logistic regression investigating if RWA and SDO moderate the relationship between participants' assigned Condition and Donation amount

Predictor	β	SE β	Wald's X^2	df	p	e^{β} (odds ratio)
Age	-.07	.05	2.37	1	.124	.93 (.85, 1.02)
Gender	.43	.43	1.016	1	.313	1.54 (.67, 3.54)
Condition	-.80	1.18	.45	1	.501	.45 (.04, 4.59)
SDO	-.38	.85	.20	1	.654	.68 (.13, 3.63)
RWA	.00	.53	.00	1	1.000	1.00 (.36, 2.80)
Condition*SDO	.31	.45	.47	1	.493	1.36 (.56, 3.30)
Condition*RWA	-.12	.39	.09	1	.765	.89 (.42, 1.90)
RWA*SDO	.05	.24	.05	1	.824	1.06 (.66, 1.70)
Constant	1.23	1.40	.33	1	.568	

Note. $N = 192$. 8 cases (4 from the Control condition and 4 from the Credentials condition) were not included in analysis because of missing data. $R^2 = .04$ (Cox & Snell) .06 (Nagelkerke). Model $X^2(8) = 8.24$, $p = .410$. 95% confidence intervals are reported in parentheses for the odds ratio.

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Table 7

Final step of logistic regression investigating if Left vs. Right moderates the relationship between participants' assigned Condition and Donation amount.

Predictor	β	SE β	Wald's X^2	df	p	e^{β} (odds ratio)
Age	-.08	.05	3.15	1	.077	.92 (.85, 1.01)
Gender	.45	.41	1.21	1	.272	1.57 (.70, 3.52)
Condition	-.42	.83	.26	1	.611	.66 (.36, 1.14)
Left vs. Right	-.13	.14	.77	1	.380	.88 (.72, 1.07)
Condition*PO	-.01	.20	.00	1	.965	.99 (.68, 1.46)
Constant	1.42	1.42	1.00	1	.317	

Note. $N = 192$. 8 cases were not included in analysis because of missing data. $R^2 = .05$ (Cox & Snell) .06 (Nagelkerke). Model $X^2(5) = 9.30$, $p = .098$. 95% confidence intervals are reported in parentheses for the odds ratio.

General Discussion

Canada has consistently fallen behind other industrial nations when it comes to combating climate change and protecting the environment (e.g., Burke et al., 2015; Readfearn, 2014). Recently, newly elected Prime Minister Justin Trudeau proposed ambitious plans to fight climate change, such as investing hundreds of millions of dollars into clean technology and ending fossil fuels subsidies (Do, 2015). Without the support of individual Canadians, however, it will be challenging for Trudeau to make meaningful strides towards improving the environment. Thus, it is important to understand what impedes individuals from engaging in green behaviours and supporting green initiatives. Negative spillover, a pattern of behaviours in which individuals who engage in one pro-environmental behaviour fail to engage in a subsequent environmentally friendly act, could be one explanation of why individuals do not consistently act in an environmentally conscious way (e.g., Catlin & Wang, 2013; Tiefenbeck et al., 2013). The goal of this thesis was to investigate whether this negative spillover effect could be explained by the moral credentials phenomenon, whereby an individual who engages in one moral behaviour is less likely to engage in a subsequent moral behaviour (Monin & Miller, 2001). A further objective of this thesis was to test whether those who identify as left-wing (*vs.* right-wing) perceive pro-environmental behaviours as more moral and whether the moral credential negative spillover effect would, consequently, be more likely among liberals than conservatives. And, a final goal was to examine whether a boost in self-esteem following an initial green behaviour would predict negative spillover.

Overall, the findings show that those who endorse left-wing (*vs.* right-wing) ideologies perceive green behaviours as more moral, as predicted. Study 1 supported the hypothesis that greater liberalism (*vs.* conservatism) was associated with perceiving green behaviours as more

moral, identifying more strongly as green and associating more positive feelings with engaging in green behaviours. These findings are consistent with past research conducted by Feinberg and Willer (2013) who found that liberals (*vs.* conservatives) were more likely to perceive individuals who did not recycle as immoral and use moral reasoning when explaining why it is important to be environmentally friendly. The results of Study 2, however, failed to find a significant relation between political self-identification and perceptions of the morality of green behaviours or green identity.

Expanding on Feinberg and Willer's (2013) study, Study 1 and 2 also investigated the link between a two-dimensional conceptualization of ideology (*i.e.*, RWA and SDO) and perceptions of the morality of green behaviours. Consistent with the hypotheses, across Studies 1 and 2 participants lower (*vs.* higher) in SDO perceived pro-environmental behaviours as more moral, identified more strongly as green and associated more positive feelings with engaging in green behaviours. In addition, in Studies 1 and 2, as predicted, those lower (*vs.* higher) in RWA identified more strongly as green and in Study 2, as predicted, those lower (*vs.* higher) in RWA perceived pro-environmental behaviours as more moral. However, in Study 1 RWA did *not* relate to perceptions of the morality of green behaviours or positive feelings associated with engaging in green behaviours.

It is not surprising that SDO was a more consistent predictor of participants' perceptions of the morality of green behaviour; past research has found that SDO is a better predictor of environmental attitudes and beliefs than RWA (*e.g.*, Häkkinen & Akrami, 2014; Milfont *et al.*, 2013). Those higher in SDO are especially unconcerned with pro-environmental initiatives and sceptical of the anthropogenic roots of climate change, because they endorse the superiority of one group over others (*e.g.*, Sidanius & Pratto, 1993). Research has found that those who endorse

SDO consider humans to be a superior group to other species, and therefore consistent with the tenets of SDO, they believe that humans have the right to dominate other species and the environment (e.g., Dhont, Hodson, Costello, & MacInnis, 2014; Milfont et al., 2013). Thus, the finding that those lower (*vs.* higher) in SDO are more likely to perceive green behaviours as moral aligns with past research.

The lack of significant relations between RWA and political self-identification with the perceptions of the morality of green behaviours and positive feelings associated with engaging in green behaviours in Study 2 may be a consequence of the different samples collected. Study 1 participants were a diverse sample of American adults (about 50% Female and 50% Male, average age was approximately 40 years old), whereas Study 2 participants were a convenience sample of Canadian psychology undergraduates (about 83% Female and 17% Male, average age was about 20 years old). The restricted range of scores for the measures in the student sample in comparison to the community sample suggest that the student sample is a more homogenous group. Individuals with lower political sophistication are less able to accurately place themselves on the left-right continuum (e.g., Bynner, Romney, & Emler, 2003; Converse, 1964; Jacoby, 1988). Past research shows that younger individuals have lower levels of political interest and knowledge and are less likely to vote in elections compared to older individuals (e.g., Blais & Loewen, 2011; White, Bruce, & Ritchie, 2000). Hence it is possible that the younger participants in Study 2 may not be as knowledgeable about the meaning of liberal or left-wing and conservative or right-wing. Consequently, the Left *vs.* Right measure may not be as valid for this particular sample. The different strengths of the correlations between the Left *vs.* Right variable – which requires an understanding of the meaning of ‘liberal’ and ‘conservative’ – with RWA and SDO – which do not require an understanding of ‘liberal’ and ‘conservative’ – across the

two studies suggests that Study 2 participants may have struggled with placing themselves accurately along the continuum. In Study 1, the relations between the Left *vs.* Right variable with RWA ($r = .62$) and SDO ($r = .54$) were stronger than the relations between the Left *vs.* Right variable with RWA ($r = .40$) and SDO ($r = .23$) in Study 2. Thus, future research should investigate whether demographic characteristics (e.g., age, sex) may influence the relation between ideology and attitudes towards green behaviours and it may be advisable for future studies to avoid using student samples when investigating the influence of political ideology on green behaviours.

Furthermore, it was found in Study 1, as predicted, that those who associated more positive (*vs.* negative) feelings about the self when engaging in green behaviours consequently perceived green behaviours as more moral. Specifically, those lower (*vs.* higher) in SDO and those who identified more strongly as liberal (*vs.* conservative) perceived green behaviours as more moral because they experienced positive feelings about the self when they considered their green behaviour. This finding is consistent with research that suggests emotions may inform moral decision-making and perceptions of what should be classified as moral (e.g., Horberg, Oveis, & Keltner, 2011). To the researchers' knowledge, this is the first study to demonstrate that the way individuals feel about themselves when they engage in green behaviours in particular, explains ideological differences in perceiving green behaviours as moral.

Drawing on these findings, it may be beneficial to investigate whether encouraging political conservatives to associate more positive emotions with the self when engaging in environmentally friendly initiatives could influence them to perceive green behaviours as more moral. One way to accomplish this may be through framing messages that encourage environmentally friendly engagement in such a way that they are more aligned with

conservatives' ideological beliefs. For example, past research has found that environmental messages that are congruent with beliefs held by individuals who identify as right-wing (vs. left-wing; e.g., messages that frame environmental engagement as a duty and an obligation in order to adhere to authority figures) increase conservatives' environmental engagement (Kidwell, Farmer, & Hardesty, 2013). Perhaps by framing pro-environmental messages such that they align with the values of right-wing individuals (e.g., in line with Kidwell et al.'s study, framing environmental behaviours as a sign of respecting authority figures), conservatives will associate more positive feelings about the self when engaging in those behaviours and perceive them as moral, which in turn may influence them to engage more frequently in green behaviours.

In addition to replicating some of the findings from Study 1, Study 2 investigated whether the negative spillover of pro-environmental behaviours could be understood within a moral credentials framework. Consistent with moral credentials theory (Monin & Miller, 2001), those who wrote about their past green behaviours indicated they would donate less to a hypothetical green charity than those who wrote about their morning activities (however this pattern was not significant). Although this thesis does not conclusively support moral credentials given the non-significant effects, the pattern of findings are more consistent with the moral credentials effect than theories, such as self-perception theory (Bem, 1972), foot-in-the-door effect (Freedman & Fraser, 1966) and cognitive dissonance theory (Festinger, 1957), that suggests individuals should behave in a consistent way. While this thesis does find weak support for the moral credentials effect, it does not provide insight into what influences individuals to behave in a consistent versus credentialed way.

In a recent review, Mullen and Monin (2016) summarized research on the potential moderators of the moral consistency versus licensing effects. Although the research, to date, is

minimal, the researchers identified five conceptual themes to classify these moderators: construal level, progress versus commitment, value reflection, identification, and ambiguity. The first potential moderator, level of construal, refers to whether participants are prompted to consider their initial behaviours as relating to their abstract values and principles or as relating to concrete choices and tangible outcomes. If participants perceive their initial behaviour as related to their abstract values (i.e., reflective of their underlying personality or values), they are more likely to engage in consistent behaviour, whereas if participants perceive their initial behaviour as a concrete choice, they are more likely to behave in a credentialed way. It was unclear in this thesis if participants were thinking about their behaviours as reflecting their underlying personality or values, hence further research should explore whether construal level influences the moral credential negative spillover effect.

A second potential moderator identified by Mullen and Monin (2016) was whether participants viewed the initial behaviour they engaged in as symbolizing a *commitment* to a moral value (leading to consistency) or *progress toward* a moral value (leading to balancing). Thus, within a negative spillover context, if individuals perceive a pro-environmental behaviour they engage in as *progress* toward their overall goal to act in an environmentally conscious way, they may be more likely to abstain from engaging in a subsequent green behaviour. However, if individuals connected their first behaviour to their values, they may behave in a consistently environmental way.

A third related moderator proposed by Mullen and Monin (2016) was whether or not the participants have the ability to draw inferences about their own values or identity when engaging in an initial moral behaviour. Specifically, individuals who have sufficient self-control resources to consider their value system when engaging in the initial behaviour or who are prompted to

reflect on their value system when engaging in the primary behaviour (e.g., because it is especially costly to them) should behave in a consistent way. Thus, perhaps an environmental campaign that encouraged individuals to consider their green identity when engaging in pro-environmental behaviours may be effective at encouraging positive (vs. negative) spillover. In addition, considering this thesis shows that those who identify as left-wing (vs. right-wing) are more likely to perceive green behaviours as moral, perhaps the progress versus commitment moderator would be especially relevant to liberals. Future research should investigate this possibility.

A fourth potential moderator was whether (or not) participants identified strongly with the cause (i.e., in the case of this thesis, whether participants identified strongly as green), leading to consistent behaviour. This identification moderator may have influenced the results of Study 2. Only 2% of the participants recruited for Study 2 had an overall Green Identity score below 3, suggesting that the sample recruited was overwhelmingly pro-environmental. Therefore, it is possible that the only *marginally* significant moral credential effect could be explained by the fact that many individuals in the sample identified strongly as pro-environmental, and, therefore, behaved consistently. Future research should re-test the negative spillover moral credentials effect in a more diverse sample with more diverse green identity scores to determine if the moral credentials effect is stronger.

The final potential moderator proposed by Mullen and Monin (2016) was the ambiguity of the initial and target behaviours (i.e., the behaviour that follows the initial behaviour). Ambiguous initial behaviours (e.g., shutting off the air conditioning to save money) are more likely to lead to consistent subsequent behaviours, because they are not diagnostic of the individual's morality, and, therefore, individuals do not gain a "moral credit" that allows them to

later abstain from a moral act. Whereas, ambiguous target behaviours are more likely to lead to a moral credentials effect, because it is easier for participants to rationalize their decision to act immorally. It is possible the ambiguity of the target behaviour in Study 2 could have influenced the results of the study, because participants may have attributed their decision not to donate money to a hypothetical green charity as a consequence of their restricted finances. Many students have limited income and student debts to worry about and may not feel they have the means to donate a substantial amount of money to charity. Thus, the moral credential negative spillover effect found in this study could have been moderated by the ambiguity of the target behaviour, because participants perceived their decision not to donate money as a financial decision rather than a moral one. Overall, future research should investigate which of the moderators proposed by Mullen and Monin or combination of moderators, if any, are *most* relevant to the negative spillover moral credentials effect on environmental behaviours and whether these moderators can be manipulated to encourage consistent behaviour.

While there was some weak evidence of the moral credentials negative spillover effect, the results of Study 2, did not support the hypothesis that political ideology moderated this phenomenon. None of the interactions between the political ideology variables and condition were significant. This result suggests that political ideology does not influence the negative spillover effect. However, it is possible the failure to support the hypothesis could be a consequence of recruiting a convenience sample of undergraduate students. For example, research suggests that undergraduate students are generally supportive of environmental initiatives (e.g., He, Hong, Liu, & Tiefenbacher, 2011; Hodgkinson & Innes, 2001; Müderrisoğlu & Altanlar, 2011). And, as already mentioned, consistent with these findings the undergraduate participants who participated in Study 2 identified strongly as green (e.g., only 2% had an overall

Green Identity score below 3). Thus, it is possible that sociopolitical ideology (which, as already mentioned, younger individuals are likely not as knowledgeable about) may be less important than environmental concern. This could also explain why the Left *vs.* Right variable did not correlate with green identity. Overall, while the moderating influence of political ideology on the negative spillover of environmental behaviours was not supported by this study, future research should investigate whether a more diverse sample may garner different results.

Interestingly, there was an overall *marginal* influence of liberalism (*vs.* conservatism) on the amount participants donated, such that, regardless of condition, participants who identified as liberal indicated they would hypothetically donate more to an environmental charity than those who identified as conservative. This finding aligns with past research that liberals (*vs.* conservatives) are more supportive of environmental initiatives, are more concerned about the environment and perceive climate change as more risky (e.g., Choma et al., 2013; McCright & Dunlap, 2011; Unsworth & Fielding, 2014). In addition, age marginally predicted the amount participants were hypothetically willing to donate to a green charity, such that younger individuals donated more than older individuals. Past research has found that younger people are more concerned about the environment than older people (e.g., Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen, 2003), which could explain why younger participants were more willing to hypothetically donate money to a green charity.

Finally, contrary to hypotheses, Study 2 failed to support findings of past studies that a boost in self-concept mediates the moral credentials effect (e.g., Khan & Dhar, 2006; Kouchaki, 2011). It is possible the failure to find the mediating influence of self-concept could be a consequence of measuring self-esteem with the Rosenberg Self-Esteem Scale. This measure is a stable and global measure of self-esteem, and, therefore, may not be sensitive to slight variations

in positive self-regard that may result from completing a listing task during a study. Future research on the negative spillover moral credentials effect should use a measure of state self-esteem or positive emotions associated with the self, because these measures would likely provide a more accurate assessment of how the study's manipulation influenced participants' short-term self-esteem, and consequently the amount they were willing to donate.

Limitations and Conclusion

It is important to note some limitations of the studies conducted, beyond those already discussed, and suggestions for future research based on the findings. First, the Donation variable (the dependent variable) in Study 2 was problematic. The distribution of responses for this variable was multimodal; consequently a median split was used to transform the continuous donation variable into a dichotomous variable. The issue with changing a continuous variable into a dichotomous variable is that important information is lost about individual differences of the sample (e.g., MacCullum, Zhang, Preacher, & Rucker, 2002). As previously discussed, the multimodal distribution likely resulted from participants selecting mostly multiples of \$5.00. Therefore, it may be prudent for future researchers to use an open-ended donation question instead of one with multiple choices (i.e., have participants type into a blank space the amount they would be willing to donate to a hypothetical green charity) to increase variability in responses. However, this may not solve the problem, because participants may still prefer multiples of five. Thus, it may be beneficial instead to design the study such that individuals are given a small amount of money (e.g., under \$5.00) for participating and asked how much of this payment they would be willing to donate to charity.

Second, as previously discussed, the Frequency variable was problematic, because it lacked construct validity: Instead of measuring how frequently participants engaged in various

green behaviours, it measured simply how frequently specific behaviours are performed compared to other behaviours. Thus, to improve this measure for future studies, it would be prudent to re-phrase the question, such that it is clear the researchers are interested in knowing how frequently participants engage in certain behaviours *because they are environmentally friendly*. Furthermore, the measure would be improved if the scale included a “not applicable” option, since some participants may not be able to engage in certain green behaviours due to infrastructural limitations (e.g., participants who live in more rural areas may not have access to public transportation). Finally, the measure would be improved if the extremely rare (e.g., installing green appliances) and extremely common (e.g., turning off the lights when leaving a room) behaviours were removed, so that the items included did not differ as much in terms of how often they are generally performed.

Third, the studies conducted lack external validity. In the first study participants were asked to complete a survey and in the second they were asked to complete a survey and a short-listing task in a laboratory setting. Since these activities are likely not reminiscent of participants’ everyday life, the real world implications of the findings are unclear. It would consequently be prudent for future researchers to test the Study 2 hypotheses using more externally valid methods. For example, instead of having participants in the Credentials condition list past pro-environmental behaviours they engaged in over the past months, participants could be prompted into supporting an environmental campaign on Twitter (e.g., *following* the campaigns page, a behaviour that is much more likely to occur in an individual’s everyday life). Researchers could investigate whether those participants would subsequently be less likely to agree to donate a dollar to that campaign compared to participants in a Control condition who follow a Twitter page unrelated to the environment. A procedure like this could

provide insight into how the moral credential negative spillover effect influences individuals' real life pro-environmental engagement.

Finally, future studies should investigate whether the moral cleansing effect also influences pro-environmental engagement. Past studies have found that in addition to a moral licensing effect, people also demonstrate a moral cleansing effect, in which an individual who chooses *not* to engage in a behaviour they perceive to be moral subsequently, when given the opportunity, feels that they must engage in a moral action to *cleanse* themselves of their past moral failure (e.g., Jordan, Mullen, & Murnighan, 2011; Sachdeva et al., 2009; Zhong, Ku, Lount, & Murnighan, 2010). To the author's knowledge, past researchers have not investigated the moral cleansing effect in the environmental domain. Since the findings from this thesis suggest pro-environmental behaviours can be viewed as moral, future researchers should investigate whether the moral cleansing effect influences green behaviours (e.g., whether failing to engage in a pro-environmental behaviour increases the likelihood that individuals will engage in a subsequent green action).

In conclusion, this thesis provides weak evidence that the negative spillover of pro-environmental behaviours may be explained within a moral credentials framework. However, in contrast to expectations, the negative spillover moral credentials effect was not more likely among liberals than conservatives and was not mediated by a boost in self-esteem. That said, this thesis did find across two studies that individuals who identify as left-wing (*vs.* right-wing) perceive green behaviours as more moral. In addition, Study 1 found that left-wingers (*vs.* right-wingers) perceive these behaviours as more moral, because they associate more positive feelings with the self when engaging in pro-environmental behaviours. Based on the findings of this thesis, one strategy that could be explored to increase consistent engagement in environmental

behaviours would be to investigate the mechanisms (e.g., those suggested by Mullen and Monin, 2016) that result in individuals engaging in credentialed (*vs.* consistent) behaviour within the environmental domain and determine how those mechanisms can be manipulated to encourage individuals to behave in a consistently environmental way. Furthermore, the findings of this thesis suggest that a potentially effective strategy to engage conservatives in green behaviours may be to frame environmental initiatives in a way that aligns with conservatives' values (e.g., framing green behaviours as representing one's support of authority). In order for Canada to more effectively combat climate change and protect the environment, individual Canadians need to be motivated to consistently engage in environmental initiatives. Therefore, it is important to understand the barriers that prevent individuals from consistently engaging in environmental behaviours and how to overcome them.

Appendix A

Political Self-Identification Scales

Please answer each question using the scale provided.

1. In general, how liberal or conservative do you tend to be?

1	2	3	4	5	6	7	8	9
Extremely								Extremely
Liberal								Conservative

2. In general, how liberal or conservative do you tend to be when it comes to *economic policy*?

1	2	3	4	5	6	7	8	9
Extremely								Extremely
Liberal								Conservative

3. In general, how liberal or conservative do you tend to be when it comes to *social policy*?

1	2	3	4	5	6	7	8	9
Extremely								Extremely
Liberal								Conservative

Appendix B

Right-Wing Authoritarianism Scale

Please indicate your response, using the scale below.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree Nor Agree	Slightly Agree	Moderately Agree	Strongly Agree
<hr/>						
1.						
1	2	3	4	5	6	7
2.						
1	2	3	4	5	6	7
3.						
1	2	3	4	5	6	7
4.						
1	2	3	4	5	6	7
5.						
1	2	3	4	5	6	7
6.						
1	2	3	4	5	6	7
7.						
1	2	3	4	5	6	7
8.						
1	2	3	4	5	6	7
9.						
1	2	3	4	5	6	7
10.						
1	2	3	4	5	6	7
11.						
1	2	3	4	5	6	7

12. The facts on crime, sexual immorality, and the recent public disorders all show that we have to crack down harder on deviant groups and trouble-makers if we are going to save our moral standards and preserve law and order.

1

2

3

4

5

6

7

Appendix C

Social Dominance Orientation Scale

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

1 Strongly Disagree	2 Moderately Disagree	3 Slightly Disagree	4 Neither Disagree Nor Agree	5 Slightly Agree	6 Moderately Agree	7 Strongly Agree	
1. Some groups of people are just more worthy than others.	1	2	3	4	5	6	7
2. We should do what we can to equalize conditions for different groups.	1	2	3	4	5	6	7
3. In getting what your group wants, it is sometimes necessary to use force against other groups.	1	2	3	4	5	6	7
4. If certain groups of people stayed in their place, we would have fewer problems.	1	2	3	4	5	6	7
5. We would have fewer problems if we treated different groups more equally.	1	2	3	4	5	6	7
6. To get ahead in life, it is sometimes necessary to step on other groups.	1	2	3	4	5	6	7
7. No one group should dominate in society.	1	2	3	4	5	6	7
8. Group equality should be our ideal.	1	2	3	4	5	6	7
9. All groups should be given an equal chance in life.	1	2	3	4	5	6	7
10. We must increase social equality.	1	2	3	4	5	6	7
11. Superior groups should dominate inferior groups.	1	2	3	4	5	6	7
12. It's probably a good thing that certain groups are at the top and other groups are at the bottom.	1	2	3	4	5	6	7
13. We must strive to make incomes more equal.	1	2	3	4	5	6	7

- | | | | | | | |
|---|---|---|---|---|---|---|
| 14. Sometimes other groups must be kept in their place. | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |
| 15. It would be good if all groups could be equal. | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |
| 16. Inferior groups should stay in their place. | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix D

Green Identity Scale

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

1. I think of myself as an environmentally-friendly consumer.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I think of myself as someone who is very concerned with environmental issues.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I would be embarrassed to be seen as having an environmentally-friendly lifestyle.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I would not want my family or friends to think of me as someone who is concerned about environmental issues.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix E

Measure of the Perceptions of the Morality of Green Behaviours

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement with whether engaging in each behaviour is a reflection of your core moral beliefs and convictions. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

1. Recycling.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

2. Composting.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

3. Buying 'green' products.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

4. Carpooling, biking, taking public transit or other forms of transportation that are more environmentally friendly than driving.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

5. Installing green appliances.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

6. Turning off the lights before leaving a room.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

7. Monitoring water use to ensure you conserve as much water as possible.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

8. Bringing bottled water with me instead of buying plastic bottles of water.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

9. Buying products in bulk.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

10. Turning down your thermostat and your air conditioning up to save energy.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

11. Buying food from local vendors (or locally grown food at the grocery store).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

12. Finding ways to reuse items rather than discarding them.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

13. Avoiding air travel, because planes are highly fuel inefficient relative to other forms of transportation.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

14. Bringing reusable cups for your favourite hot beverage when you go to Tim Horton's (or other cafes or restaurants).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

15. Bringing reusable bags to the grocery store (or on other shopping excursions).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

How frequently do you engage in this behaviour?

1	2	3	4	5
Never	Rarely	Occasionally	Frequently	All the time

Appendix F

Measure of the Feelings Associated with Engaging in Green Behaviours

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt like this when engaging in pro-environmental behaviours (e.g., recycling, buying ‘green’ products, bringing reusable bags to the grocery store, etc.). Use the following scale to record your answers.

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Disgusted	_____	Joyful	_____	
Strong	_____	Angry	_____	
Inspired	_____	Blameworthy	_____	
Happy	_____	At ease	_____	
Sad	_____	Determined	_____	
Enthusiastic	_____	Active	_____	
Guilty	_____	Helpless	_____	
Lonely	_____	Proud	_____	

Appendix G

Rosenberg Self-Esteem Scale

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

1. On the whole, I am satisfied with myself.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

2. At times I think I am no good at all.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

3. I feel that I have a number of good qualities.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

4. I am able to do things as well as most other people.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

5. I feel I do not have much to be proud of.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

6. I certainly feel useless at times.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal basis with others.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

8. I wish I could have more respect for myself.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

10. I take a positive attitude toward myself.

1
Strongly Agree

2
Agree

3
Disagree

4
Strongly Disagree

Appendix H

Measure of General Green Behaviour

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

1. I am careful not to waste water.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I am careful not to waste food.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I separate most of my waste for recycling.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I prefer to use public transport or bicycle over car.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I always switch off the lights when I leave a room.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I always turn off the computer when I do not use it.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I try to save energy.

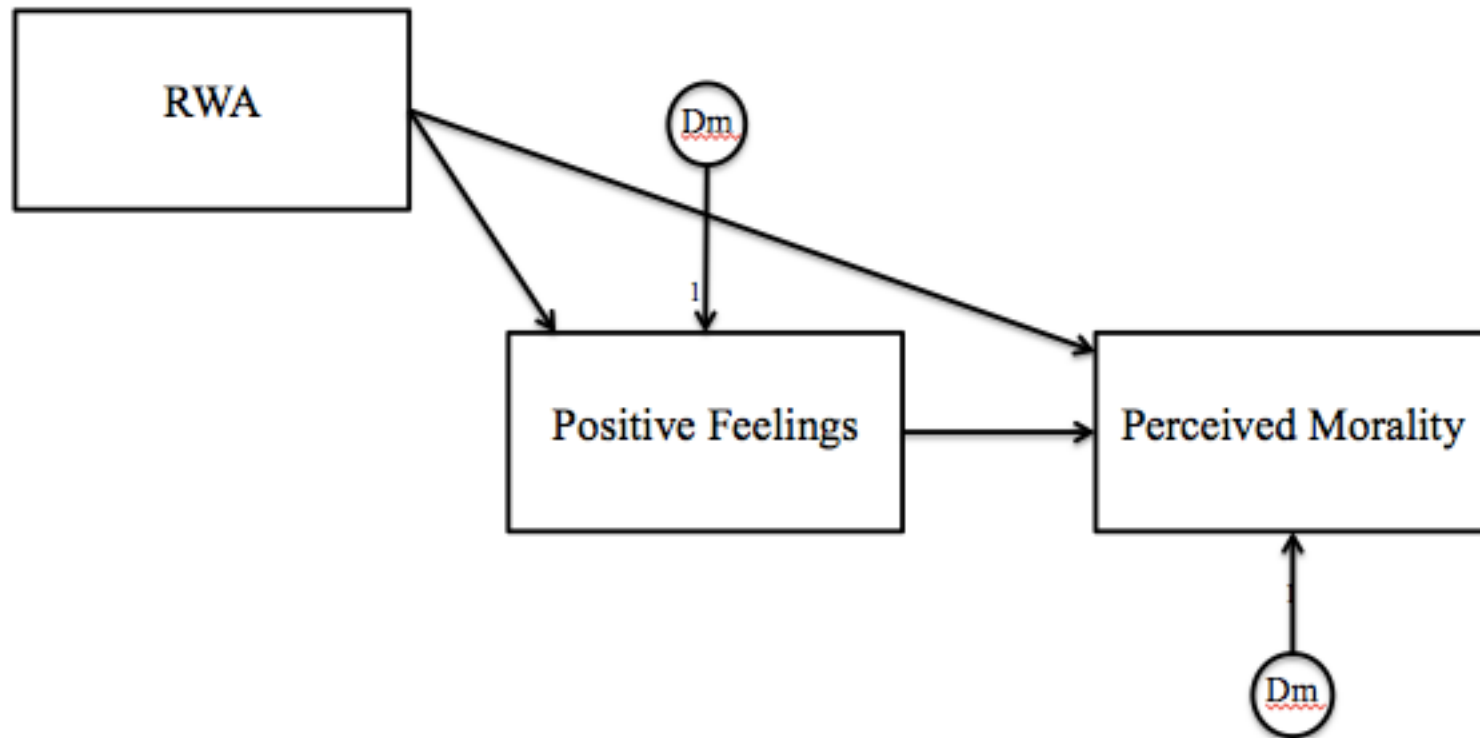
1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I feel it is important to take good care of the environment.

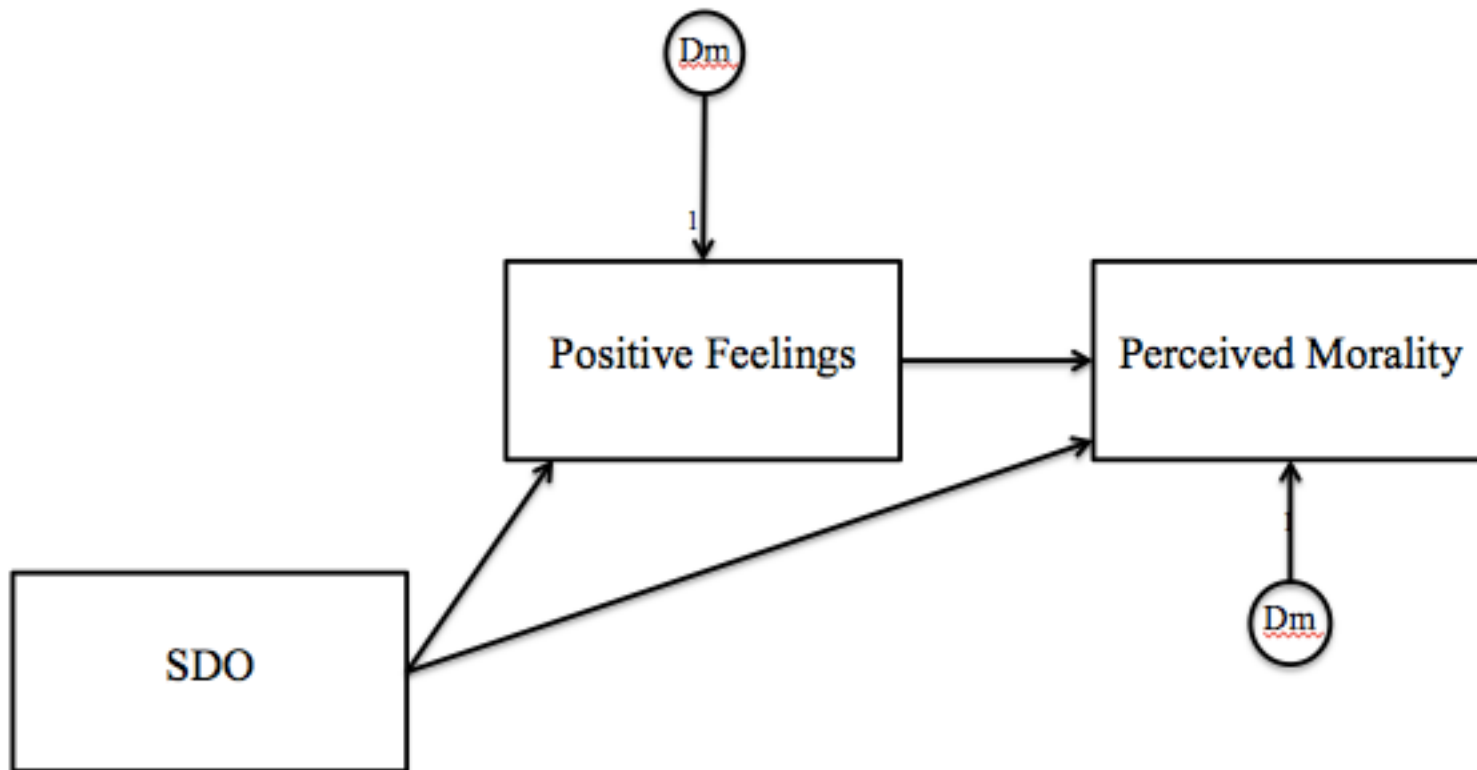
1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix I

Mediation model linking RWA with Morality, mediated by Positive Feelings



Mediation model linking SDO with Morality, mediated by Positive Feelings



Appendix J

Means, standard deviations, and correlations between individual items on frequency scale and ideology variables in Study 1

Frequency Item	<i>M (SD)</i>	RWA	SDO	Left vs. Right
Recycling	3.82 (1.05)	.02	-.06	-.04
Composting	2.28 (1.31)	.14	.03	-.00
Buying 'green' products	3.08 (1.03)	.03	-.16	-.17*
Carpooling, biking, taking public transit etc.	2.74 (1.27)	-.08	.08	-.16*
Installing green appliances	2.76 (1.05)	.11	-.08	-.09
Turning off lights before leaving a room	4.31 (0.82)	-.01	-.18*	.03
Monitoring water use	3.44 (1.16)	.25*	-.01	.00
Bringing bottled water	3.39 (1.31)	-.02	-.05	-.13
Buying products in bulk	3.05 (1.08)	.18*	.03	.09
Turning down thermostat/air conditioning up	3.68 (1.08)	.01	-.05	-.13
Buying food from local vendors	3.06 (1.04)	.17*	-.05	-.02
Reusing items	3.48 (0.90)	.05	.03	-.00
Avoiding air travel	2.83 (1.47)	.06	-.14	-.05
Bringing reusable cups	2.22 (1.38)	.21**	.03	-.04
Bringing reusable bags	3.09 (1.36)	.04	-.06	-.02

Note. $N = 150$. ** $p < .01$; * $p < .05$ two-tailed.

Means, standard deviations, and correlations between individual items on frequency scale and ideology variables in Study 2

Frequency Item	<i>M</i> (<i>SD</i>)	RWA	SDO	Left vs. Right
Recycling	3.97 (0.80)	-.16*	-.04	-.07
Composting	3.36 (1.22)	.00	.02	.01
Buying 'green' products	2.89 (0.83)	-.00	-.07	.03
Carpooling, biking, taking public transit etc.	4.14 (0.80)	-.17*	-.14*	-.11
Installing green appliances	2.49 (0.92)	-.01	.00	.09
Turning off lights before leaving a room	4.29 (0.84)	-.04	-.10	-.04
Monitoring water use	3.36 (1.11)	.09	-.07	-.02
Bringing bottled water	3.88 (1.16)	-.17*	-.07	-.06
Buying products in bulk	3.28 (1.0)	-.13	-.05	.05
Turning down thermostat/air conditioning up	3.25 (1.11)	.01	.02	.04
Buying food from local vendors	2.97 (0.96)	.02	.02	.09
Reusing items	3.26 (0.95)	-.04	-.10	-.01
Avoiding air travel	2.24 (1.09)	-.01	.01	-.00
Bringing reusable cups	1.80 (1.06)	-.07	.04	.00
Bringing reusable bags	3.96 (1.15)	-.05	-.02	.01

Note. $N = 200$. ** $p < .01$; * $p < .05$ two-tailed.

Appendix K

Final step of bootstrapped regression investigating if RWA and SDO moderate the relationship between participants' assigned Condition and Donation amount

Predictor	β	SE β	t	p	95% Confident Interval	
					Lower	Upper
Step1						
Age	-.18	.16	-1.45	.263	-.47	.13
Gender	2.23	1.30	1.73	.096	-.32	4.63
Constant	8.53	4.64	2.25	.057	-.87	17.35
Step 2						
Age	-.19	.15	-1.49	.209	-.47	.13
Gender	2.05	1.27	1.56	.104	-.45	4.48
Condition	-1.38	.97	-1.44	.153	-3.29	.57
RWA	.23	.67	.38	.731	-1.03	1.58
SDO	-.39	.73	-.55	.597	-1.76	1.08
Constant	9.87	.29	2.30	.030	.107	18.76
Step 3						

Age	-.17	.16	-1.28	.308	-.47	.16
Gender	1.88	1.34	1.39	.151	-1.02	4.38
Condition	-3.26	4.04	-.86	.418	-10.51	5.23
RWA	1.13	1.87	.67	.542	-2.12	5.07
SDO	1.01	2.91	.37	.707	-4.48	6.99
Condition*RWA	.31	1.40	.25	.808	-2.55	2.98
Condition*SDO	.48	1.56	.33	.754	-2.83	3.34
RWA*SDO	-.52	.84	.50	.530	-2.20	1.18
Constant	7.49	7.90	1.10	.323	-9.29	22.04

Note. $N = 192$. 8 cases (4 from the Control condition and 4 from the Credentials condition) were not included in analysis because of missing data. For Step 1, $R^2 = .033$ and $F(2, 189) = 3.26$, $p = .041$. For Step 2, $R^2 = .047$ and $F(3, 186) = .87$, $p = .458$. For Step 3, $R^2 = .051$ and $F(3, 183) = .24$, $p = .866$.

Final step of bootstrapped regression investigating if Left vs. Right moderates the relationship between participants' assigned Condition and Donation amount

Predictor	β	SE β	t	p	95% Confident Interval	
					Lower	Upper
Step1						
Age	-.18	.16	-1.45	.263	-.47	.16
Gender	2.23	1.30	1.73	.096	-.32	4.85
Constant	8.53	4.64	2.25	.057	-.87	16.87
Step 2						
Age	-.21	.16	-1.72	.168	-.50	.11
Gender	2.24	1.30	1.74	.090	-.34	4.89
Condition	-1.31	.94	-1.38	.179	-3.14	.58
Left vs. Right	-.41	.31	-1.30	.205	-1.04	.20
Constant	11.47	4.98	2.80	.015	2.30	20.59
Step 3						
Age	-.21	.16	-1.70	.171	-.51	.11
Gender	2.24	1.30	1.73	.092	-.31	4.85

Condition	-1.23	2.61	-.47	.654	-6.40	3.56
Left vs. Right	-.40	.44	-.83	.346	-1.32	.46
Condition*Left vs. Right	-.02	.61	-.03	.973	-1.16	1.18
Constant	11.43	5.15	2.64	.020	1.31	21.07

Note. $N = 192$. 8 cases (4 from the Control condition and 4 from the Credentials condition) were not included in analysis because of missing data. For Step 1, $R^2 = .033$ and $F(2, 189) = 3.26$, $p = .041$. For Step 2, $R^2 = .054$ and $F(2, 187) = 1.99$, $p = .139$. For Step 3, $R^2 = .054$ and $F(2, 186) = .00$, $p = .973$.

Appendix L

Correlations between variables in Study 2 and number of behaviours listed in listing task

	# of Behaviours Listed ($M = 8.74$, $SD = 1.78$)
Age	.00
Gender	.20
RWA	.08
SDO	-.04
Left vs. Right	-.12
Self-Esteem	-.03
Green Behaviour	.18*
Frequency	.21**
Morality	.08
Green Identity	.10
Donation	.03

Note. $N = 200$. ** $p < .01$; * $p < .05$ two-tailed.

Correlations between variables in Study 2 and number of behaviours listed in listing task by condition

	# of Behaviours Listed by Condition	
	Control Condition ($M = 7.98$, $SD = 1.95$)	Credentials Condition ($M = 9.51$, $SD = 1.17$)
Age	.00	-.04
Gender	.28**	.17
RWA	.03	.14
SDO	-.11	.08
Left vs. Right	-.11	-.08
Self-Esteem	.16	-.11
Green Behaviour	.06	.24*
Frequency	.11	.31**
Morality	.02	.16
Green Identity	-.05	.26**
Donation	.03	-.06

Note. $N = 200$. ** $p < .01$; * $p < .05$ two-tailed.

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