Exploring the Association Between Norm Conflict and Pro-Environmental Behavior

THESIS

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Abstract

Despite concerns about the degree to which human activities impact the environment,

obstacles to the more widespread adoption of pro-environmental behaviors remain. A

number of theories have emerged from economics, psychology, sociology and

anthropology to explain human behavior. Many of these theories recognize the effect that

social forces, such as social norms, can have on behavior and decision-making. However,

not all behaviors are equally influenced by norms, and few theories and even fewer

empirical studies have explicitly examined the effects of norm conflict on behavior.

Norm conflict can be defined as cases in which different normative messages about

appropriate behavior emanate from the social groups with which individuals associate

(McDonald, Fielding, and Louis 2013). Using a survey distributed to a random sample of

10,000 OSU undergraduates, this research addresses two questions about the effect of

social norms on engagement in three behaviors that vary in their level of difficulty

(turning off lights, using a reusable water bottle, buying second-hand clothes). To what

degree do the perceived descriptive norms of different groups (friends, family, OSU

student body) conflict and how does this conflict impact engagement in environmentally-

friendly behaviors? I find that while norm conflict is low for each of the three behaviors

examined, it is significantly associated with the easy and moderately difficult behaviors I

assessed. However, the global norm (average descriptive norm) and the dominant norm

(descriptive norm associated with a group with which the respondent strongly identifies) both have a bigger effect on behavior than norm conflict. In addition, there is evidence that norm conflict moderates the effect of the average overall norm and the dominant norm. These results align with previous studies on norm conflict and suggest that norm conflict should be incorporated into future studies of behavior. In addition, the results suggest that it is important to consider behaviors independently because norm conflict, and social norms in general, can have different effects on different kinds of behavior.

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Chapter 1: Introduction

Many of the environmental problems we face, including climate change, air and water

pollution, and resource depletion, stem, in part, from the consumption habits and

everyday behaviors of individuals. Thus, one approach to addressing environmental

problems is to understand the factors that affect individual behavior in order to better

promote pro-environmental action and more sustainable consumption patters. Many of

the theoretical frameworks that are used to understand human behavior contain a

normative component. This component captures the fact that the behaviors and values of

other individuals, and society as a whole, can impact our behavior. However, few of these

frameworks, and few empirical studies, explicitly address the implications of conflicting

norms on behavior. That is, when the norms of the multiple social groups with which we

interact differ, how does this divergent information affect our behavior? The core

question that this study addresses is **whether norm conflict motivates or de-motivates**

pro-environmental behavior among Ohio State University undergraduates and

whether this depends on the difficulty of the behavior in question.

Our Environmental Problem

Human activities have impacted nearly every corner of the natural environment. Our overexploitation of resources contributes to a variety of environmental problems including climate change, air and water pollution, and resource depletion and we are nearing, or have surpassed, critical planetary boundaries (Rockström et al. 2009). Currently we would need about five Earths to support consumption patterns if everyone was to live as we do in the United States (Hails, Loh, and Goldfinger 2008). Many, if not most, environmental problems that humanity faces are derived from the production and consumption of material goods (Ehrlich 1994), and as developing countries continue to strive toward a Westernized lifestyle, the environmental problem is bound to get worse. In short, we are not living sustainably (Daily and Ehrlich 1996).

Perhaps the most common approach to addressing overconsumption and environmental degradation is to rely on technological advances that allow us to maintain our lifestyles, but to do so more efficiently. While some scholars argue that we can rely on technology to fix our environmental problems, there are serious concerns about whether technology and efficiency will be sufficient to reach sustainability goals (Owen 2012).

One concern with this approach to sustainability is that of "take back" or "rebound' effects, which can happen when technology becomes more efficient. With greater efficiency in a product, the price of the product and associated energy use decreases, which leads to increases in demand and, subsequently greater overall energy consumption (Greening, Greene, and Difiglio 2000). This rebound effect may also be attributed to the fact that the increase in efficiency can simply shift income away from energy bills (as a result of savings from energy efficiency) towards other forms of consumption that may have equivalent, or greater environmental impacts (Berkhout, Muskens, and W Velthuijsen 2000). Another concern is that of the growing middle class, which will increase overall resource use and consumption (Kharas 2010) even as more efficient technology is employed. With even the best of innovations, we may still have the problem of overconsumption of finite resources.

In part because of these critiques, other scholars suggest that progress towards a sustainable society will ultimately require cultural change that leads both directly and indirectly to behavioral change and reduced consumption (Jackson 2005, Daily and Huang 2001, Barlett and Chase 2004). While technological advancements and more efficient consumption will be critical for progress towards a more sustainable society, non-technological alternatives will also be required. These cultural changes will likely include changes in social norms that influence environmental behaviors.

The need for more widespread conservation efforts and changes in behavior has become apparent, as has the need for an understanding of the social and psychological factors that affect behavioral change. A working definition of sustainable consumption was established at the Oslo Symposium in 1994: 'the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations' (U.S.EPA 2013). Therefore, sustainable consumption requires more efficient use of resources as well as overall reductions in consumption. Both goals can be achieved, in part, with the adoption of environmentally friendly behaviors.

Environmental Behavior

Before going further, it is important to be clear how I am defining pro-environmental behavior. Pro-environmental behavior (PEB) is defined as behavior that damages the environment as minimally as possible, or even benefits the environment (Steg, Dreijerink, and Abrahamse 2005). For instance, behaviors such as recycling and using reusable bags at the grocery limit the amount of waste collected in landfills. Using energy efficient appliances and unplugging unused appliances reduces energy consumption.

Given the scope of our environmental problems, it is important to ask why pro-environmental behavior is not more prevalent. One answer is that there are a large

number of factors that operate at both the individual-level and at the societal level that hinder efforts to live in a more environmentally-friendly manner. These factors have been addressed by a large literature exploring when and why individuals engage or do not engage in pro-environmental behavior that draws on a number of theories from economics (Jackson 2005, Turaga, Howarth, and Borsuk 2010, Sanne 2002), social-psychology (Vining and Ebreo 1990, Ajzen and Fishbein 1977, Kollmuss and Agyeman 2002, Southerton et al. 2011, Stern 2000, Schultz and Zelezny 1999), sociology (Chatterton 2011, Spaargaren 2003), psychology (Kaplan 2000, Wilson and Dowlatabadi 2007), other disciplines (Stern 2000, Vining and Ebreo 1990, Schultz and Zelezny 1999, Wilson and Dowlatabadi 2007, Winter 2003, Schaefer and Crane 2005).

Much of the research on pro-environmental behavior has focused on individual-level factors that are associated with consumption and behavior. For instance, Stern (2000) suggests there are four causal variables which affect whether one engages in PEB: (1) attitudinal factors such as beliefs or values, (2) contextual forces like monetary incentives, physical difficulties performing the task, and government regulation, (3) personal capabilities including skills required of the action, literacy, and mechanical knowledge for energy conserving home repairs, and (4) habit, which requires the breaking of old habits and forming new ones. Other scholars have also pointed to these classes of variables that impact individual behavior and have suggested that engagement in pro-environmental behavior can be a function of attitudes (Ajzen and Fishbein 1977a) (Dunlap et al. 2000, Guagnano, Stern, and Dietz 1995, Schultz and Zelezny 1999), values

(Stern, Dietz, and Kalof 1993, Stern and Dietz 1994, Van Liere and Dunlap 1980),

contextual factors, such as the amount of time the behavior takes to be preformed

(Spaargaren 2003), situational framing or assigned rules for the participant (Ostrom

2000), knowledge and skills of environmental action (Hsu 2004), and financial

constraints such as income, status as homeowner or renter, or ownership of vehicles or

appliances can affect the likelihood of engagement in PEB (Stern 1999).

The focus on the individual-level factors that constrain or motivate behavior is supported

by rational choice theories, which suggest that individuals weigh the costs and benefits of

different decisions and chose behaviors that maximize individual utility (Ostrom et al.

1999). Environmental behaviors often involve personal costs such as higher prices,

greater inconvenience and larger investments of time, effort, skill, or knowledge.

Technological and economic approaches to increasing environmental behavior are

derived from the rational choice perspective on human decision-making in the sense that

technology and appropriate economic incentives can either reduce the costs of pro-

environmental behavior or increase the benefits.

Because PEB involves personal costs and produces collective benefits (e.g. less resource

use and pollution) it falls under the umbrella of collective action problems. Collective

action problems arise when there is a conflict between the interests of the individual and

the interests of the group (Olson 1965). We all benefit from a healthy environment, but

no individual has an incentive to bear the costs of contributing to a healthier environment

without assurances that others will do the same. In other words, when the provision of collective benefits comes at a personal cost, each individual has is an incentive to avoid those personal costs while free-riding on the actions of others. These dynamics between the individual and the group provide another obstacle to the widespread adoption of environmental behavior; the dynamics of personal costs but diffuse benefits can hinder the adoption of environmental behavior and reductions in consumption.

Importantly, social norms are thought to be one important mechanism for stabilizing cooperation and collective action in human societies (Chudek and Henrich 2011) and norms represent a societal-level factor that can also affect the adoption of PEBs, such as littering (Cialdini, Reno, and Kallgren 1990, Kallgren, Reno, and Cialdini 2000) and household energy reduction (Schultz et al. 2007). Social norms can be defined as "any rule, custom or value which constitutes a standardized mode of behavior in a social group" (Sherif 1936) and which are enforced with social sanctions (Heywood 2011). In short humans have evolved the cognitive psychological mechanisms to identify social norms, in part, through processes of cultural group selection (Richerson and Boyd 2008). The most relevant message from theories of cultural group selection is that humans have evolved the capacity to perceive and be influenced by social norms and that social norms can re-enforce and stabilize cooperative behavior. As such, exploring social norms is critical for understanding cooperative actions like pro-environmental behavior.

Social Norms and Behavior

"When people are free to do as they please, they usually imitate each other."

– Eric Hoffer

Research on the role that social context and social norms play in shaping individual behavior dates back to Durkheim (1893), who suggested that norms form the moral foundation of society, resulting in social integration (Durkheim 1997). "The totality of beliefs and sentiments common to the average members of a society forms a determinate system with a life of its own. It can be termed the collective or common consciousness" (Durkheim 1997). Though norms exist at a macro-level, the governance of individual behavior is constructed at the micro level (Coleman and Coleman 1994). That is, while norms are formed through the interaction of humans at a societal level, the function of conforming to the norm happens at an individual level. Macro-level (Southerton et al. 2011) norms can become internalized to micro-level (personal) norms through an organic process in which stimuli pertaining to relationships between individuals eventually become part of one's being and values (Sherif 1936). Norms are also internalized, in part, due to enforced societal sanctions against those who violate the norm (Coleman and Coleman 1994).

Social norms are important because they provide cues about what behavior is adaptive in a given context (Cialdini, Kallgren, and Reno 1991). Evolutionarily speaking, this is why norms can have so much influence on human behavior. We have evolved to pay attention to social cues because they are a low-cost short cut to determine the "best" or most adaptive behavior in a given context (Lapinski et al. 2007, Boyd and Richerson 2009, Henrich and Henrich 2006). Rather than relying on trial and error to learn what works best in every situation we encounter, we often observe what most other people are doing and, consciously or subconsciously, adopt those behaviors.

It is important to note that there are two distinct ways of conceptualizing social norms. One body of literature focuses on the way in which norms are recognized, such that there are social sanctions for preforming or not preforming a behavior (Heywood 2002). In this case, normative influence can come from societal pressure to conform to a behavior such that negligence to perform the behavior can cause social sanctions of embarrassment or guilt (Heywood 2011). This literature is more focused on the internal mechanisms behind why one conforms to the social norm based on cognitive and emotional components.

Nevertheless, the current study does not address the internal mechanisms for why one may conform to a norm, but instead examines the influence of perceived descriptive norms on engagement on behavior. While it is important to understand the reasons behind why norms are internally influential, this is not incorporated into my analyses.

This current research is more akin to the other body of research on social norms, which focuses more on the *social* role of the norm and where social influence comes from. This research addresses the social pressure created from the norm and attempts to parse out why people comply and conform to norms (Cialdini 1998, Cialdini 2004). Further, this body of literature analyzes the context in which different social pressure is most influential (Schultz et al. 2007, Cialdini, Reno, and Kallgren 1990).

In addition to these broad ways of thinking about and studying norms, one can also distinguish between personal norms and subjective norms. Personal norms can be thought of as internalized values (Schwartz and Howard 1980) and involve a sense of personal obligation to engage in a particular behavior (Stern 2000). Conversely, subjective norms relate to external social pressure. These different conceptualizations are included in the wide variety of theoretical frameworks that include norms as a factor that influences behavior. For instance, Norm Activation Theory (Schwartz 1977) and Values, Beliefs, Norms Theory (VBN) (Stern 1999) both incorporate personal norms in their models of behavior.

Conversely, other theories look at the normative influence of others operating through subjective norms. For instance, in the theory of planned behavior (TPB), Ajzen and Fishbein (1977) propose that attitudes toward a specific behavior and the subjective norm about that behavior lead to behavioral intentions, which then leads to the act of engaging

in the behavior. TPB has been widely used to explain a variety of behaviors, including

PEB (Sparks and Shepherd 1992, Bamberg and Möser 2007).

Similarly, the Focus Theory of Normative Conduct (Cialdini, Reno, and Kallgren 1990)

considers how the behaviors and values of others influence the individual. Numerous

authors have drawn on the theory of normative conduct to explain different PEBs such as

littering in public places (Cialdini, Reno, and Kallgren 1990, Cialdini 2003), energy

conservation in hotels (Goldstein, Cialdini, and Griskevicius 2008), and household

energy conservation (Schultz et al. 2007, Nolan et al. 2008).

The Focus Theory of Normative Conduct (Cialdini, Reno, and Kallgren 1990) further

divides subjective norms into two types; descriptive norms (what most others do) and

injunctive norms (what most others approve or disapprove of).   The distinction of the

type of norm is important in analyzing just where the normative pressure is coming from

and if it matches the scenario in which one is dissecting (Park and Smith 2007).

Cialdini (2007) emphasized the importance of norms in the environmental arena and

suggested that descriptive norms are often underappreciated and need to be incorporated

more broadly for motivating environmental behavior. For instance, Cialdini et al. (2008)

explored the influence of descriptive normative messages on the reuse of hotel towels.

They found that individuals were more likely to reuse their towels when encouragement

was delivered in a descriptive normative message describing the actions of those who

previously stayed in the same room. Information about the person who stayed in the same room was found to be more influential than messages that incorporated an overall descriptive norms and as well as descriptive messages based on social identity, such as fellow citizens and gender.

Similarly, White et al (2009) found that using descriptive normative influence predicted recycling intentions. In addition, a study in Nova Scotia was conducted attempting to enhance backyard composting by using decals on garbage cans to signal to neighbors that the household composted, therefore spreading a normative message that many households in the area compost. Though funding did not allow an evaluation of the project, research found that the pilot project the study was based on concluded that 80% of those interested in composting, began to do so in the following few months (McKenzie-Mohr 2000).

While previous studies have demonstrated the importance of descriptive norms it is also important to recognize that descriptive and injunctive norms can often interact in ways that directly affect behavior (Cialdini, Reno, and Kallgren 1990, Cialdini, Kallgren, and Reno 1991, Schultz et al. 2007, Nolan et al. 2008). For instance, Cialdini (2003) used an injunctive norm to encourage individuals not to litter, but found that littering actually increased because the message also relayed a descriptive norm that many people do, in fact, litter. Thus, while being told that you should not litter, the individual was also exposed to a descriptive norm that many people disobey this injunctive norm.

In addition, Nolan et al. (2007) measured the affect of descriptive and injunctive normative messages regarding household energy consumption and discovered that an unwanted "boomerang" effect could take place as low energy users discovered others were engaging in higher energy usage rates. This research suggests that it is imperative to align both descriptive and injunctive messages to ensure undesirable results are not achieved. Further, In a study addressing the moderating role of injunctive norms and personal norms on the relationship between descriptive norms and conservation behavior, (Göckeritz et al. 2010) found that descriptive norms were shown to have a more peripheral influence on behavior, where as the other two variables may motivate a more complex influence on behavior. This is important to note because different kinds of norms can spur different levels of intellectual stimulation. Thus, it would be expected that perhaps for more difficult behaviors, a more complex relationship between the norm and engagement in the behavior may be expected.

So, it is clear that norms can conflict in at least one way; injunctive and descriptive norms emanating from the same social group can give conflicting messages about the appropriate behavior in a given context. However, there are other ways that norms can conflict that are more central to the goals of this study. Below, I discuss the potential that the different social groups with which one interacts may have different descriptive norms about specific behaviors.

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Conflicting Normative Messages

It is clear that there has been a great deal of research and theoretical inquiry about whether, when, and to what degree social norms influence behavior in general and environmental behavior more specifically. However, there has been far less attention paid to the impacts of conflicting norms. While many social-psychological theories contain a normative component, few take into account that normative information might not be consistent and there has been little research on how conflicting norms may affect PEB.   Further, previous work has largely explored conflict between descriptive and injunctive norms within the same in-group (White et al. 2009), rather than conflict in norms among multiple in-groups. Understanding how norm conflict relates to PEB is important because conditions of norm conflict are likely common. Most individuals associate with different social groups (different groups of friends, colleagues, family, neighbors, etc.) and it is likely rare that the norms associated with each group match.

Following McDonald (2003), I define norm conflict as cases in which different normative messages about appropriate behavior emanate from the social groups with which individuals associate. A number of studies provide evidence of the ways in

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which individuals associate with multiple groups and categorize themselves accordingly, as well as how this categorization can influence behavior. For instance, Stets and Burke (2000) suggest that social structure can lead individuals to categorize themselves into role identities and social identities that affect the individual's behavior. However, each individual will likely be a part of more than one group, therefore holding multiple roles or identities. For example, a person may categorize themselves in terms of gender, their career, and/or their familial structure. Some groups may be more cohesive than others and may thus have a stronger group identity (Abrahamse and Steg 2013). Vaughan and Hogg (2005) believe while people categorize themselves into groups, they may be more inclined to participate in the behaviors of one group over another.

When there is conflict among the descriptive norms of the multiple social groups with which one identifies, there are a number of possible outcomes. The first possibility is derived from Social Identity Theory. Social identity theory suggests that socially people are likely to be a member of multiple groups (Terry, Hogg, and White 1999) and the way we distinguish between which group's norms are most salient can depend on both contextual and dispositional factors (Jackson 2005). Social identity theory also suggests that norm conflict is immaterial in that individuals will simply follow the norm of the most salient in-group for that behavior (Tajfel 2010, Terry and Hogg 1996, Rimal et al. 2005).

In this case, when confronted with norm conflict, individuals will focus on the descriptive norm of the group with which they identify the most. In fact, the presence of norm conflict may elicit a stronger sense of in-group – out-group dynamics such that one becomes more likely to implicitly focus on the descriptive norm of the most prominent in-group, or the group with which they identify most strongly (Christensen et al. 2004). For instance, using the example above, if the person in question identifies most with their family (who they perceive to recycle 95% of the time), then they too will be likely to recycle, despite evidence that not all of the groups with which they identify recycle frequently. It is for this reason that capturing the strength of an individual's identification with different social groups is an important component of the Theory of Planned Behavior (Ajzen and Fishbein 1977). Proponents of this theory argue that one should measure "identification with the referent" along with descriptive normative concepts to ensure that the participant socially identifies with the group being measured.

However, a number of scholars have provided evidence that individuals do not always simply follow the norm of the most salient group and instead follow general norms or the norms of other specific groups in different contexts (Goldstein, Cialdini, and Griskevicius 2008, Jacobson, Mortensen, and Cialdini 2011). For example, students may adhere to the norm of their parental unit when deciding whether or not to engage in binge drinking behavior, despite the fact that their friends are the most salient group in this context (Green et al. 1991).

Thus, a second possibility is that, in the presence of conflicting norms, an individual

may simply recognize a general, global norm, or overall average among the multiple

descriptive norms that they are exposed to. That is, individuals may (subconsciously)

perceive an average descriptive norm from the groups with which they interact (Nolan

et al. 2008, Schultz et al. 2007). If one's family recycles, 95% of the time, their close

friends recycle 65% of the time, and their peers or colleagues recycle 20% of the time,

then they may vaguely recognize that, in general, the people that I am surrounded by

recycle about 60% of the time.

One could imagine that one's recycling behavior would match that of the group that

one is immediately surrounded by. However, we often find ourselves in situations in

which we are not surrounded exclusively by one of these groups. The fact that we have

knowledge of the conflict in norms among the three groups might prompt us to act on

the average, global norm.

Thus, a third possibility is that the norm conflict itself motivates or demotivates PEB. For

instance, McDonald et al. (2013) proposed competing hypotheses about the effect of

norm conflict on behavior. On the one hand, norm conflict may lead to the perception

that not everyone is not doing their part, which may motivate or energize individuals to

engage in the behavior (McDonald, Fielding, and Louis 2012). In this case those exposed

to high norm conflict feel that enacting the behavior is crucial because others are not

contributing. Conversely, norm conflict might discourage environmentally friendly

behavior because it provides "signals [of] doubt to the behavior's utility" and thus decreases motivation to take action (McDonald, Fielding, and Louis 2013). In this sense, the individual may feel that his or her individual efforts will be ineffective given that not everyone is contributing by engaging in the particular action. This perspective mirrors the collective action problem (Olson 1965) in that no individual has an incentive to bear the costs of their efforts if others are not bearing the costs of contributing to the public good. Thus, the presence of norm conflict may directly or indirectly (McDonald 2013, 2012) motivated or discourage individuals from engaging in environmental behaviors.

A final possible outcome of norm conflict is that there may be complex relationships between these different ways of perceiving normative messages and the effect of norm conflict on behaviors with different characteristics. For instance, norm conflict may moderate the relationship between the global norm and the behavior in question or between a dominant norm from a group one feels is highly salient and the behavior in question. In other words, the very presence of norm conflict may cause one to be more cognizant of social norms related to a specific behavior. When norms converge and norm conflict is low there is no internal calculus required to make a decision, we simply conform to the norm that is evident. However, when norm conflict is high, we may become more aware of the different descriptive norms, which may cause us to consider the global norm, a particular dominant norm, or some combination of the two.

While few studies have investigated the effects of norm conflict on environmental behavior, McDonald et al. (2012, 2013) find that norm conflict is significantly associated with a measure of pro-environmental behavioral intention even after accounting for the effect of the global norm. In addition, McDonald et al. (2013) found that several variables either mediated or moderated the effect of norm conflict on pro-environmental behavioral intention. Specifically, they found that perceived efficacy mediated the relationship between norm conflict and behavioral intention. The relationship between norm conflict and perceived efficacy was further moderated by pro-environmental attitudes. These results suggest that norm conflict does have a real effect on environmental behavior even after controlling for the effect of the global norm. The purpose of this study is to build on McDonald et al.'s work to explore whether norm conflict motivates behavior after accounting for a dominant norm associated with a group with which one closely identifies as well as whether the effects of norms conflict differ depending on the behavior in question.

Chapter 2: Current Study

Overview

In the previous chapter, I outlined the important role that norms can play in motivating or hindering pro-environmental behaviors. The large body of research on the relationship between norms and behaviors indicates that our understanding of the relationship between social context and environmental behaviors is incomplete. Of particular importance to this study is the relative lack of research on the impacts of norm conflict on environmental behavior. The main question I am exploring with this research is **whether and in which contexts norm conflict is associated with engagement in pro-environmental behavior.**

As noted above, there are several possibilities for how different measures of norms might impact pro-environmental behavior in the context of norm conflict. In short, when descriptive norms are perceived to conflict, individuals may follow the global average descriptive norm, they may follow the dominant norm associated with a group they strongly identify with, they may be directly motivated by the conflict itself, or there may be interactions between these different normative forces. This research addresses how

conflict between the norms of different social groups (friends, family, OSU student body) can impact engagement in environmentally-friendly behaviors.

This study builds on McDonald's (2012, 2013) research by using a larger sample size, incorporating a larger set of behaviors that are analyzed independently, and considering the effect of a dominant norm (the norm of a group with which the individual feels a strong connection with). The analysis described below is based on a sample of 2163 undergraduates and three distinct behaviors that were chosen for variation on the difficulty of engaging in each. Choosing behaviors that vary in their level of difficulty creates provides an opportunity to explore whether different types of behavior are influenced by norm conflict.

For instance, while McDonald et al. (2013) found that norm conflict motivates behavior even after controlling for the global norm (average subjective norm for all social groups in question), they do not consider the potential that there is a dominant norm associated with one's social identity, the effects of which may outweigh, or may depend upon, the presence of norm conflict. Thus, McDonald et al. (2013) are unable to speak to the potential that there is a "dominant descriptive norm" such that the behavior of the group with which the respondent most strongly identifies is the key normative factor that drives behavior. If one is more likely to comply with a certain group, regardless of whether there is conflict amongst the groups with which they interact, they could be most likely to comply with the group the feel then strongest connection to. Social identity theory

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attributed one's compliance with a certain behavior to the group in this they closely align with (Ashforth and Mael 1989). My research further explores the relationship between not only the effects of conflicting norms on behavior, but if this relationship still exists when holding constant the identification with the referent with the more relevant group.

This study relies on a random sample of undergraduates from Ohio State University. When a student makes the transition from home to university they are likely to come across a different environment in which they have previously been exposed to (Gannon et al. 2014). Having multiple groups with which they interact can lead to the potential of the different groups norms to conflict. This research will explore the different ways in which norm conflict can impact pro-environmental behavior by determining when conflict is an important variable to consider.

With this study, I first examine the degree to which subjective norms about three environmental behaviors differ among three social groups with which the respondents in the study interact; family, close friends, the OSU student body. In addition, I address three main questions; (i) whether the relationship between norm conflict and environmental behavior depends on the inherent difficulty of the behavior (e.g. turning off the lights in an empty room vs. buying second hand clothes), (ii) whether the relationship between norm conflict and behavior changes once the global norm and dominant norm are taken into account, and (iii) whether norm conflict moderates the effect of the global norm and/or the dominant norm on environmental behavior. If

conflicting norms can discourage engagement in environmentally friendly behaviors, it is important to understand how to mitigate this effect. This is particularly important when trying to encourage folks to engage in behaviors that may be more difficult to engage in (such as taking the bus because of the time commitment or using less heat thus loosing some luxury of ones residence).

The behaviors I included in the analysis are turning off the lights, using a reusable water bottle, and buying second-hand clothes rather than new ones. These behaviors vary in the degree of cognitive effort involved when making decisions about them. For instance, very simple and highly repeated behaviors like turning on the lights may be "automatic", may rely more on subconscious, affective processing systems and thus may be indirectly influenced by norm conflict. Conversely, more difficult behaviors require more conscious thought and effort, which may result in an individual being more cognizant of what specific other groups are doing, focusing on social norms of particular groups rather than being influenced by vague effects of norm conflict. In addition, socio-psychological theories of behavior have linked contextual or external factors to engagement (Guagnano, Stern, and Dietz 1995, Stern 2000), which is why it is important to study behaviors that range in how difficult they are to perform.

There are several competing hypotheses about the relationship between norm conflict and behavior. Here I describe three alternative hypothesis derived from McDonald et al. (2013, 2012).

Hypothesis 1a: Norm-conflict is positively associated with, or motivates, environmental

behavior. McDonald et al. (2012) suggest that in the presence of norm conflict, people

may feel obligated to engage in the behavior because of the discrepancy of engagement.

I also suggest that norm conflict may lead to the perception that not everyone is

participating, which may motivate or energize individuals to engage in the behavior

(McDonald, Fielding, and Louis 2012). In this case, those exposed to high norm conflict

feel that enacting the behavior is critical because not everyone taking part in engagement

in the environmentally-friendly behavior. See figure 1 for a depiction of this hypothesis.

Figure 1. Hypothesis 1a

Hypothesis 1b. Norm-conflict is negatively associated with, or discourages,

environmental behavior. However, based on general normative literature, it would seem

that if there is not a strong normative message, that one may feel as though they need not

participate, thus norm conflict gives one an excuse for not participating. Therefore I

suggest that norm conflict might discourage environmentally friendly behavior because it

provides confusion in the overall normative message and thus may decrease motivation

for an individual in the presence of conflict to take action (McDonald, Fielding, and Louis

2013). This perspective mirrors the collective action problem (Olson 1965) in that no

individual has an incentive to bear the costs of their efforts if others are not bearing the

costs of contributing to conserving resources. See figure 2 for a depiction of this

hypothesis.

Figure 2. Hypothesis 1b

Hypothesis 1c. The effect of norm-conflict on environmental behavior depends on the

nature of the behavior in question, and specifically how difficult the behavior is. The

effect of norm conflict may depend on the level of difficulty of the behavior, as conflict

may inspire engagement in easier behaviors but discourage more difficult behaviors. See

figure 3 for a depiction of this hypothesis that norm conflict will motivate easy behaviors,

but demotivate difficult behaviors. See figure 3 for depiction of hypothesis.
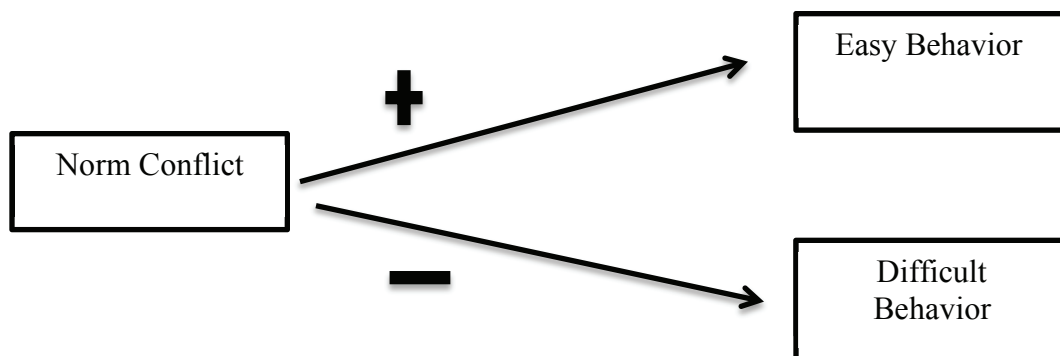

Figure 3. Hypothesis 1c

Below, I propose four additional hypotheses about the effects of other measures of norms as well as how those measures interact with norm conflict.

Hypothesis 2: The global norm is positively associated with environmental behavior such that higher global norms will be linked with greater frequency of self-reported behavior. That is, the more that respondents perceive that others are engaging in the behavior, the more often they will engage in the behavior themselves. This hypothesis is consistent with previous research by McDonald et al. (2013), and many other studies of descriptive norms and environmental behavior (Cialdini 2007, Schultz et al. 2007), which find that the more often people perceive those around them to engage in a behavior, the more likely the individual will conform to the majority and engage in the behavior. Moreover when the global descriptive norm is high, people are often likely to participate due to the powerful level of persuasion of normative influence. See figure 4 for depiction of hypothesis.

Figure 4. Hypothesis 2

Hypothesis 3: The dominant norm is positively associated with environmental behavior such that if one possesses a dominant norm, there will be greater frequency of self-reported behavior. That is, if the participant has a group that performs the behavior more

than the other two groups, and they feel as though this group is important to them, they will be more apt to engage in the behavior. This hypothesis is based on research performed by Terry et al. (1999), which suggests that engagement will be based on whether the student strongly identifies with the behaviorally relevant reference group. Other research has also suggested that social identity plays a large role in influencing an individual's behavior (Ng and Tseng 2008, Abrahamse and Steg 2013). Moreover, I expect that the dominant will have a stronger relationship with behavior than the global norm or norm conflict (Terry and Hogg 1996). See figure 5 for a depiction of this hypothesis.

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┌──────────────┐                          ┌─────────────────────┐
│              │                          │ Increased frequency │
│  Dominant    │───────────────────────▶  │   of behavior and   │
│   Norm       │                          │ stronger relationship│
│              │                          │   than global norm  │
└──────────────┘                          └─────────────────────┘
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Figure 5. Hypothesis 3

Hypothesis 4: The effect of the global norms on behavior will be moderated by norm conflict. That is, the effect of the global norm may be stronger in the presence of higher levels of norm conflict (i.e. one is motivated to follow global norm when norm conflict is high, but less so when norm conflict is low). The heuristic-systematic processing model is used to explain how people process persuasive messages and suggests that when less effort is involved with decision rules (i.e. most people are engaging in the behavior) an individual will rely on heuristic processing (Chaiken 1980). However,

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when the difficulty of the behavior increases, one may rely more on systematic

information processing due to time pressure (Ratneshwar and Chaiken 1991) or prior

knowledge (Wood, Kallgren, and Preisler 1985). Consistent with Rimal & Real (2005),

I expect that norm conflict will heighten the influence of the global descriptive norms on

behavior. In other words, the conflict will act as a trigger to emphasize the relationship

between the global norm and behavior. See figure 6 for depiction of hypothesis.

Hypothesis 5: Additionally, I expect that norm conflict will moderate the effect of the

dominant norm on behavior. That is, the effect of the dominant norm may be stronger in

the presence of higher levels of norm conflict (i.e. one is motivated to follow dominant

norm when norm conflict is high, but less so when norm conflict is low). Neighbors et al.

(2010) suggested that whether the individual identifies with their normative reference

group could play an important role in norm-behavior relationships. Again, I suggest that

norm conflict may generate systematic information processing rather than heuristic

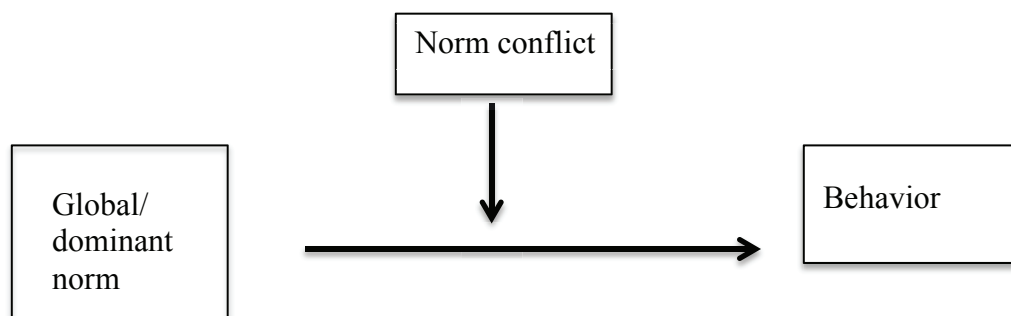processing (Maheswaran and Chaiken 1991). See figure 6 for depiction of hypothesis.

Figure 6. Possible moderation affect

Methods

To address my research question, I developed a series of questions for an online survey. The survey questions were included as part of a larger survey distributed annually by the Environment and Social Sustainability Lab in the School of Environment and Natural Resources at the Ohio State University. The survey was conducted using Qualtrics survey software (Qualtrics, Provo, UT) and was designed to collect data on self-reported past engagement of environmental behaviors, perceived descriptive norms, environmental attitudes, perceived effectiveness of pro-environmental behavior, and general demographics, among other topics.

Of the multiple behaviors that were included in the survey, I focused on three for this analysis: turning of the lights in an empty room where you live, using a reusable water bottle, and buying second-hand clothes rather than new ones. In addition, I included questions about the frequency with which three social groups engage in each behavior. These social groups were the respondent's family members, friends, and the larger OSU student population.

Survey Sample

The online survey was distributed to 10,000 randomly selected undergraduates enrolled at The Ohio State University. A link to the survey was emailed to the list of randomly selected students in April 2013. There were a total of three follow-up emails sent after the initial email was sent to the student. The Director of the School of Environment and Natural Resources was the signatory for the first two follow-up emails and the last signed by the graduate student researcher. The overall response rate for the survey was 21.6%, which is within the range of what is expected an on-line survey (Dillman 2000). The survey took most students between 10 to 20 minutes to complete the survey, while there were ~200 outliers who had the survey open for an hour or more. Of the 2163 students who started the survey, 1427 student completed all components. The Ohio State University has a population of over 50,000 students and according Raosoft.com (an online sample size calculator) the minimum recommended sample size for statistical power would be 382 respondents. The response rate (n=2163) far exceed the sample size recommendation. Most students completed about 80% to 90% of the survey (n = 1382),

Using a survey with a random sample of OSU students allows results to be generalized to university undergrads, enhancing the developing theory of normative conflict. Moreover, the only other study done measuring norm conflict among college students lacked a substantial population (n = 157) (McDonald, Fielding, and Louis 2013)

therefore reaching a larger audience is advantageous for increased confidence in resulting outcomes.

Measures

The key concepts that this survey was designed to collect information on were (i) frequency of environmental behavior, (ii) descriptive norm conflict among groups with which students interact, (iii) other concepts of social norms calculated from the descriptive norms, (iv) identification with referent group, and (v) demographic variables.

Dependent Variables

The dependent variables for this study were self-reported frequency of engaging in three environmental behaviors: turning off the lights in an empty room where you live, using a reusable water bottle, and buying second-hand clothes instead of new ones. For each behavior, respondents were asked indicate the percentage of time they engage in the behavior *when they have the opportunity to do so.*" Respondents moved a slider bar to a value ranging from 0 to 100 and were directed to click the button on 0 if they never engage in the behavior (Dillman and Bowker 2001).

The analysis was limited to these three behaviors because, while I wanted to understand how norm conflict might affect a variety of environmental behaviors, I sought to include survey questions about norm conflict, attitudes, efficacy, and identification with the referent that were specific for each behavior. It is important to keep the questions asked specific to each behavior in order to gauge responses to the individual feels toward that specific behavior (Ajzen and Fishbein 1973)In order to keep the survey to a reasonable length the analysis focused on these three behaviors. These behaviors were also chosen along a gradient of difficulty: (i) turning off lights in an empty room in which the student lives – in most instances this would be considered an effortless task, (ii) using a reusable water bottle – this behavior is generally easy but requires some effort in remembering the container, carrying it around, and, potentially finding a place to fill it, and (iii) purchasing second hand clothes – for a student, this may difficult due to a paucity of transportation and also the time and effort needed to find clothes that fit properly. See figure 7 for depiction of the measurement.
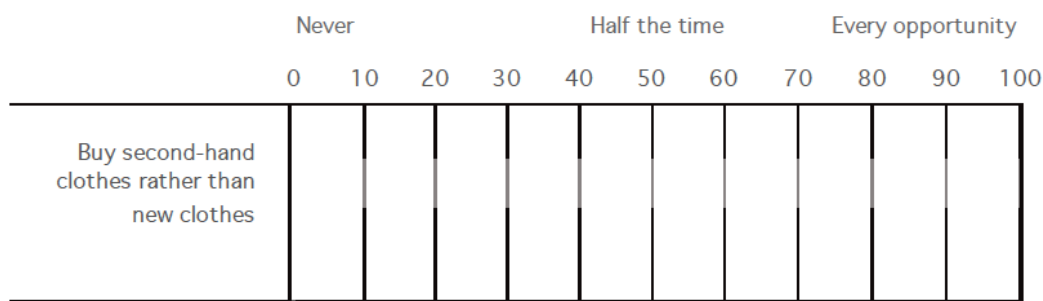

Figure 7. Assessment of engagement in behavior

Independent Variables

Normative conflict

Following MacDonald et al. (2013), I gathered information on perceived descriptive norms for each relevant behavior and social group. Respondents were asked the proportion of the time each social (family, friends, OSU student body) group regularly engages in the three behaviors of interest. Specifically, the respondents were asked "What percentage of each group regularly uses a reusable water bottle" where the student then used a slider bar to approximate value ranging from 0 to 100 and were directed to click the button on 0 if the group never engaged in the behavior (Dillman and Bowker 2001). Next, the respondent was asked "What percentage of each group regularly buys second-hand clothes rather than buying new ones" and the student used a slider bar to indicate the approximate value ranging from 0 to 100 and were directed to click the button on 0 if the group never engaged in the behavior. Finally, the student was asked "What percentage of each group regularly turns off the light in an empty room where they live" and again the student was presented with a slider bar.

The degree of conflict for each behavior was computed following McDonald et al. (2013), by calculating the average of the absolute value of the differences in descriptive norms between each pairing of social groups. The possible norm conflict scores that this calculation can produce range from 0 (no conflict) to 66.67 (maximum amount of conflict). See figure 8 for depiction of the concept.
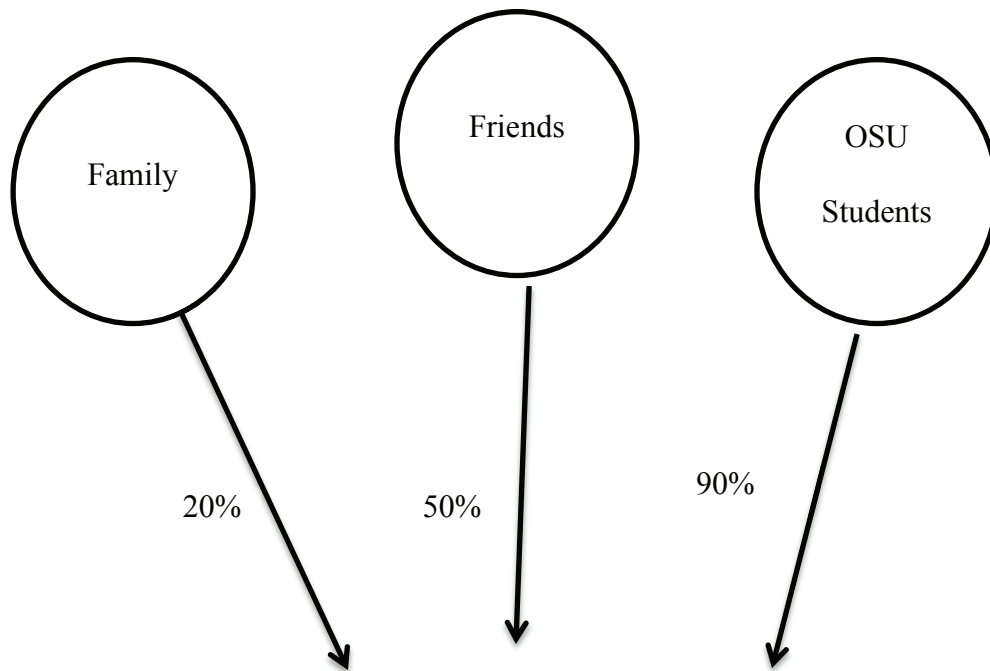
Norm Conflict = (|(30-50)| + |(30-90)| + |(50-90)|) / 3 = 40

Figure 8. Calculating norm conflict. Perceived descriptive norms for all three groups measured as frequency with which the respondent believes that the members of each group engage in the behavior in question (example percentages shown below). We calculated the descriptive norm as the average of the absolute value of the differences in the perceived descriptive norm between each pair of groups as shown below

Global descriptive norm

To obtain a measure of the overall descriptive global norm, I followed McDonald (2012, 2013) and calculated the average perceived descriptive norm for each of the three social groups. See figure 9 for depiction on the concept.
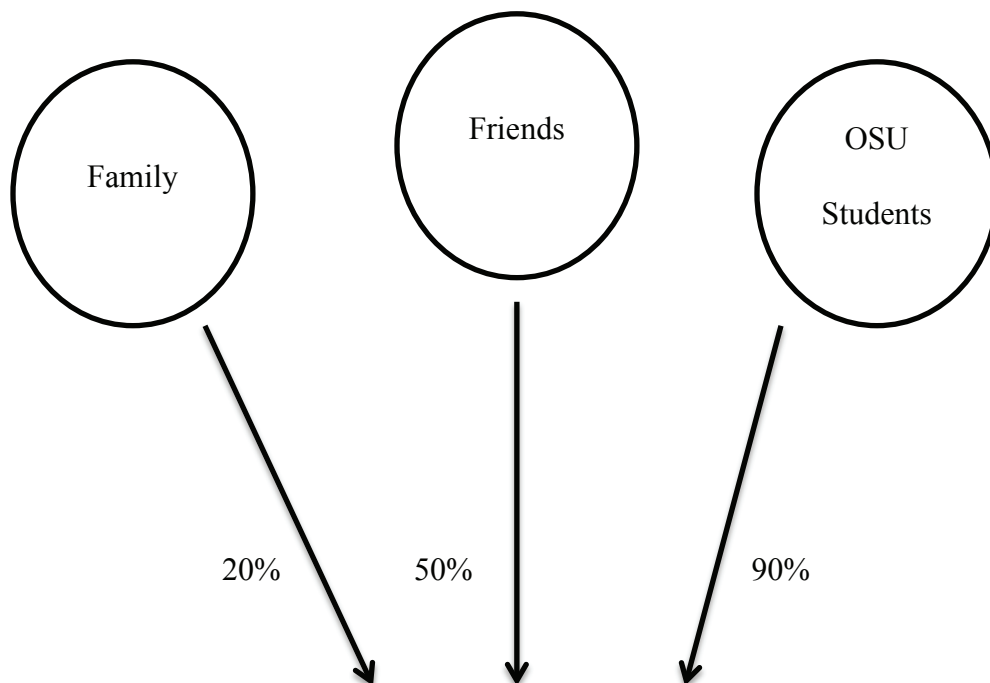
Global norm = (20 + 50 + 90) / 3 = **53.33**

Figure 9. Calculating the global norm**.** I calculated the global norm as the average of the perceived descriptive norm for all three groups.

Identification with the Referent

Respondents were asked the degree to which they identify with each of the three social

groups in the context of each behavior with the following question, "When it comes to

whether or not to (use a reusable water bottle), what (my friends) do is very important to

me" (1 = strongly agree to 7 = strongly disagree) This question was derived from Ajzen's

(1991) Theory of Planned Behavior and Azjen's Constructing a Theory of Planned

Behavior Questionnaire, specifically the subjective normative component related to

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descriptive norms. The Focus Theory of Normative Conduct influenced Ajzen to revise

the theory of planned behavior's subjective norm component in this model to include

both descriptive and injunctive norms. Ajzen (2006) noted that the normative measures

should also address the degree to which a respondent feels the group in question is of

importance to the individual. Thus he suggests a motivation to comply component for

injunctive norms and identification with the referent for descriptive norms. This

component confirms that the individual holds the opinions of the group in question with

high regard and are likely to follow the social rules of the group. See figure 10 for

depiction of the measurement.

When it comes to whether or not to buy second-hand clothes, what .... do is very important to me.

	1- Strongly Disagree	2	3	4- Neither Agree nor Disagree	5	6	7 - Strongly Agree
My family members	○	○	○	○	○	○	○
My friends	○	○	○	○	○	○	○
OSU students	○	○	○	○	○	○	○

Figure 10. Assessment of identification of referent

Dominant norm

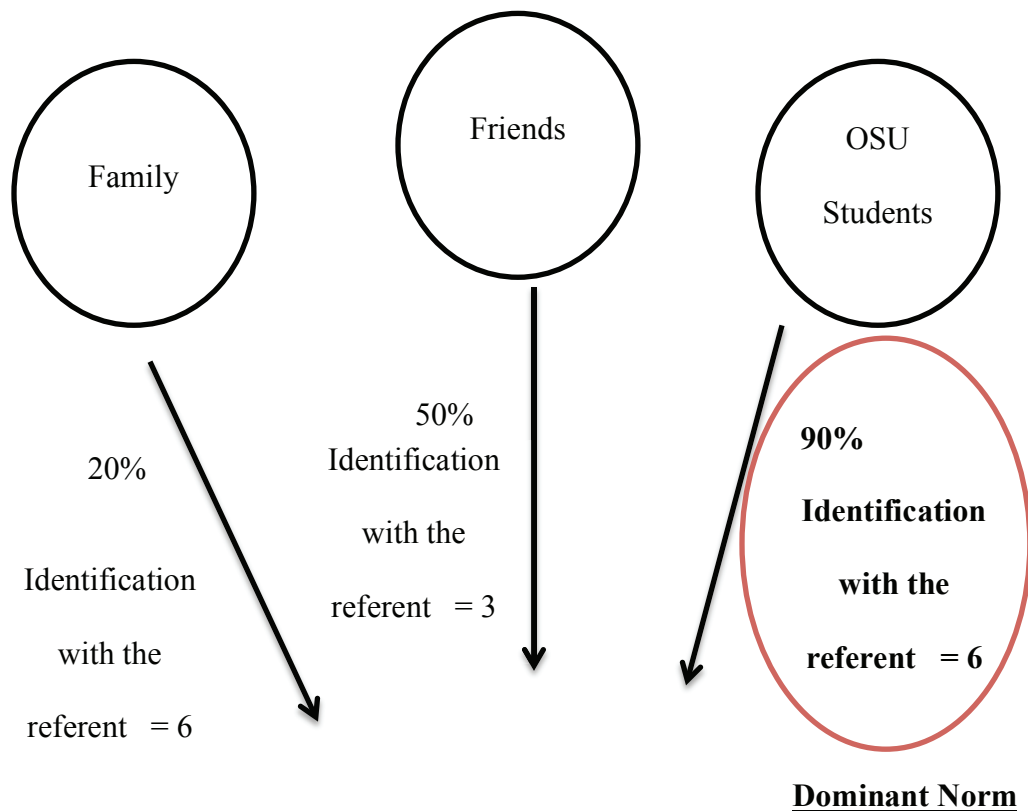To determine whether there was a strong pro-environmental norm associated with a

social group with which the respondent closely identified, I created a dichotomous

variable indicating whether a "dominant norm" was present. This variable was created

from the responses to two survey questions; both perceived descriptive norms for each

group for each behavior and strength of identification with each social group in the

context of each behavior (both described above). A respondent received a score of 1 if (i) one the three social groups had a higher perceived subjective norm for engaging in a particular behavior than the other two groups, *and* if (ii) the respondent rated their identification with the referent >4 (on a scale of 1-7). If both of these conditions were not met, the respondent received a score of 0 indicating that there was not a dominant norm from a group with which the respondent was motivated to comply. See figure 11 for depiction of the concept.

Dominant norm = 1 *if:*   (i) the descriptive norms of one of the three social groups was higher than the other two groups, *and*

(ii) the behaviors of this social group are important to the respondent (identification with referent > 4) (see below for description of this variable).

Dominant norm = 0 *if:*   (i) There is no single group for which the descriptive norm is higher than the other two groups *or*

(ii) the behaviors of the social group with the highest descriptive norms are not important to the respondent identification with referent </=4).

Family

Friends

OSU Students

20%

Identification with the referent = 6

50% Identification with the referent = 3

90% Identification with the referent = 6

Dominant Norm

In the above example, OSU students have the highest perceived descriptive norm *and* they are a group that the student strongly identifies with, so in this case there is a dominant norm present. I would not consider there to be a dominant norm if the identification with the referent score was 4 or below for OSU students. Similarly, if the perceived descriptive norm for OSU students was 50% (thus matching the descriptive norm for friends) I would not have considered there to be a dominant norm. OSU students are the dominant norm in this case because this group participates is the behavior the most of the three groups and the respondent reports OSU students to be important.

Figure 11. Determining the presence or absence of a dominant norm. A dominant norm was considered to be present *if* there is a single group with the highest perceived descriptive norm *and* the respondent strongly identifies with that group (identification with the referent > 4).

Control Variables

The only demographic variable controlled for was gender (female, male). There are a number of studies that suggest that females are more likely to engage in PEB than males (Hines, Hungerford, and Tomera 1987, Kollmuss and Agyeman 2002, Stern, Dietz, and Kalof 1993).

Analyses

The data were organized in Microsoft Excel, and then exported to Statistical Package for the Social Sciences (SPSS, Version 21.0, 2012). Linear regressions were used to examine relationships between independent and dependent variables to test the aforementioned hypotheses. The results are based on a confidence interval of 95% with a 5% margin of error thus our results to be generalizable to the other major universities.

Results

In general, students reported that they frequently turn off the lights in an empty room where they live and also reported frequently using reusable water bottles (see Table 1). Conversely, it is uncommon for students to buy second-hand clothes instead of new ones. The reported frequency of engagement in each behavior matched our expectations about

the difficulty of each behavior such that turning off the lights was the most common behavior (in part because of its ease) and buying second hand clothes was the least common. The amount of normative conflict was relatively consistent on each level of difficulty of the behavior (Table 2).

In terms of the core research questions this study addressed, the analysis involved a number of steps. Linear regression models were used to explore the relationship between norm conflict and each pro-environmental behavior while controlling for the effect of the *global norm, dominant norm,* and *gender*.

Norm conflict was significantly associated with turning off the lights, as well as using a reusable water bottle (see Table 4, model, 1 and Table 5, model 1). Norm conflict was not significantly associated with buying second-hand clothes (see Table 6, model 1). It is important to note that the coefficient for norm conflict is very small in the first two models, indicating that, while there is a significant association with behavior, norm conflict has a small effect on frequency of the behavior. In addition, the low R-squared value indicates that this model does not describe much of the variance in this behavior, although the significant F-statistic suggests that the model explains a significant proportion of the variance in behavior.

Table 1. Descriptive Statistics for the Dependent Variable

	N	Mean	SD
Lights	1934	84.77	21.11
Water bottle	1873	69.70	31.44
Clothes	1645	29.74	29.51

Table 2. Descriptive Statistics for the Independent Variables

	N	Mean	SD
Conflict Lights	1609	23.74	15.19
Conflict Water bottle	1586	22.92	14.06
Conflict Clothes	1341	17.72	13.46
Global Lights	1611	63.61	18.83
Global Water bottle	1588	54.83	19.78
Global Clothes	1766	55.59	24.94
	N	Frequency (0)	Frequency (1)
Dominant Lights	1477	0.327	0.673
Dominant Water bottle	1964	0.705	0.295
Dominant Clothes	1725	0.858	0.142

Table 3. Outputs of linear regression models for turning off the lights

	Model 1 $R^2 = 0.071$ $F_{(4, 21.231)} = 21.231$, $p < 0.000$	Model 2 $R^2 = 0.071$ $F_{(5, 16.970)} = 16.970$, $p < 0.000$	Model 3 $R^2 = 0.072$ $F_{(5, 17.231)} = 16.970$, $p < 0.000$
Independent variables	Beta (SE)	Beta (SE)	Beta (SE)
Norm Conflict	0.119** (0.042)	0.118 (0.154)	0.051 (0.075)
Global Norm	0.292*** (0.036)	0.291*** (0.061)	0.296*** (0.037)
Dominant Norm	3.708** (1.286)	3.708** (1.287)	1.337 (2.057)
Norm Conflict * Global Norm	---	$2.758\ E^{-5}$ (0.003)	---
Norm Conflict * Dominant Norm	---	---	0.099 (0.089)
Gender	-0.864 (1.176)	-0.839 (1.179)	-0.826 (1.176)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. Outputs of linear regression models for using a reusable water bottle

	Model 1 $R^2 = 0.215$ $F_{(4, 84.313)} = 84.313$, $p < 0.000$	Model 2 $R^2 = 0.215$ $F_{(5, 67.754)} = 67.754$, $p < 0.000$	Model 3 $R^2 = 0.219$ $F_{(5, 69.386)} = 69.386$, $p < 0.000$
Independent Variables	Beta (SE)	Beta (SE)	Beta (SE)
Norm Conflict	0.133* (0.058)	-0.082 (0.190)	0.013 (0.072)
Global Norm	0.677*** (0.042)	0.610*** (0.071)	0.681*** (0.042)
Dominant Norm	8.877*** (1.652)	8.738*** (1.656)	0.886 (3.305)
Norm Conflict * Global Norm	---	0.004 (0.003)	---
Norm Conflict * Dominant Norm	---	---	0.333** (0.119)
Gender	-0.414 (1.629)	-0.330 (1.630)	-0.365 (1.625)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. Outputs of linear regression models for buying second-hand clothes

	Model 1 $R^2 = 0.395$ $F (4, 165.491)$ = 165.491, $p < 0.000$	Model 2 $R^2 = 0.401$ $F (5, 135.711)$ = 135.711, $p < 0.000$	Model 3 $R^2 = 0.402$ $F (5, 136.121)$ = 136.212, $p < 0.000$
Independent variables	Beta (SE)	Beta (SE)	Beta (SE)
Norm Conflict	0.016 (0.061)	-0.355** (0.130)	-0.097 (0.069)
Global Norm	0.837*** (0.041)	0.707*** (0.057)	0.850*** (0.041)
Dominant Norm	10.465*** (1.926)	10.151*** (1.919)	-0.112 (3.610)
Norm Conflict * Global Norm	---	0.010** (0.003)	---
Norm Conflict * Dominant Norm	---	---	0.466** (0.135)
Gender	-1.436 (1.489)	-1.508 (1.483)	-1.651 (1.483)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Interestingly, norm conflict is a significant predictor of turning off the lights and using a reusable water bottle (Table 4, model 1 and Table 5, model 1). However, for the more difficult behavior of buying second-hand clothes, norm conflict is not a significant predictor (Table 6, model 1). Also noteworthy is the coefficient for the dominant norm of both the more difficult behavior (using a reusable water bottle) and the difficult behavior (buying second-hand clothes), which are larger than either the norm conflict variable or the global norm variable. This result aligns with previous literature suggesting that one's social identity is a strong predictor of how one may act in a given

social situation (that is, act in the way in which those whom they feel group membership most strongly with do) (Terry et al. 1999).

Finally, I looked at whether norm conflict moderates the effect of the global norm and the dominant norm. For these analyses I use interaction terms (norm conflict x global norm and norm conflict x dominant norm) to determine whether norm conflict moderates the effect of the global norm on the behavior as well as whether norm conflict moderates the effect of the dominant norm.

The interaction between the global norm and norm conflict was not significant for either turning off the lights or using a reusable water bottle (see Table 4, model 2 and Table 5, model 2). Interestingly, in line with Hypothesis 4, norm conflict does moderate the relationship between the global norm and buying second-hand clothes (Table 6, model 2).

The interaction between norm conflict and the dominant norm was not significant for "turning off the lights", but was significant for using reusable water bottles and buying second-hand clothes. (see Table 4, model 3 and Table 5, model 3, and Table 6 model 3 respectively). In line with the prior tests and Hypothesis 5, I found norm conflict does moderate the relationship between the dominant norm and buying second-hand clothes (Table 6, model 3).

Discussion

We conducted this study to address several questions regarding the relationship between perceived descriptive norms, norm conflict, and pro-environmental behaviors. First, I wanted to understand the degree to which there is conflict among the norms of the different social groups of OSU students. Second, I asked whether norm conflict affects the frequency of engaging in pro-environmental behaviors and whether this was a function of the ease or difficulty of specific behaviors. Third, I examined whether and to what degree norm conflict affects pro-environmental behavior after considering the impact of global norms and the dominant norm. Finally, I asked whether norm conflict might moderate the effect of the global norm or dominant norm such that conflict itself causes individuals to more consciously consider, and act according to, a prevalent global norm or dominant norm.

I first found that the level of norm conflict associated with the behaviors used in this study was consistent with past research. McDonald et al. (2012) used a normative conflict measure based on an aggregate level of conflict between all three groups measured. The mean level of conflict in their study was 0.85 with a maximum level of 2.67, which means their mean conflict score was 32% of the total possible level of conflict. Similarly, the average conflict score across the three behaviors in this study was 21.46 out of a possible maximum conflict score of 66.67. Thus the conflict score in this study was also 32% of the possible maximum. This suggests that levels of norm conflict may be

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relatively stable across environmental behaviors. The remaining results are aligned with specific hypotheses.

In addition, there were several key results from this study. With regard to alternative hypotheses 1a, b, c, the results are mixed and largely support hypothesis 1c. The results suggest that the effect of norm-conflict on environmental behavior depends on the nature of the behavior in question, and specifically how difficult the behavior is. Norm conflict appears to motivate turning on the lights and using a reusable water bottle, but has no effect on buying second-hand clothes. Thus, the results suggest that norm conflict may, to some degree, motivate engagement in relatively easy pro-environmental behaviors, but have no effect on behaviors that are more difficult to perform. One explanation for why conflict is positively associated only with easy behaviors is that there is less personal investment in such behaviors. That is, if one cares about the environment and sees that not everyone is doing their part, it does not require much effort on one's part to engage in the behavior and set a positive example.

For Hypothesis 2, the results suggest that the global norm is positively associated with environmental behavior such that higher global norms will be linked with greater frequency of self-reported behavior. This result is in line with previous research, which has suggested that overall global descriptive norms can influence behavior (Cialdini 2007, Cialdini, Reno, and Kallgren 1990, Lapinski et al. 2007).

In regards to hypothesis 3, the results suggest that the dominant norm is positively

associated with environmental behavior such that the presence of a dominant norm will

be linked with greater frequency of self-reported behavior across all behaviors. The

dominant norm has the biggest effect on behavior out of the three norms concepts.

Consistent with social identity literature, the results suggest that individuals often try to

follow the norms of the group with which they most strongly identify. These results

suggest that although norm conflict and a global descriptive norm can influence behavior,

it is important to consider that a particular group may be key in one's adoption of the

behavior, particularly if they highly identify with a salient group.

McDonald et al. (2012, 2013) controlled for the descriptive global norm, which I also

found to be significantly associated with behavior. However, they did not account for the

influence of the dominant norm, which I found to be strongly associated with all three

behaviors in this study. Moreover, it is important to consider that norms between groups

may conflict. Understanding that identification with a referent group can be key to

affecting one's behavior, we see with the dominant norm concept that SIT suggests can

impact engagement in behavior. Consistent with Neighbors et al. (2010) and Johnson

and White (2003), specificity of a certain group is important when analyzing which group

a student may feel more relevant to engaging in a behavior.

These results suggests that, in addition to the average norm of the social groups with

which one interacts, the behaviors of a group with which one strongly identifies may also

influence engagement in the behavior (Nolan et al. 2008, Göckeritz et al. 2010). Thus, I

expected and found that there is a stronger influence of a group that is more socially

important. Specifying the groups that are important to the respondent can lead to a better

understanding of which groups students align themselves with and thus which behaviors

they are most likely to adopt (Neighbors et al. 2010). Thus it is important to understand

which group a student highly identifies with when attempting to create motivation to

engage in a behavior. Norm-based communication efforts would likely be more affective

if the message suggests that a certain pertinent group is engaging in the behavior. My

research implies that paying closer attention to the underlying psychological mechanisms

(i.e. a more dominant groups influence) should be incorporated in analyzing whether a

student engages in PEB and can be fundamental in encouraging the desired behavior.

In regards to hypothesis 4 and hypothesis 5, the results suggest that norm conflict

moderates the effect of the global norm on behavior for using a reusable water bottle and

buying second hand clothes. In addition, norm conflict moderates the effect of the

dominant norm on behavior for buying second-hand clothes. Thus, it appears that the

moderating effect of norm conflict may be a function of the difficulty of the behavior.

When the behavior is not difficult to perform, the individual may be relying on simple

heuristics about others are engaging in specific behaviors and use mental short-cuts to

decide whether or not to engage in the behavior. However, when the behavior becomes

more difficult to perform, norm conflict may trigger one to think more critically about

whether most others are engaging, or whether the group they feel is most important

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engages in the behavior. These results are consistent with the hypothesis that in the presence of norm conflict, respondents will look toward a group to which they feel a connection for guidance, particularly for more difficult behaviors (Hogg and Terry 2000). Thus, the results of this study suggest that norm conflict neither motivates nor de-motivates engagement in difficult behaviors, which is contrary to what McDonald et al (2013) found. Thus conflict stimulates a more conscious thought process, rather than using a quick and easy short cut (Chaiken 1980).

One explanation for the fact that norm conflict had a moderating effect only for more difficult behaviors is that the presence of norm conflict triggers one to consciously reflect on what the appropriate behavior is in that context. Difficult behaviors are most costly in terms of time, effort, knowledge, or other factors. When confronted with conflicting norms about easy behaviors, there is a more direct motivational effect because the costs are low. However, when confronted with conflicting norms and difficult behaviors, the costs are higher so there may not be a direct motivational effect. Instead, individuals may consciously consider either the global or the dominant norm for additional guidance about whether to engage in the behavior or not. In other words, the presence of norm conflict serves to focus the individual on important global or dominant norms.

This idea is similar to the focus theory of normative conduct (Cialdini 1990). In a study on littering, Cialdini (1990) found that the condition in which people littered the least was one for which there was a single piece of litter placed by the researchers. This single

piece of litter was enough to serve as a signal to the study participants that they should be conscious of the norm when deciding whether or not to litter. The presence of that piece of litter motivated the participants to actively consider the norm for that behavior and, for most people, the norm was not to litter.

The results of my study suggest that norm conflict may play a similar focusing role, at least for more difficult behaviors. When considering a difficult behavior, if one perceives there to be conflicting norms originating from different social groups, that may cause one to more actively consider either what most people do (global norm) or what the group with which they most closely identify does (dominant norm). For either behavior, this conscious consideration is not necessary because the costs of engaging in the behavior are so low. For instance, buying second-hand clothes involves finding transportation to the store and searching for clothes that fit and are the style that one desires. This process is more costly than finding new clothes either in the store or online. If one perceives there to be conflicting norms about buying second-hand clothes, the results of this study suggest that they will consider the global norm or the dominant norm, which will then be a part of their decision. In fact the proportion of the variance explained (R^2) was much higher for buying second hand clothes than for the easier behaviors, and was highest for models that included the interaction terms (Table 6, models 2 and 3). These relatively high R^2 values indicate that the measures of various conceptualizations of norms included in this study are more important for explaining the decision to engage in difficult

behaviors than easy ones. In other words, with more complex and difficult decisions, we turn to the actions of those in our social groups more than we would for easier behaviors.

In this study, I have demonstrated that norm conflict in and of itself is not a predictor of all PEB. Because McDonald et al. (2012, 2013) based their study off of an aggregate score of "pro-environmental behavior," they neglected to consider important differences between specific behaviors, such as the inherent ease or difficulty of particular actions or practices. The nature of the behavior is important because contextual forces can be a hindrance in engagement in PEB Stern (2000). Thus maintaining separate measures of specific behaviors would be advantageous for future research.

These results suggest that while the concept of norm conflict may be relevant in some areas of research, when analyzing easy or moderately difficult behaviors normative conflict may be predictive. However, results suggest that the overall descriptive norms and the norm of a dominant group are overall more pertinent than the proposed level of conflict in every level of behavior. Therefore it may be more important to focus on ones perception of the global norm or relationship with the dominant norm to influence behavior with that specific activity. The importance of norm conflict should not go unrecognized, though, as I see that this variable can be a significant part of a normative model of environmental behavior

The use of descriptive norms in promotion of behavior has been addressed in previous research (Rimal et al. 2005, Rimal 2008) and consistent these findings, more specifically descriptive norms can be further moderated to encourage behavior. Considering a potential moderating role of norm conflict may be more predictive of whether and in which cases a student performs a particular behavior. More specifically, when addressing how descriptive norms can predict behavior, it is import to consider the possible overall descriptive norm (Schultz et al. 2007) and a more dominant group's norm (Terry, Hogg, and White 1999), and how this can have a large impact on ones behavior. Additionally, while Gockeritz et al. (2010) suggest that descriptive normative beliefs may weaken likelihood in engagement of behavior, we find that the behavior may actually be encouraged if the global or dominant norm is high.

In terms of the practical implications of this research, the results suggest that while highlighting norm conflict may help motivate easy behaviors, it will not have a similar effect on difficult behaviors. In addition, past research has suggested that highlighting conflicting norms may actual be more likely to encourage the wrong kinds of behavior (Cialdini et al 2003). Instead, we want to emphasize the strong effect of the dominant norm across all three behaviors. It may be useful for an institution like OSU to determine which group(s) the student body identifies most closely with and use the actions of those groups to motivate behavior. Further, it may be advantageous, at least in the context of more difficult behavior, to note that there is conflict about a certain behavior but that the group with which the student body most identifies with *does* engage in the behavior a

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large proportion of the time. The results of this study suggest that the approach of using norm conflict to trigger conscious reflection of the dominant norm could be effective.

Limitations and Future Directions

I want to be clear that I can only talk about associations between norms, norm conflict and behaviors in this study rather than causality. This is because I measured self-reported behaviors and built the norm conflicts measure on *perceived* descriptive norms. Because I measured perceived norms and self-reported behaviors, I cannot be sure that respondents are not inflating their reported behaviors (in order to match what they believe the perceived norm to be) and/or are not inflating the perceived norm (to match more closely with their behavior). Therefore, my concept of norms and my measure of behaviors may be associated with each other, which precludes us from being able to discuss causality.

It is also important to note that the social groups I explored were nested (e.g. some of the respondent's friends are also likely OSU students). Future research on norm conflict could examine different combinations of social groups – including non-nested groups, more specific groups (such as clubs, faith communities, sport teams, etc.), and different combinations of in-groups and out-groups. This will help us better understand the contexts in which norm conflict is important for motivating or discouraging behavior, or when norm conflict is not a relevant factor for explaining environmental behavior.

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In addition, in contrast to McDonald (2013) my study explored multiple behaviors independently rather than as an index. This is important because the different normative measures have different effects on different behaviors and interact differently for different behaviors, which is consistent with other studies (Ajzen and Fishbein 1973, Morwitz and Fitzsimons 2004).

There are a number of reasons to expect that different norm concepts might affect behaviors differently. Behaviors can differ greatly along a number of dimensions. For instance, they may vary in their level of difficulty, which I considered here, and which has been addressed in previous literature (Stern 2000) . Behaviors may also vary in level of knowledge or skill that it takes to perform the behavior. This may require the individual to invest more time in performing or comprehending the task at hand. It also may require much more effort in planning to engage in the behavior, such as making a conscious effort to research bus lines that one may need to take to get to a second-hand shop or where to buy second-hand products. Further, behaviors may differ in how publicly visible they are, which may heed greater social engagement due to more social pressure to engage.

Future research could also investigate more complex potential interactions between attitudes, perceived effectiveness, salience, norm conflict and behaviors. For instance, perhaps norm conflict moderates the effect of the dominant norm (which I found) but

only for salient behaviors, or only for respondents with strong environmental attitudes. It may also be possible that conflict moderates the relationship between perceived effectiveness and behavior, whereas if conflict is high, the individual may perceive the behavior as ineffective. McDonald et al. (2013) found that perceptions of effectiveness were related to engagement in environmental behavior when conflict was present, but did not look at whether the perception of effectiveness was attributed to the specific behavior. McDonald et al. (2013) also found that a pro-environmental attitude was necessary to believe the pro-environmental behavior was effective in the presence of norm conflict. McDonald et al.'s (2013) research shows significant results in the ways in which many other factors can play a role in one's engagement in behavior. However, this research overall lacks specificity in all variables, which future research should address. It may also be important to address the impact of not only perceived descriptive norms but also injunctive norms, and how norm conflict might moderate the relationship between injunctive norms and behavior, which neither this research nor the study this research was modeled after addressed.

In addition, while this study addressed behaviors on a dimension of difficulty, future research should broaden the scope of the behaviors that are analyzed. Due to space constraints, the assessment of the difficult behavior was limited to one in respect to the other two. Because PEB may include a number of behaviors, it would be advantageous to create a platform in which research could analyze many difficult behaviors, thus grasping a more concrete understanding of which behaviors may be most salient to norm conflict. It would also be advantageous for future research to address how norm conflict

can impact a particular behavior and how this may differ with its level of difficulty. That is, while a behavior may be relatively easy in one context (walking to the corner store), it can become increasingly difficult (walking 5 miles to work). Therefore, it is important to know just when and how norm conflict can impact the difficulty of a behavior.

Furthermore, our research was conducted with college students who are constrained in ways that make some behaviors more difficult or may even prohibit engagement in certain behaviors (e.g. buying organic food due to lack of funds). It would be beneficial for future research to analyze the general public to determine which behavior may be difficult for most individuals to perform.

Based on these results I argue that future studies should account for the potential impacts of a dominant norm – or at least be attentive to the potential that the descriptive norm associated with one of the groups with which the respondent identifies with most strongly may, in fact, drive behavior.

Overall, our results differ from those of McDonald et al (2013) in that not all PEB is influenced by norm conflict. These results show that the difficulty of the behavior may affect the individual's engagement in the PEB. McDonald found that conflict was a significant predictor of whether an individual reduced water consumption, and I found norm conflict predicted turning lights off and using a reusable water bottle. However, norm conflict was not significantly associated with buying second-hand clothes. This

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research adds to the literature by analyzing behavior specifically ranging in variation of difficulty to perform.

Conclusions

The results of this research suggest that conflicting norms between the groups with which individuals interact should not be overlooked. In order to address the potential effects of norm conflict, this study aimed to analyze when norm conflict was a significant predictor of PEB. Norm conflict was a predictor of easy behaviors, but was not a significant predictor of the difficult behavior. However, norm conflict does appear to trigger a more conscious decision-making process whereby individuals are motivated by the presence of norm conflict to more consciously consider the global and/or dominant norm for a certain behavior.

Overall, normative messages should be carefully constructed. We have seen through previous research that the implications of normative messages can either facilitate or hinder the behavior in question (Cialdini 2003, Cialdini, Reno, and Kallgren 1990, Goldstein, Cialdini, and Griskevicius 2008). I suggest further research needs to address a larger variety of PEB. This research should also include the behavior of the most salient reference group to ensure that the norms of the group with which the participant socially identifies is accounted for.

The importance in attributing normative behavior with a specific action is highly reliant upon the individual's perception of not only who is participating in the behavior but also how important that group is to the individual. While McDonald et al. (2102, 2013) bring to the table an important idea that normative influences from different groups may conflict, I see that this is only relevant in certain contexts. Understanding the implications and repercussions of this argument are indeed important in highlighting the fact that not everyone is on board, but moreover I need to assess this variable for more contextually and circumstantially relevant behaviors in question.

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