The Not-so-simple Impact of Norms on Green Behaviours: The Moderating Roles of
Social Identity Complexity and Cognitive Resources

Stephanie Peck

A Thesis
in the John Molson School of Business

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Administration at
Concordia University
Montréal, Québec, Canada

September 14th 2012

CONCORDIA UNIVERSITY
School of Graduate Studies

This is to certify that the thesis prepared

By: Stephanie Peck

Entitled: The Not-so-simple Impact of Norms on Green Behaviours: The Moderating
Roles of Social Identity Complexity and Cognitive Resources

and submitted in partial fulfillment of the requirements for the degree of

Master of Science in Administration

complies with the regulations of the University and meets the accepted standards with
respect to originality and quality.

Signed by the final examining committee:

Dr. Lorne Switzer	Chair
Dr. Bianca Grohmann	Examiner
Dr. Tieshan Li	Examiner
Dr. Onur Bodur	Supervisor

Approved by   _____
                     Chair of Department or Graduate Program Director

                     _____
                     Dean of Faculty

Date   September 14th 2012

ABSTRACT

The Not-so-simple Impact of Norms on Green Behaviours: The Moderating Roles of
Social Identity Complexity and Cognitive Resources

Stephanie Peck

Environmentally friendly products are gaining market share, yet we do not have a majority of consumers committed to purchasing green products. This study aims to identify how and when consumers can be influenced to make environmentally conscious buying decisions. Previous research has demonstrated that social norms are key in guiding such behaviours. This study adds to the literature by investigating the impact of individual-specific and situational factors. In fact, we evaluated the moderating role of social identity complexity (SIC) on an individual's sensitivity to normative influences. In addition, this research assessed the effectiveness of a new measure: online social identity complexity (OSIC). Given the recent explosion of social networking sites such as Facebook, and their impact on our daily lives, it is relevant to assess how these online networks can influence the way people express their identity and respond to normative messages. Finally, the impact of cognitive resources on norm adherence was investigated. In the end, a significant three-way relationship was found between social identity complexity, cognitive resource depletion and normative messages.

ACKOWLEDGEMENTS

Dr. Bodur:

This thesis would not have been possible without your guidance and help. Thank you for sharing your great knowledge, wisdom and experience. I have learned so much. It was a pleasure working with you.

Mom, Dad and Alex:

Thank you for your unconditional love and support. It is because I have such a strong support group that I have been able to accomplish so many great things and know that I can continue to aim higher.

Daniel:

You are my rock. This has been a long process filled with ups and downs and I want to thank you for standing by me and pushing me to keep going. I am grateful for having you in my life.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

The green consumption movement has grown remarkably in the last decade. The population as a whole is increasingly aware of the consequences of its everyday actions on the health of the planet. Clear examples of this are the steady rise of public transportation in Montréal (*Société de Transport de Montréal*, 2012), recycling rates more than doubling in Québec in the last ten years (*Recyc-Québec*, 2009) and the implementation of composting programs in an increasing number of municipalities across the province (Statistics Canada, 2008). This trend is far from being local: a recent study involving over 15,000 participants from eight countries reveals that the environmental friendliness of a product or service is a key factor for the majority of the respondents (52%) when making a purchasing decision (Euromonitor International 2012).

Concern for climate change is evident in consumer choices with shoppers progressively opting for the greener alternative, from biodegradable cleaners to fuel-efficient cars. In addition, a number of national retailers do not offer plastic bags for customers at checkout anymore and encourage the use of durable bags. More and more product labels include terms such as "natural", "locally sourced" and "fair trade" and consumers are willing to pay a premium for such features (Euromonitor International, 2012). In fact, the number of products making green claims has increased by 73% since 2009 (TerraChoice, 2010).

Environmentally friendly products are gaining market share, yet we do not have a majority of consumers committed to purchasing green products. This study aims to identify how and when we can influence consumers to make environmentally conscious buying decisions.

Previous research confirms the fact that social norms play a key role in shaping such choices, because they represent the common behaviour in a given situation that people look to follow as part of a group (Cialdini, Reno, & Kallgren, 1990; Goldstein, Cialdini, & Griskevicius, 2008; Gockeritz, Schultz, Rendon, Cialdini, Goldstein, & Greskevicius, 2010). When do normative messages work? It becomes pertinent to look into individual-specific factors that make a consumer more susceptible to these normative influences and in the end, more likely to be green.

This research investigates the moderating role of social identity complexity on the impact of normative messages. An individual's social identity complexity (SIC) is the way they relate their different identities as members of various groups, either as a simple converging identity, or a complex representation of distinct identities. Having a complex social identity may negatively influence how individuals respond to normative messages.

Another objective of the study is to evaluate the effectiveness of a new online social identity complexity measure. Given the recent explosion of social networking sites such as Facebook, and their impact on personal and professional exchanges, it is relevant to assess how these online networks influence norm adherence. A number of previous studies have looked at the effect of social media on relationships (Bargh & McKenna, 2004; Nie, 2001; Boyd & Ellison, 2008; Pollet, Roberts, & Dunbat, 2011; Hamption, Sessions, & Ja Her, 2001). A current gap in the literature regarding SIC is the complexity of ingroup representations within an individual's online community. We will attempt to fill this gap by measuring individuals' online social identity complexity (OSIC) based on their groups of Facebook contacts. Facebook is a tool that allows users to build a profile and communicate with many "friends" at once, through a number of interactive features.

This particular website was chosen because it is the most used social network service around the world. In fact, Facebook passed 800 Million active users worldwide in September 2011 and is expected to reach the 1 Billion mark in August 2012 (Wasserman, 2012). In addition, Ellison, Steinfield and Lampe (2007) found that the typical user has between 150 and 200 friends and logs on daily. It goes without saying that such an interconnected and layered network can change the way individuals share information, express their identity and follow trends.

This study helps shed light on key questions such as: how does social identity complexity influence an individual's sensitivity to normative messages? How does online social identity complexity influence norm compliant behaviours? How does cognitive resource depletion impact adherence to social norms?

The research paper is outlined as follows. The first section presents the theoretical framework that guided the project. Next, the research contributions are discussed. This is followed by an overview of the methodology used in this research. Finally, we conclude with a discussion of the findings, the limitations of the study and suggestions for future research.

LITERATURE REVIEW

In this section, the major themes of the research are presented: social norms, social identity complexity and cognitive resources. These will be discussed in the context of green consumption.

Social Norms

Deutsch and Gerard (1955) distinguish between two types of social influences: normative social influences, which represent an influence to conform to expectations of others, and informational social influences, which involve accepting information received from someone as evidence about reality.

Social norms are shared beliefs about how people should behave that generate expectations about the actions of group members (Elster, 1989; Fehr & Fischbacher, 2004). Individuals look to social norms to understand social situations and know how to respond to them (Cialdini & Goldstein, 2004). Norms can impose behaviour uniformity and coordination within a social group (Durlauf and Blume, 2008) and thus become prevalent when they are shared, or adhered to, by a greater percentage of the population (Cialdini et al., 1990). Individuals are motivated to comply with social norms to manage their self-concept as well as build and maintain relationships (Cialdini & Trost, 1998). Examples of social norms include saying "thank you", waiting in line, leaving a tip at the restaurant or wearing clothes in public.

In addition, norms can be prescriptive or descriptive: prescriptive norms state how one group should behave, based on standards and moral values, whereas descriptive norms indicate how one group actually behaves (Cialdini et al., 1990). As Peattie (2010) points out, research involving normative influences focuses on descriptive norms.

Many researchers agree that social norms are key in influencing environmental attitudes and behaviours (Reno, Cialdini, & Kallgren, 1993; Chan, 1998; Bratt, 1999; Barr, 2007; Peattie, 2010, Nigbur, Lyons, & Uzzell, 2010; Ramaya, Lee, & Lim, 2012; Gockeritz et al., 2010). A number of previous empirical studies have looked at the influence of normative messages in the context of environmentally conscious consumption decisions. Cialdini et al. (1990) conducted a field study to evaluate people's littering habits in public places. In fact, norm salience was manipulated by varying the amount of litter on the ground. Results indicated that little littering occurred in a clean environment and progressively more littering occurred as it accumulated. In addition, time to litter decreases as a function of the number of pieces of trash in the environment. This is attributed to the fact that the descriptive norm for the situation changes from "antilitter" to "prolitter". These findings are consistent with the view that, in most settings, individuals tend to act in accordance with the clear behavioural norm (Krauss, Freedman, & Whitcup, 1978) and infer descriptive norms from their environment.

Similarly, in a field experiment by Schultz (1999), curbside recycling was increased using feedback interventions that targeted personal and social norms. In this case, subjects were more responsive when they were given feedback about the amounts of materials being recycled, either by their household or their neighborhood. Indeed, it was found that informational programs have more long-term impacts than incentive programs

in increasing recycling behaviors (Iyer and Kashyap, 2007).

Moreover, Goldstein et al. (2008) found that normative appeals encouraging hotel guests to reuse their towels were more effective than the conventional messages that state the environmental benefits of such behaviours. More importantly, the effect was even stronger when describing group behaviours that occurred in the setting that most closely matched the immediate situational circumstances (e.g., "the majority of guests in this room reuse their towels").

In contrast, Schultz, Nolan, Cialdini, Goldstein and Griskevicius (2007) conducted a field experiment about household energy conservation and had mixed success in applying persuasive appeals based on social norms. In fact, they noted a boomerang effect in households that were already consuming less than their neighbors, leading them to consume more energy. In addition, the results indicated a long-term appeal effect of the normative messages, four weeks after the interaction. This finding supports the fact that such communications must also be tailored to the target audience to be effective.

Furthermore, Grieskevicius, Tybur and Van der Bergh (2010) looked into the motivations behind the purchase of green products and applied competitive altruism theory and costly signaling framework to this context. Findings indicate that activating status motives lead people to choose environmentally friendly products over the more luxurious alternative. This effect is present for public consumption as opposed to private purchases; this ties in to the theory of social influences and norms.

Building on these findings, our study will involve descriptive norms that are tailored to respondents. We will also focus on environmentally conscious purchasing decisions as opposed to conservation behaviours.

Social Identity Complexity

Social identity is the sense of self that is derived from membership and interaction with a social group, coupled with the emotional significance attached to the membership (Jenkins, 2008; Tajfel, 1974). This concept is related to the self-categorization theory, which argues that individuals categorize others and themselves based on perceived similarity, and explains group dynamics (Turner, 1984; Hogg, Terry, & White, 1995). In other words, social identity is based on a perception of what defines "us" (Hogg & Vaughan, 2002). This is separate from one's personal identity, which "refers to self-knowledge that derives from the individual's unique attributes" (Tajfel, 1974). Individuals belong to many groups of different types (Lickel et al., 2000) that can be based on symbolic attachment or personal ties (Roccas & Brewer, 2002). For example, group membership can be based on age, gender, occupation or citizenship, or even multiple factors at once. Individuals can also categorize themselves based on these identities. Miller, Brewer and Arbuckle (2009) point out that many group memberships are cross-cutting in the sense that the constitution and meaning of different ingroups do not completely converge; individuals can have a common ingroup identity in one dimension but belong to different groups for other dimensions (Brewer & Pierce, 2005). For example, workers in the same field can be of different genders or ethnic backgrounds.

Lickel et al. (2000) introduce four basic types of groups: intimacy groups, task groups, social categories, and loose associations. Intimacy groups are associated with affiliation needs, task groups are related to achievement needs, and social category groups are linked with identity needs (Johnson et al., 2006). Each type of group can be

defined by a set of descriptive properties. More precisely, Lickel, Hamilton and Sherman (2001) found eight properties that serve as a common framework to study the four basic types of groups:

1- The degree of interaction among group members
2- The importance (value) of the group to the members
3- The degree to which members have common goals
4- The experience of common outcomes among members
5- The similarity of group members to each other
6- The permeability of membership or how hard it is to leave the group
7- The size of the group
8- The duration of group membership.

The authors conclude that of these, four properties can be used to adequately describe groups and make inferences about them: group size, duration, permeability and interaction between members. Moreover, five key properties are related to entitativity, or sense of groupness, of members towards the group: interaction, importance, goals, outcomes, and similarity. These five key properties make a group more distinct and relevant in the eyes of individual group members. Social identity is based on these group memberships. When the social identity of an individual towards a group is stronger, it will have a greater influence on that person's attitudes and behaviours (Jenkins, 2008; Lickel et al., 2000).

Most individuals are part of many groups at once (Stryker & Statham, 1985; Tajfel, 1974; Roccas & Brewer, 2002; Lickel et al., 2000). Because of this, the concept of social identity complexity (SIC), as introduced by Roccas and Brewer (2002), must be considered. This is in fact an "individual's subjective representation of the interrelationships among his or her multiple group identities". Simply put, social identity complexity reflects the perceived degree of overlap of group characteristics and group

members between ingroups, the latter referring to how similar members are to each other. Therefore, social identity complexity takes into consideration how many groups a person identifies with and more importantly, how the different identities are combined. The researchers state that "having a complex social identity is dependent on two conditions: first, awareness of more than one ingroup categorization and second, recognition that the multiple ingroup categories do not converge". This theory is applicable to an individual's memberships in multiple, large and cross-cutting social categories. The concept of SIC is relevant since it influences how individuals perceive and relate to others. Most decisions people make on a daily basis have social implications, therefore SIC can influence how these decisions are made.

According to Roccas and Brewer, low complexity means that a person's multiple identities are rooted in a single ingroup representation, whereas high complexity occurs when a person recognizes the distinctions and differentiates between ingroup categories. For example, a person with a low SIC will perceive that essentially all Canadians are Caucasian and almost Caucasians are Canadian. In contrast, a person with a high SIC will recognize that not all Canadians are Caucasian and vice-versa.

Based on the operationalization of the concept by Roccas and Brewer, two distinct dimensions of SIC emerge: perceived extent of overlap between ingroups and perceived similarity between ingroups. In fact, both dimensions are measured separately. Lower perceived overlap and similarity reflects a more complex social identity. Group categorization becomes more complex when each group is defined differently and independently; it therefore requires more cognitive resources to process these differences and make associations with a particular ingroup.

The authors propose that experiential factors contribute to SIC. An individual's social environment will influence the complexity of their social identity. On one hand, a person's immediate surroundings will usually include similar others, thus resulting in a simpler social identity (Kelley & Evans, 1995; Roccas & Brewer, 2002). On the other hand, multicultural environments and actual exposure to such diversity will contribute to a more complex social identity. In fact, Miller, Brewer and Arbuckle (2009) found that individuals who live in areas that are characterized by racial and ethnic diversity are more likely to recognize the fact that members of their ingroup could also be members of their outgroup based on different dimensions.

Personality factors, such as needs and values, also come into play when discussing antecedents of social identity complexity. In their initial study, Roccas and Brewer (2002) found that a higher SIC is related to a greater sense of openness, lower power orientation and higher universalism values. Moreover, Brewer and Pierce (2005) found that this construct is linked to a higher tolerance of outgroups and acceptance of diversity. Miller et al. (2009) found that social identity complexity is also related to an individual's need for cognition, which represents the extent to which they engage in and enjoy effortful cognitive activities or thinking (Cacioppo & Petty, 1982). Such individuals also have a "need to structure relevant situations in meaningful, integrated ways" (Cohen, Stotlant, & Wolfe, 1955). Interestingly, Orth and Kahle (2008) found that high social identity complexity reduces a person's susceptibility to normative influence. Their study looked at the intrapersonal factors that impact susceptibility to normative influence as a key mediator of wine brand selection. We will look to expand on their

results by studying the relationship across a number of product categories and introducing cognitive resources as an additional moderator.

Orth and Kahle argue that individuals who perceive a lower degree of overlap and similarity between their ingroups, have a higher SIC and belong to multiple diverging ingroup, are more likely to be confronted by many diverging norms prescribed by each group. Therefore, a single normative message will have less influence. In contrast, individuals who perceive a higher degree of overlap and similarity between their ingroups and have a lower SIC, are more likely to have a single unified source of social norms that is readily available. Based on this, we can make the following prediction:

> **H1:** Individuals with high social identity complexity will be less likely to follow the dominant norm than individuals with low social identity complexity.

Cognitive Resources

Self-regulation is the capacity for an individual to control a behaviour or response that would normally come naturally or out of habit (Hamilton, Vohs, Sellier, & Meyvis, 2011). This form of self-control is closely tied in to self-presentation, which is the way a person acts to communicate information about themselves (Baumeister, 1982). The two main self-presentational goals are to make a positive impression on others and to construct one's public self, which will naturally determine their success in groups or relationships (Baumeister, 1982; Vohs, Baumeister, Schmeichel, Ciarocco, 2005; Vohs et al., 2008). It should be noted that the type of impressions people try to make will depend on situational and dispositional factors, such as prevailing norms and roles,

characteristics and values of the others as well as the person's self-concept (Leary et al., 1994).

Previous findings suggest that self-regulation "depends on a limited resource, akin to energy or strength" and when these resources are depleted, "people should become less effective at presenting themselves in socially desirable or normative ways, especially when these images run counter to habitual tendencies" (Vohs et al., 2005; Baumeister & Heatherton, 1996).

Research involving self-regulatory resource depletion typically requires that participants complete two subsequent tasks. The first task is designed to consume self-regulatory resources; for example, resisting temptation or controlling facial expressions (or a control task that consumes little or no resources). The second task represents the dependent measure where people who engaged in a higher degree of self-regulation in the first task do not perform as well as those who used up fewer self-regulatory resources; for example, persisting with an unsolvable puzzle, keeping an arm in ice-cold water, consuming a distasteful drink (Vohs et al., 2008; Hamilton et al., 2011; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998).

In addition, studies have shown that making a number of product choices can deplete important intrapersonal resources, which are also needed for self-regulation (Vohs et al., 2008). The same can be said about switching mindsets where individuals change their approach to a given situation or problem (Hamilton et al., 2011).

Regulatory resource depletion has been linked to a number of behavioral problems: failing to stick to a diet, impulsive buying, prejudicial responding in interracial settings, unintended emotional outbursts, and poorer intellectual performance (Vohs et al.,

2008; Vohs & Heatherton, 2000; Richeson & Shelton, 2003; Schmeichel et al., 2003; Muravan et al., 1998; Vohs & Faber, 2007; Baumeister et al., 1998).

In the end, the same cognitive resources are used for decision-making and self-regulation. For this reason, this factor will be presented as "cognitive resources" going forward.

A discussion of cognitive resources goes hand in hand with social norms because individuals constantly work to present themselves in a way that is consistent with the norm. Therefore, it can be expected that people with depleted resources would be less successful in complying with such social norms (Vohs et al., 2005). Gorlin and Dhar (2012) also propose availability of cognitive resources as a moderator to social influences. Based on this, we hypothesize the following:

> **H2:** When cognitive resources are depleted, individuals with high social identity complexity will be less likely to follow the norm than individuals with low social identity complexity.

The concepts of SIC, cognitive resources and normative influences, discussed previously, can all be tied together. It has been shown that the availability of cognitive resources plays a key role in whether or not an individual will adhere to a social norm. It can be assumed that social identity complexity will also affect the relationship. Therefore, we propose to examine the interaction between social identity complexity and cognitive resources in terms of norm compliant behaviours in a context of green consumption. The following section describes the anticipated contributions of this research.

CONTRIBUTIONS AND IMPLICATIONS

This study will contribute to a number of theoretical areas of psychology and consumer behaviour. To our knowledge, previous research in marketing has not investigated the role of social identity complexity on the effectiveness of normative messages. Roccas and Brewer (2002) point to the fact that SIC can be impacted by a person's attention resources. For this reason, it is relevant to assess how the depletion of cognitive resources comes into play. Moreover, the concepts of SIC and cognitive resources have yet to be researched jointly.

This research also builds on the relatively new concept of SIC by testing a measure based on online ingroups. In a world where almost everything can be done online, the Internet has had an everlasting impact on how people interact personally and professionally. Consequently, it is relevant to gain a better understanding of how social representations based on online contacts influence relationships and behaviours.

The findings of this study will have definite implications on future public policy. Governments have developed regulations and awareness campaigns to restrict energy consumption, waste and pollution. In order for these sustainability initiatives to be successful, adherence of the population is a must. From a managerial perspective, more effective marketing communications can be developed using the anticipated results of this research project. Research has shown that people's mindset and attitudes can be manipulated and companies can take advantage of this to achieve increased return-on-investments. More importantly, the results of this study can help get a majority of consumers committed to buying green.

METHODOLOGY

The following section highlights the details of the method used for two pretests and the main data collection.

Pretest 1

An initial pretest was conducted to evaluate the effectiveness of a new product choice task, which served as a cognitive resource depletion manipulation. Similar to the procedure used by Hamilton et al. (2011), respondents were asked to choose between five options in each of ten product categories: laptops, e-readers, pillows, deodorants, athletic shoes, refrigerators, MP3 music players, digital cameras, apartments for rent and vacation packages. The product choice task provided an easy yet subtle way of manipulating participants' mental resources.

A convenience sample of 43 participants was used for this pretest. Respondents were randomly assigned to two conditions: low or high availability of cognitive resources. This variable was manipulated based on two key factors: the presentation of product alternatives and the strategy used to make the decision. On one hand, 20 participants were exposed to the high cognitive resource condition where the product features were presented in the same order, thus facilitating comparisons and demanding fewer resources. In addition, participants were instructed to make choices based on a single specific decision-making strategy. One subgroup was advised to use the weighted-additive decision strategy (WADD), where each alternative is evaluated relative to the others. In this case, they received the following instructions:

"Examine the information about the products below. Look at Brand A. Compare it to the rest of the brands based on each of the features. Now look at Brand B. Compare it to the rest of the brands based on each of the features. Continue this process until you have looked at all the brands and at all the features. After you are done comparing between brands, decide which brand you prefer most."

The other participants in the high availability of cognitive resources condition were directed to use an elimination-by-aspects decision strategy (EBA)*:*

"Examine the information about the products below. Start with the feature you consider to be the most important and compare each brand's values on that feature. Exclude the brand that has the worst value on this feature. Now you are left with four brands. Go to what you consider to be the second most important feature, and again look at it for all the remaining brands. Exclude the brand that has the worst value on this feature. Follow this procedure until you are left with only one brand."

On the other hand, 23 participants in the low availability of cognitive resources condition were instructed to alternate between both decision-making strategies. Hamilton et al. (2011) show that mindset switching is an effective way of depleting mental resources. Furthermore, in this condition, the features of each product were presented in different orders across alternatives, thus making comparisons less straightforward and using up more resources. It can be argued that this manipulation is representative of multitasking since it involves both mindset switching and making shopping decisions.

The manipulation check consisted in participants rating the difficultly of the task. This was measured using a four-item seven-point Likert-type scale (1 = strongly disagree; 7 = strongly agree) that included the following statements: "the choice exercise was difficult", "the choice exercise was effortful", "the choice exercise was exhausting" and "the choice exercise required concentration". These were combined to form an index measure (α = .740). Similar statements have been used in previous studies to evaluate task difficulty (Vohs et al., 2005; Hamilton et al., 2011).

A one-way ANOVA was used to test for differences in perceived task difficulty

across groups. As expected, the results indicated that the group in the low cognitive resources condition found the task more difficult (M = 4.27, SD = 1.01) than the group in the high cognitive resource condition (M = 3.48, SD = 1.06, F(1,42) = 5.53, p = .023). There were no significant differences between decision strategies in the high availability of cognitive resources condition (p > .10). In the end, the cognitive resource manipulation was successful.

Pretest 2

A second pretest involving 38 participants was conducted to assess the success of a normative manipulation. Participants were first asked to indicate their province of residence. Following this, they were instructed to read a short paragraph that contained statistics about sustainable purchases and behaviours in their region (the location was inputted automatically). Participants were then asked to count the number of times the letter "e" was used in the text. This would serve as a distractor task; a way for participants to be exposed to the norm without being aware of it.

Respondents were randomly assigned to one of two normative manipulation conditions. Seventeen participants in the first normative manipulation condition read a text where predominance of green behaviours in the specified region was higher than the national average:

"Recent research funded by the David Suzuki Foundation has found that 77% of [province] residents buy environmentally friendly products and products with less packaging. Also, 73% of [province] shoppers chose reusable bags on their weekly grocery store visits and 81% returned deposit beverage containers to the store. These percentages are higher than the national average."

The name of a recognized environmental group, the David Suzuki Foundation, was included for added credibility and impact. Similar statements have been used in previous research (Goldstein et al., 2008). In contrast, 21 participants in the alternative normative manipulation condition read a text where the predominance of green behaviours in the specified region was reflective of the national average:

"Recent research funded by the David Suzuki Foundation has found that 23% of [province] residents buy environmentally friendly products and products with less packaging. Also, 27% of [province] shoppers chose reusable bags on their weekly grocery store visits and 29% returned deposit beverage containers to the store. These percentages reflect the national average."

Afterwards, participants completed a product choice exercise where they were asked to indicate their preference between two proposed alternatives. They were exposed to 29 product pairs, representing seven different product categories such as food items, drinks, health and beauty items, kitchen products, household products, cleaning supplies and finally, stationary items. Participants were told that these choices were potential gift options for future marketing studies.

Each product pair consisted in one ethical or sustainable alternative, and one "regular" alternative with enhanced features. This was done to create a conflict between both choices in the mind of the consumer. For example, participants had to choose between a pack of bright white premium printing paper with a luxurious weight and feel ($11.99 for 500 sheets) and non-bleached eco-friendly printing paper made up of at least 50% post-consumer content ($13.79 for 500 sheets). The order of the products was randomized. Brief product descriptions were given for each option along with pricing and quantity information. In this case, the packaging sizes were equal, but the green alternative was priced approximately 20% higher. Prices were determined based on listed

prices for actual products found online. A picture representation was also included and the picture sizing was stable between options. As much as possible, we avoided including products with dominant brand names to eliminate potential biases in this regard. The number of features or descriptions used across pairs was also balanced to avoid emphasizing one particular option.

The presentation of both options was balanced in the sense that for 15 product categories, the "green" option was on the left and for the remaining 14 product categories, the "green" option was on the right. This was done to discourage respondents from answering the same way for every product pair without paying attention to the descriptions.

Participants indicated their preference for a product on a bipolar 11-point scale ranging from "Option A is more attractive" (1) to "Option B is more attractive" (11). Certain items were reverse coded in order for all product evaluations to be reflective of the green option being on the right. Therefore, a higher score would indicate a preference for the environmentally conscious alternative.

Based on the pretest, 15 of the 29 product pairs were retained for the main study because the results of a t-test displayed directional support for the positive main effect between a dominant green purchase norm and green product choice: cotton pads, bar soap, hand soap, bottled water, green tea, coffee, disinfectant wipes, all-purpose cleaner, chips, peanut butter, pasta, garbage bags, sandwich bags, travel mug and printing paper.

Main Study

Design

In line with previous research evaluating the impact of social norms on behaviour, this study followed an experimental approach. The variable of interest was consumer preference for the green product alternative. The design for the main study was a 2 (normative influence: dominant green behaviours vs. non-dominant green behaviours) × 2 (cognitive resources: high vs. low) × 2 (social identity complexity: complex vs. simple). Participants were randomly assigned to different conditions. Constructs of offline and online social identity complexity were measured but not manipulated.

Data Collection

The main data collection was conducted between May 2nd and May 11th 2012. Participants completed an online survey that was administered using the online survey tool Qualtrics. This allowed for the manipulations of the independent variables and more importantly, the effective measurement of social identity complexity.

The questionnaire took on average 34 minutes to complete and was divided in six separate sections. The survey began with the SIC measure. This was followed by questions about online social networking habits and the measurement of OSIC. The cognitive resource and normative influence manipulations came next. After this, participants completed the product choice task that was used to calculate the dependent variable. The questionnaire concluded with various personality scales, demographic questions and a suspicion probe. Most questions were presented on their own page to

increase participant focus. A progress bar was included at the bottom of the screen to reduce the likelihood of incomplete surveys.

Sample

An online panel service company, United Sample (uSamp) based in California, was used to recruit participants. Respondents received email invitations with direct links to the survey from uSamp and were compensated for their participation by the company. All respondents were residents of the United States.

Four preliminary screening questions were included in order to ensure that the sample consisted of individuals that were between the ages of 25 and 54, employed, had an active Facebook account and had purchased a green product in the last six months. We also excluded participants who reported that they are not fluent in English or who did not respond to main variables of interest. A total of 285 complete questionnaires were retained for the following analyses. The sample as a whole was relatively young, with 75% between the ages of 25 and 39 (72% women).

Basic information on online social networking and Internet habits was also collected. Participants claimed to spend an average of five hours per day on the Internet. All participants had an active Facebook account, but also other social network accounts: Twitter (52%), Linkedin (38%), Google+ (32%), and MySpace (21%). Of the participants, 25% were only on Facebook, 31% were part of two networks, 15% were signed up for three accounts and another 28% were members of four or more networks.

We also looked into the size of individuals' Facebook network: almost a third (29%) of respondents had between 100 and 200 friends on Facebook, and 23% had 50 or

less. Most participants (55%) were part of between one and five Facebook groups and a significant proportion (18%) were not part of any groups. Some participants even admitted to not having any form of contact with people, for example sending messages, on a weekly (7%) or monthly basis (3%). Most individuals (43%) kept in touch with ten people or less every week through Facebook and interacted with more people once a month. This is consistent with theory regarding personal social network sizes (Stiller & Dunbar, 2007; Roberts et al., 2007, Hampton, Sessions, Ja Her, 2011).

Our respondents frequently visit Facebook: 26% log on daily and another 45% check in more than once a day. The vast majority (82%) reported that they usually log on for 30 minutes or less. Online social networking activity will also be discussed in relation to social identity complexity constructs later in this paper.

Process and Measures

The cognitive resource manipulation in the main study replicated the procedure used in the first pretest. Participants conducted a product choice task where they had to choose between five alternatives in each of ten product categories (Hamilton et al., 2011). Respondents were randomly assigned to one of two conditions. On one hand, 138 participants in the high availability of cognitive resources condition were instructed to use a specific decision-making mindset (64 used the WADD method, and 74 the EBA method) and made choices between products that were presented in a clear, consistent manner, facilitating comparisons and thus utilizing fewer resources. On the other hand, 147 participants in the low cognitive resources condition alternated between mindsets and made choices between products that were presented in a mixed manner, which required

more cognitive resources. After completing the task, participants rated its difficulty (α =.659).

Next, participants were exposed to a normative influence manipulation, similar to Pretest 2. Participants were randomly assigned to one of two conditions. In this case, 143 respondents were exposed to the non-dominant green bahaviours condition and another 142 participants were in the dominant green behaviours condition.

After the initial read of the paragraph, both groups were asked to count and report the number of "e's" in the same text to reinforce exposure to the normative message. Next, respondents completed the product choice task, where they had to choose between 15 product pairs (retained from the second pretest). The presentation of the alternatives was exactly the same as for the pretest (see appendix A for product descriptions).

Participants indicated their preference for a product on a bipolar nine-point scale ranging from "Option A is more attractive" (1) to "Option B is more attractive" (9). Certain items were reverse coded in order for all product evaluations to be reflective of the green option being on the right so that a higher score was indicative of the consumer choosing the green alternative.

Offline Social Identity Complexity

As discussed previously, social identity complexity is represented by two dimensions (Roccas and Brewer 2002): overlap based complexity and similarity based complexity. Consistent with earlier research, participants were asked to report overlap and similarity measures across four social categories, namely, ethnic group, nationality, religious group and green consumption. Different from Roccas and Brewer (2002), the last group, environmentally conscious consumers, was added because of its relevance to

the research topic and relatability with the general population (as opposed to the group of university students from the original study).

Participants were asked to select the groups that were most representative of their personal situation (e.g., "Please select the group that most represents your ethnic background"). Using the Qualtrics online survey tool, responses were piped forward to create pairs of social groups for assessment of perceived overlap and perceived similarity.

First, a series of questions assessed perceived overlap between group memberships (e.g., "Of persons who are [American], how many are also [environmentally conscious consumers]", 1 = none to 9 = all). These overlap questions were repeated for each pairwise comparison between four groups (6 pairs) and in each direction for a total of 12 statements, similar to Roccas and Brewer. An index of overlap based complexity was computed using the average scores of perceived overlap (M = 61.22, SD = 16.56, α = .927). In this case, the results were reversed so that a high index value would indicate a high overlap based complexity.

A second series of questions assessed perceived similarity between group memberships (e.g., "In general, the typical [American] individual is very similar to the typical [environmentally conscious consumer]"). This was done between each ingroup for a total of six statements using a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). An index of similarity based complexity was computed using the mean similarity ratings across ingroup pairs (M = 24.34, SD = 6.60, α = .881). Once again, a higher score would indicate higher similarity based complexity.

Online Social Identity Complexity

Consistent with a main research objective, online social identity complexity was measured using a similar procedure to the one used for SIC.

In this case, the four groups for all respondents were: close friends, classmates, professional contacts and contacts from sports, hobbies or other recreational activities. Groups used in the measurement of OSIC questions were chosen based on the literature regarding individuals' core social networks (Hampton, Sessions, Ja Her, 2011; Hill & Dunbar, 2003, Palackal, Mbatia, Dzorgbo, Duque, Ynalvez, & Shrum, 2011) and past research on SIC (Brewer & Pierce, 2005). The groups selected had to be cross-cutting so that perceived similarity and overlap for each ingroup pairing did not predict perceived similarity and overlap for other pairings. This section followed questions relating to their online social networking habits and participants were instructed to consider their Facebook contacts for this specific task.

The first set of questions was relating to perceived group membership overlap (e.g., "Of persons who are [classmates], how many are also [professional contacts]?"). Once again, this was done between each ingroup and in each direction for a total of 12 statements using a nine-point scale ranging from 1 (none) to 9 (all). An index of online overlap based complexity was measured where high values represent high levels of complexity (M = 35.84, SD = 17.27, α = .911). The difference in means for online and offline overlap complexity can be attributed to the way both constructs are measured. The groups in the online context were much smaller in nature and therefore could result in smaller degrees of perceived overlap.

The second set of questions assessed perceived similarity between the groups (e.g., "In general, my [classmates] are very similar to my [professional contacts]"). The six items were on a seven-point Likert-type scale (1 = strongly disagree and 7 = strongly agree). These were averaged to form an index of online similarity based complexity where high scores translate into high complexity (M = 20.57, SD = 6.88, α = .814).

In addition, we compared results of both online and offline SIC measures. All components were strongly correlated to each other, significant at the 1% level (see appendix B). Both overlap based complexity measures were significantly correlated, $r(285)=.295$, p=.000. Consistent results were found for the two measures of similarity based complexity, $r(285)=.279$, p=.000. These results point to the fact that both approaches to measuring social identity complexity, in an online and offline setting, can be used to gain a better understanding of interpersonal relationships and how these affect norm adherence.

Social Desirability

Based on research by Steenkamp, De Jong, & Baumgartner (2010), we included a scale to measure participants' socially desirable response tendencies. This was done in order to eliminate potential biased respondents, which would compromise the validity and reliability of the results.

This scale measures both egoistic response tendencies with items such as "My first impressions of people usually turn out to be right" and moralistic response tendencies with items such as "I always obey laws, even if I am unlikely to get caught". Ratings were collected using a seven-point Likert-type scale (1 = strongly disagree and 7

= strongly agree). The first ten items of the scale were combined to form the Social Desirability Egoistic Response Tendencies Index (M = 42.44, SD = 6.74, α = .604). The other items were combined to form a Social Desirability Moralistic Response Tendencies Index (M = 42.38, SD = 8.94, α = .744). When combined, all 20 items achieved a Cronbach's alpha of .777 (M = 84.66, SD = 13.42).

Individual Difference Measures

We also included measures for a number of individual difference variables that are relevant to the factors and effects investigated in this research.

First, susceptibility to normative influence was measured. This is defined as:

the need to identify or enhance one's image with significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions, and/or the tendency to learn about products and services by observing others and/or seeking information from others. (Bearden, Netemeyer, & Teel, 1989)

This individual trait is closely tied to the concept of influenceability and will dictate how someone behaves in response to social influences (McGuire, 1968; Bearden et al., 1989). That being said, it is important to include a measure of susceptibility to normative influence in any research involving social norms as a way to validate the true impact of a normative message on any subsequent consumer behaviour decision. This intrapersonal factor was measured using eight items from the normative dimension of the scale developed by Bearden et al. (1989). Examples of items include "It is important that others like the products and brands I buy" and "I achieve a sense of belonging by purchasing the

same products and brands that others purchase." These were measured on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) and combined to form an index (M = 22.23, SD = 10.09, α = .936).

Extraversion is the extent that people are interested in making social contact with others. Individuals that are extraverted are outgoing and socially confident (Watson & Clark, 1997) and this personality trait is related to social identity because it may have an effect on the quality and diversity of one's social network. In addition, "people characterized by a high level of extraversion tend to keep their close social partners close and actively seek to introduce them to other people" (Roberts, Wilson, Fedurek, & Dunbar, 2008; Kalish & Robins, 2006). Extraversion was measured with the Extraversion subscale of the Big Five Inventory (John & Srivastava, 1999). The scale consists of eight items that were scored on a seven-point Likert-type scale (α = .906).

Individuals with a strong need for uniqueness may be more inclined to go against the norm. In fact, such consumers look to buy and display things that differentiate themselves from others. A measure of respondent need for uniqueness was included in the survey design to ensure the validity of the relationship between normative message and behaviour. Four items were included from the Need for Uniqueness scale (Tian, Bearden, & Hunter, 2001) and focused on the avoidance of similarity dimension: "When a product I own becomes popular among the general population, I begin using it less", "I often try to avoid products or brands that I know are bought by the general population", "As a rule, I dislike products or brands that are customarily purchased by everyone" and "The more commonplace a product or brand is among the general population, the less interested I am in buying it" (α = .921).

This research focused on individual-specific and situational factors that play a crucial role in norm adherence in a context of green consumption. The following section will highlight the results of the main study.

RESULTS AND DISCUSSION

A number of regression models were used to test our hypotheses. In all cases, an index of the fifteen product choices was created to serve as the dependent variable. The independent variables of interest were social identity complexity, normative message and cognitive resources. These were included in the models in order to assess their joint impact on product choice.

We also included social desirability measures as an independent variable to address the role of this construct on self-reports of environmentally friendly product choices. We systematically included all individual difference variables as covariates in the following models. However, only need for uniqueness appeared as a significant covariate consistently. In the following analyses, we include social desirability and need for uniqueness as covariates.

As in earlier research that investigated social identity complexity (Roccas & Brewer, 2002), the two dimensions of the construct were calculated separately. Overall measures of SIC and OSIC were also calculated and included in subsequent regression analyses as a complement to initial findings. The discussion of the results will begin with testing the impact of social identity complexity on norm adherence. The subsequent results will focus on the three-way interactions between cognitive resources, descriptive norm and a specified construct of SIC or OSIC. To conclude the results section, SIC measures will be related to certain personality factors and social networking habits.

Part A: The Interaction of Social Identity Complexity and Normative Message in the
Context of Green Product Choice

The first hypothesis was tested using a regression model that only included the
norm condition and social identity complexity as independent variables. Social
desirability and need for uniqueness were also treated as covariates. In this case, a
significant interaction between SIC and normative message was present[1] (β = -.120, p
= .012). The significant relationship between both variables shows support for our first
hypothesis, where it was believed that individuals with high social identity complexity
would be less responsive to a normative message than individuals with low social identity
complexity. Table 1 summarizes the regression results.

**Table 1: Participants' Green Product Choice in Relation to Social Identity
Complexity and Normative Message**

Variable	*Coefficients*
Norm condition	-.077
SIC	.071
Need for uniqueness	-.218**
Social desirability	.406*
Norm x SIC	-.120*
R^2	.078
F	4.722**
df	5, 279

Note: Unstandardized regression weights are presented. The dependent variable is an index of
environmentally friendly product choices.
[+]p <.10. *p <.05. **p < .01.

---

[1] The interaction between SIC and normative message was only significant in the model including the
overall offline SIC measure.

[2] We also ran the regression model with social desirability divided into two separate components: egoistic
and moralistic response tendencies. This approach is consistent with the original study by Steenkamp et al.

Figure 1 illustrates the relationship between social identity complexity and susceptibility to social norms. The means presented in this chart are based on the regression results and are included for illustrative purposes only.

Figure 1: Participants' Green Product Choice in Relation to Social Identity Complexity and Normative Message
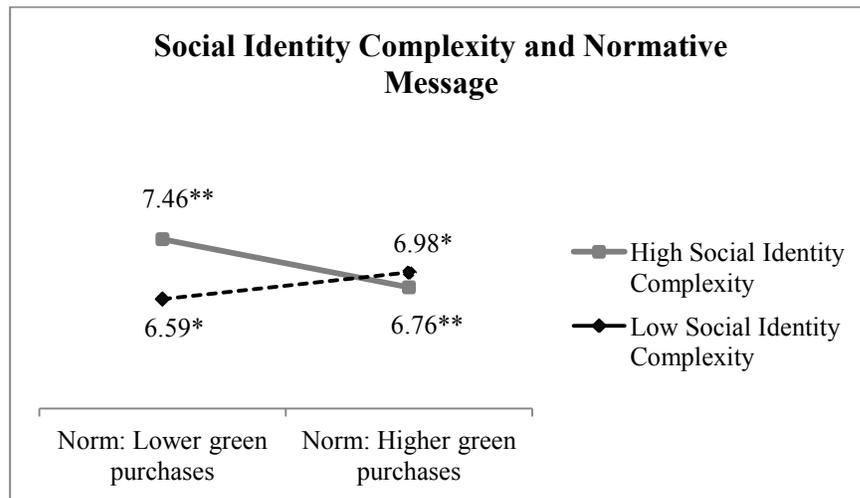
Significance level is indicated by $^+p<.10$, $*p<.05$, $**p<.01$.

To understand the nature of the significant two-way interaction, we compared simple slopes using the procedure described by Dawson and Ritcher (2006). First, individuals with low SIC respond differently depending on the social norm ($\beta = 0.463$, $t = 2.040$, $p < .05$). This group shows greater preference for the green alternative when exposed to a dominant green purchase norm, than when they are exposed to a non-dominant green purchase norm. Individuals with high SIC also behave differently depending on the norm. In this case, preference for the green alternative decreased in the dominant green behaviour condition ($\beta = -.617$, $t = -2.719$, $p < .01$). These findings reveal a moderating role of SIC on adherence to social norms and confirm our initial hypothesis.

Part B: Three-way Interaction Between Social Identity Complexity, Cognitive Resources and Normative Message in the Context of Green Product Choice

The second hypothesis was tested using regression models that included a three-way relationship between descriptive norm, cognitive resources and a specified construct of SIC or OSIC.

1. *Testing the Effects of Similarity Complexity and Cognitive Resources on Norm Adherence*

   a. Offline Similarity Complexity

A regression analysis was conducted to evaluate the relationship between cognitive resource depletion, similarity based complexity and normative influences and their impact on product choices. In this case, all variables were mean centered to reduce multicollinearity and to facilitate interpretation of the results, since more meaningful coefficients are produced (Hox, 2002). All manipulated variables, normative influence condition and cognitive resource condition, were dummy coded (-1: low, 1: high).

The results revealed a significant three-way interaction between similarity based complexity, availability of cognitive resources and normative influence (β = -.237, p = .017). Moreover, a marginally significant two-way interaction was found where the impact of the normative message on the preference for the green alternative depended on participant's similarity complexity (β = -.161, p = .103).

Social desirability bias was also found to have a significant direct relationship with product choice by increasing preference for the green option. However, Steenkamp et al. (2010) note that standardized regression coefficients below |.2| represent a

negligible relationship between social desirability bias and the dependent variable of interest. In all our regression models, the coefficients were below -.165. The results indicate that after accounting for the impact of social desirability, there is still a significant interaction between the independent variables; the effect is not simply an outcome of social desirability in self-reported preferences[2]. Table 2 highlights the regression results.

Table 2: Participants' Green Product Choice in Relation to Similarity Complexity

Variable	*Coefficients*
Norm condition	-.097
Cognitive resource depletion	.072
Similarity complexity	.111
Need for uniqueness	-.233**
Social desirability	.371*
Norm x Cognitive Resources	.021
Norm x Similarity	-.161
Cognitive Resources x Similarity	.044
Norm x Cognitive Resources x Similarity	-.237*
R^2	.089
F	2.973**
df	9, 275

Note: Unstandardized regression weights are presented. The dependent variable is an index of environmentally friendly product choices.
$^+p < .10$. *$p < .05$. **$p < .01$.

The following figure demonstrates the three-way relationship between cognitive resource depletion, social identity complexity and normative message. The means

---

[2] We also ran the regression model with social desirability divided into two separate components: egoistic and moralistic response tendencies. This approach is consistent with the original study by Steenkamp et al. (2010). The three-way interaction pattern was similar when both components of social desirability were included.

presented in this chart are based on the regression results and are included for illustrative purposes only.

Figure 2: Participants' Green Product Choice in Relation to Similarity Complexity
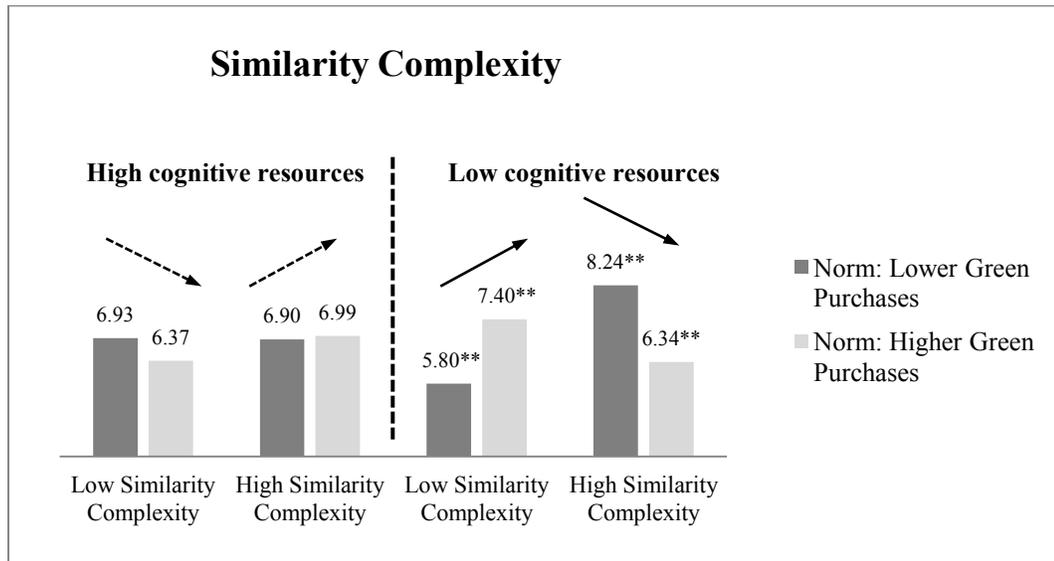
Note: Bold lines indicate significant relationship. Significance level is indicated by ^+p <.10, $*p$ <.05, $**p$ < .01. For illustrative purposes, the means reported in all figures reflect calculations based on 3 standard deviations from the mean. Similar results were obtained when calculations were based on two-standard deviations from the mean.

To understand the nature of the significant three-way interaction, we compared simple slopes and differences between slopes using procedures described by Dawson and Ritcher (2006). First, when cognitive resources are depleted, there is a significant difference in the way individuals are influenced by normative messages depending on their similarity complexity (t = -2.967, p < 0.01). In fact, the impact of the descriptive norm on people who were depleted was positive for individuals with low similarity complexity (β = 1.238, t = 2.728, p < .01), but negative for individuals with high similarity complexity (β = -1.390, t = -2.883, p < .01). In this case, both groups acted differently depending on the dominant norm. This finding is consistent with the fact that

35

people with more complex representations of their ingroups are less susceptible to normative influences. This result was also in line with the anticipated compounding effect between high SIC and low availability of cognitive resources, which would lead to norm defying behaviour.

Second, when cognitive resources are not depleted, the impact of the normative message changes depending on the level of similarity complexity of the individual, although the differences are not statistically significant (all p's > .40)[3]. The directional negative impact of the normative message found with the low complexity group can be attributed to the interaction between variables where the direct effect of the norm is not as clear. The positive results in the pretest evaluating the effect of our descriptive norms support this argument.

b. Online Similarity Complexity

The previous regression model was replicated with online similarity based complexity. Similarly to the model involving offline similarity complexity, a significant three-way interaction was found between normative influences, availability of cognitive resource and online similarity based complexity (β = -.206, p = .034). Table 3 presents the regression results.

---

[3] All reported simple slope tests were calculated based on the methodology by Dawson and Ritcher (2006) using values three standard deviations from the mean. It should be noted that the same tests with values two-standard deviations from the mean provided similar results.

Table 3: Participants' Green Product Choice in Relation to Online Similarity Complexity

Variable	Coefficients
Norm condition	-.083
Cognitive resource depletion	.048
Online similarity complexity	.097
Need for uniqueness	-.210*
Social desirability	.376*
Norm x Cognitive Resources	.046
Norm x Online similarity	-.005
Cognitive Resources x Online similarity	.089
Norm x Cognitive Resources x Online similarity	-.206*
R^2	.076
F	2.517**
df	9, 275

Note: Unstandardized regression weights are presented. The dependent variable is an index of environmentally friendly product choices.
$^+p < .10.$ $*p < .05.$ $**p < .01.$

Figure 3 illustrates the three-way relationship between cognitive resource depletion, online similarity based complexity and normative message.

Figure 3: Participants' Green Product Choice in Relation to Online Similarity Complexity
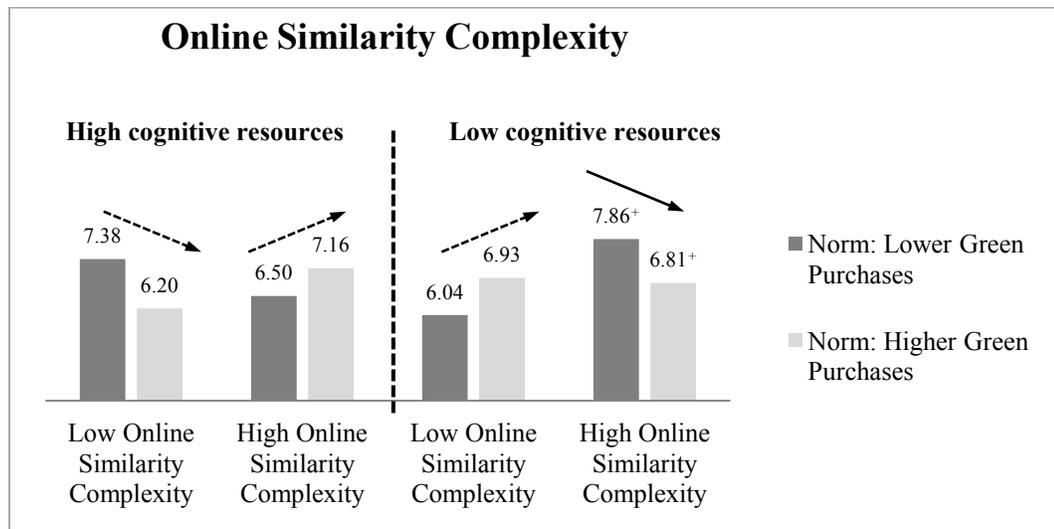
$^+p < .10.$　　Significant Relationship
$*p < .05.$　　Non-significant Relationship
$**p < .01.$

The pattern is consistent with what was found using the offline similarity based complexity measure. Overall, the level of online similarity complexity did not significantly influence norm adherence when cognitive resources were readily available. Simple slope tests revealed that the differences were not statistically significant (all p's > .10).

In contrast, the way the norm affects people when their cognitive resources are depleted changes depending on their online similarity based complexity, significant at p< .10 level (t = -1.784, p = .076). In this case, individuals with low online similarity based complexity were more likely to choose the green product when the norm indicated higher incidence of green purchases than when the green purchase rate was lower (β = -.763, t = -1.752, p = .081). At the same time, individuals with high online similarity complexity were negatively impacted by the norm when resources were also depleted, although this change was not statistically significant. These results were in line with our predictions.

2. Testing the Effects of Overlap Complexity and Cognitive Resources on Norm Adherence

a. Offline Overlap Complexity

Multiple regression analysis was also used to test if normative influences, availability of cognitive resources and overlap complexity significantly predicted green product choice. Once again, variables were mean centered and manipulated constructs were dummy coded. The focal three-way interaction between overlap complexity,

cognitive resource depletion and normative influence was not significant at the .10 level

(β = -.125 p = .112). The results of the regression model are presented in Table 3.

Table 4: Participants' Green Product Choice in Relation to Overlap Complexity

Variable	Coefficients
Norm condition	-.077
Cognitive resource depletion	.042
Overlap complexity	.127
Need for uniqueness	-.204*
Social desirability	.417*
Norm x Cognitive resources	.050
Norm x Overlap	-.185*
Cognitive resources x Overlap	-.001
Norm x Cognitive resources x Overlap	-.125
R^2	.089
F	2.997**
df	9, 275

Note: Unstandardized regression weights are presented. The dependent variable is an index of environmentally friendly product choices.
$^{+}p < .10.$ $*p < .05.$ $**p < .01.$

b. Online Overlap Complexity

An additional regression analysis was conducted to assess the relationship between normative influence, availability of cognitive resources and online overlap based complexity and their influence on green consumption choices. The model failed to generate a significant relationship involving the predictors at p < .05. The regression results are summarized in the following table.

Table 5: Participants' Green Product Choice in Relation to Online Overlap Complexity

Variable	Coefficients
Norm condition	-.091
Cognitive resource depletion	.075
Online overlap complexity	.048
Need for uniqueness	-.189*
Social desirability	.371*
Norm x Cognitive resources	.047
Norm x Online overlap	-.100
Cognitive resources x Online overlap	.034
Norm x Cognitive resources x Online overlap	-.134[+]
R^2	.070
F	2.305[+]
df	9, 275

Note: Unstandardized regression weights are presented. The dependent variable is an index of environmentally friendly product choices.
[+]$p <.10.$ *$p <.05.$ **$p < .01.$

Given the non-significant results involving the online and offline measures of overlap based complexity, the models were reproduced using a different index for product choice as a dependent variable in order to determine whether the variance in product descriptions weakened the relationship. This would happen if the distinction between the environmentally friendly product and the cheaper alternative with added features was not clear. In fact, we identified product pairs where the effect of the norm was always negative and removed them from the analysis. However, this did not improve the significance of the resulting model. Therefore, it can be concluded that the product descriptions in the choice exercise did not influence the results.

Based on this, we ran additional regression models with overall measures of SIC and OSIC to compare with the results achieved from the models based on separate constructs and determine which factor could be driving the effects.

3. *Testing the Effects of Social Identity Complexity and Cognitive Resources on Norm Adherence*

    a. Offline Social Identity Complexity

A subsequent regression analysis was conducted to incorporate an overall measure of social identity complexity. This variable was calculated by adding both scores of similarity and overlap complexity. In addition, cognitive resources and normative message were included to evaluate their impact on product choices. Social desirability and need for uniqueness were also treated as covariates.

An important finding was the significant interaction between the three independent variables, (β = -.105, p = .028). In addition, a significant two-way interaction was found where the impact of the norm on product choice depended on participant's social identity complexity (β = -.109, p = .023). These significant results were obtained even after accounting for the influence of social desirability bias and need for uniqueness. Table 6 summarizes the regression results.

Table 6: Participants' Green Product Choice in Relation to Social Identity Complexity

Variable	Coefficients
Norm condition	-.082
Cognitive resource depletion	.058
SIC	.073
Need for uniqueness	-.219**
Social desirability	.397*
Norm x Cognitive resources	.032
Norm x SIC	-.109*
Cognitive resources x SIC	.011
Norm x Cognitive resources x SIC	-.105*
R^2	.096
F	3.228**
df	9, 275

Note: Unstandardized regression weights are presented. The dependent variable is an index of environmentally friendly product choices.
$^+p < .10$. $^*p < .05$. $^{**}p < .01$.

Moreover, figure 4 illustrates the significant three-way relationship between cognitive resources, social identity complexity and normative message.

Figure 4: Participants' Green Product Choice in Relation to Social Identity Complexity

$^+p < .10$.   Significant Relationship
$^*p < .05$.   Non-significant Relationship
$^{**}p < .01$.

42
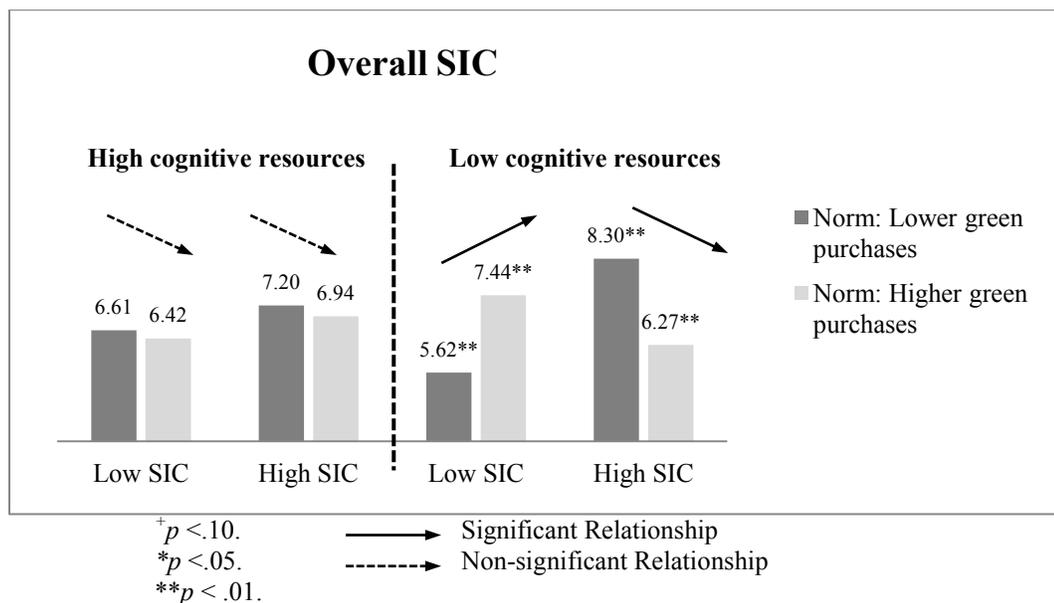
On one hand, when cognitive resources are available, the way the norm affects people does not change based on social identity complexity. Moreover, each group responds negatively to the dominant green purchase norm, although this relationship is not statistically significant as demonstrated by a simple slope test. This can be attributed to the interaction effects between independent variables where behaviour is not directly impacted by the dominant norm. More importantly, the model showed that that impact of the norm condition on green behaviour alone was not significant.

On the other hand, when cognitive resources are not available, norm adherence will depend on the strength of the individual's social identity complexity (t = -3.382, p < .01). In fact, the impact of a dominant green purchase norm on people who were depleted was positive for low social identity complexity individuals (β = 1.395, t = 3.086, p < .01), demonstrating a direct impact of norm on behaviour in the anticipated direction. The dominant green purchase norm had a negative impact on high social identity complexity individuals with low resources (β = -1.495, t = -3.307, p < .01). These results are consistent with our hypotheses and previous findings involving similarity based complexity measures where individuals with complex representations of their ingroups are less likely to act in accordance with the norm. It is also interesting to note that the significance patterns of this SIC model are mimicking those of the similarity construct.

b. Online Social Identity Complexity

Additional regression analysis was conducted to evaluate the relationship between cognitive resources, online social identity complexity and normative influences and their impact on product choices. Once again, a significant three-way interaction was found

between our focal independent variables (β = -.111 p = .023). Table 7 presents the

regression results.

Table 7: Participants' Green Product Choice in Relation to Online Social Identity Complexity

| Variable	Coefficients
Norm condition	-.089
Cognitive resource depletion	.062
OSIC	.047
Need for uniqueness	-.196*
Social desirability	.368*
Norm x Cognitive resources	.048
Norm x SIC	.044
Cognitive resources x OSIC	.048
Norm x Cognitive resources x OSIC	-.111*
R^2	.076
F	2.524**
df	9, 275

Note: Unstandardized regression weights are presented.
^{+}p <.10.   *p <.05.   **p < .01.

The following figure illustrates the three-way relationship between cognitive

resources, social identity complexity and normative message.

Figure 5: Participants' Green Product Choice in Relation to Online Social Identity Complexity

Overall OSIC

High cognitive resources   Low cognitive resources

7.57**   7.43**   7.63
              6.29*   6.82   6.93
5.88**   6.29

Low OSIC   High OSIC   Low OSIC   High OSIC

■ Norm: Lower green purchases
□ Norm: Higher green purchases
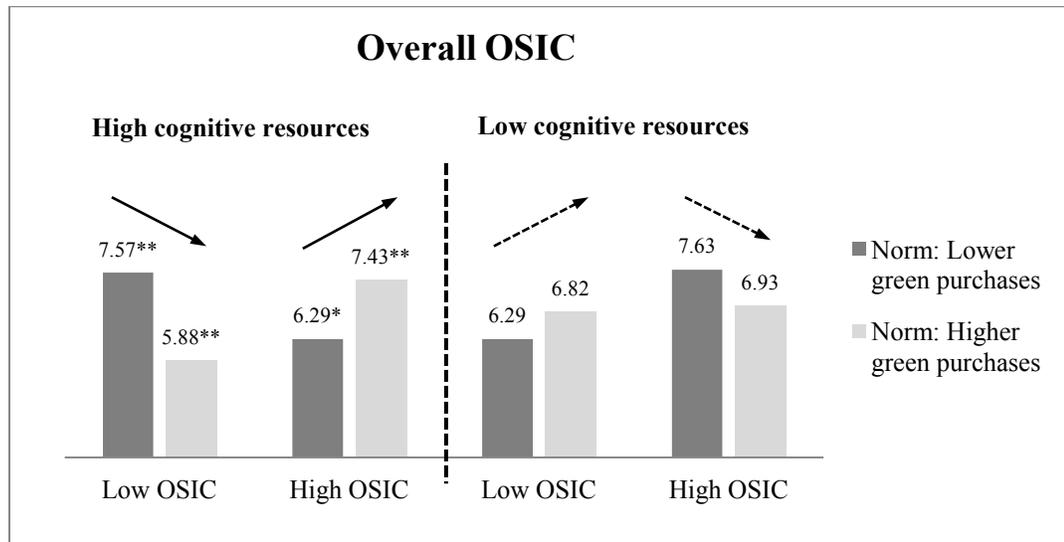
^+p <.10.   ⟶ Significant Relationship
*p <.05.   ----▸ Non-significant Relationship
**p < .01.

First, when cognitive resources are available, the impact of the descriptive norm will vary significantly depending on the strength of the individual's social identity complexity (t = 2.451, p = .015). In fact, green product choice decreased in the presence of the dominant green behaviour norm for low OSIC participants (β = -1.199, t = -2.578, p < .01), while it increased for their high OSIC counterparts (β = .925, t = 2.010, p < .01). In general, the directionality of the relationships between variables is consistent but the significance levels in the high cognitive resource condition are not in line with what was found in previous models.

In addition, when cognitive resources are depleted, the effect of the norm is not significantly different between OSIC groups. In the presence of a dominant green behaviour norm, adherence was positive for the low OSIC participants, while it was

45

negative for high OSIC participants. Such findings were in the expected direction, however the simple slope tests did not reveal a significant relationship. Once again, this pattern of significance was not consistent with previous results. This can stem from differences in the way the constructs were developed; the original SIC measures created by Roccas and Brewer (2002) included large social categories, whereas our online measures were based on smaller groups that are part of an individual's online social network. The fact that we wanted an online measure based on social network contacts limited the type of group that could be included. It would not have been representative to simply reproduce the questions from the original measure and specify to "consider your Facebook contacts", particularly since both online and offline constructs were measured in the same study. We wanted to determine if the same principles could be applied differently based on distinctive contexts. At the same time, this new online measure can be improved in order to generate more meaningful results in the future. Moreover, both social identity complexity factors were not originally meant to be combined as they represent separate constructs in this theory. This was done as a validation of our results with the individual constructs.

Part C: Social Identity Complexity and Personality Factors

Consistent with previous research in the field, we completed a correlational analysis between our measures of SIC and OSIC and certain personality factors (see appendix B). We found that extraversion was negatively related to offline and online measures of similarity and overlap complexity. Susceptibility to normative influence was also negatively related to the SIC and OSIC constructs and the relationships were always statistically significant. Therefore, these results indicate that individuals with more complex representations of their ingroups are less susceptible to normative influences. This is consistent with previous theory and reinforces the findings from our regression models.

In addition, we conducted a correlational analysis relating constructs of SIC and OSIC to online social networking habits (see appendix B). No significant correlation was found between the number of Facebook friends or Facebook groups and the constructs of offline and online similarity complexity. This indicates that the size of a person's network does not impact its complexity. Furthermore, weekly contact with friends was negatively related to respondents' online overlap complexity ($r(285) = -.280$, $p = .000$) and online similarity complexity ($r(285) = -.150$, $p = .011$). A similar pattern was found for monthly contact with friends. The number of online social networks was negatively related to respondents' online overlap complexity ($r(285) = -.186$, $p = .002$), indicating that these respondents might have many accounts as a reflection of their multiple and diverse social networks.

CONCLUSION

This research adds to the literature on normative influences and reinforces the fact that the effect of norms on consumer behaviour is not clear-cut, but rather depends on individual-specific and situational factors. This was done in a context of green consumption across a number of product categories.

We found a significant interaction between offline social identity complexity and norm adherence where individuals with more complex social identities were less likely to respond positively to the dominant green purchase norm. These findings validate our initial hypothesis.

We have demonstrated a significant three-way relationship between social identity complexity, driven by its similarity construct, cognitive resources and normative messages. More precisely, we have shown that when cognitive resources are depleted, individuals react differently to a given norm depending on their social identity complexity. There is in fact a compounding effect between high social identity complexity and low availability of cognitive resources that reduces consumers' sensitivity to normative influences. These results are in line with our second hypothesis. Practitioners can use the results of this study to lead more consumers to choosing the green alternative. Proper execution of the message will ensure that they are being heard.

The products included in the focal product choice task are typically consumed in private and therefore preference for a given alternative would not be impacted by status motives, as in the case of publicly consumed items (Griskevicius et al., 2010). It can be assumed that the effect of norm on green product choice would be even stronger for conspicuous consumption.

This study also introduced an extension of the original SIC measure developed by Roccas and Brewer (2002): online social identity complexity. Although it achieved weaker results than the offline construct, the value of such of a measure cannot be argued. In a world dominated by online social networks, research involving social influences must take into account these online relationships in order to get the complete picture.

LIMITATIONS

The methodology used in this study carried its own set of limitations. Our survey design did not allow for an in-depth understanding of the motivations behind consumer choices, as would interviews, but it allowed us to effectively analyze the relationships between our focal variables.

The final product choice task where participants indicated their preference between two product alternatives was presented as an evaluation of gift options for future marketing studies. Therefore, we were unable to draw conclusions about actual purchase behaviour. However, we included social desirability measures in our study and this factor had a negligible impact on product choices since the interaction effects were significant after accounting for its effect. Therefore, our results do not solely reflect social desirability bias and we conclude that the self-reported measures would be reflective of actual purchasing decisions.

FUTURE RESEARCH

Many avenues for future research are possible. A first step should be to further validate our online social identity complexity measure and apply it in different settings in order to achieve results that are more meaningful. One objective should be aiming for similar significance patterns as the original SIC measure. This would allow researchers to determine if both measures are interchangeable or complementary.

It would also be interesting to investigate the antecedents and outcomes of online social identity complexity. Researchers have looked into the values and personality traits that are associated with overlap and similarity complexity. The same should be done with the online constructs.

In addition, future studies should look beyond the measurement of SIC and OSIC constructs and develop ways to manipulate them. These factors are based on an individual's perception of their environment and can therefore be influenced.

Our methodology should be applied in an experimental setting where a real-life product choice takes place. This would really allow us to understand the combined impact of cognitive resources, normative influences and social identity complexity on consumer behaviour. In this case, it would be relevant to evaluate the strength of this relationship when there is a delay between norm exposure and the resulting behaviour. At the same time, the three-way interaction should be tested with publicly consumed products.

REFERENCES

Aaker, J. (1999) The malleable self: The role of self-expression in persuasion. *Journal of Marketing Research, 36, 45-57.*

Bargh, J. A., & McKenna, K. Y. A. (2004). The Internet and social life. *Annual Review of Psychology, 55*, 573-590.

Baumeister, R. F. (1982). A self-presentational view of social phenomena. *Psychological Bulletin*, *91*(1), 3-26.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. (1998). Ego depletion: Is the active self a limited resource*?. Journal of Personality and Social Psychology*, *74*, 1252–1265.

Baumeister, R. F., Heatherton, T. F. (1996). Self-regulation failure: An overview. Psychological Review, *7*(1), 1-15.

Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989) Measurement of consumer susceptibility to interpersonal influence. *Journal of Consumer Research, 15*(4), 473-481.

Bodur, H. O., & Chen, S. (2010). Impact of normative influence on choice of green brand. *Working Paper.*

Boyd, D. M., & Ellison, N. B. (2008). Social network sites: definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*, 210-230.

Black, J. S., Stern, P. C., & Elworth, J. T. (1985). Personal and contextual influences on household energy adaptations. *Journal of Applied Psychology*, *70*, 3-21.

Bolton, L. E. & Reed, A. (2004). Sticky Priors: The perseverance of identity effects on judgment. *Journal of Marketing Research*. *61*(November). 397-410.

Bratt, C., 1999. The impact of norms and assumed consequences on recycling behaviour. *Environment and Behaviour, 31*, 630-656.

Brewer, M. B., and Gardner, W. (1996). Who is this "we"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology*, *71*(1), 83-93.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*(1), 116-131.

Chan, K. (1998). Mass communication and pro-environmental behaviour: waste recycling in Hong Kong. *Journal of Environmental Management, 52*(4), 317-325

Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: compliance and conformity. *Annual Review of Psychology*, *55*, 591-621.

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality*

and *Social Psychology*, *58*, 1015–1028.

Cialdini, R.B., & Trost, M.R. (1998). Social influence: Social norms, conformity, and compliance. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.) *The handbook of social psychology*, (4th edition) vol. 2, pp. 151-192. New York: McGraw-Hill.

Cohen, A. R., Stotlant, E., & Wolfe, D. M. (1955). An experimental investigation of need for cognition. *Journal of Abnormal and Social Psychology*, *51*, 291-294.

Cota, A. A., & Dion, K. L. (1986). Salience of gender and sex comparison of ad hoc groups: An experimental test of distinctiveness theory. *Journal of Personality and Social Psychology, 50,* 770–776.

Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology. 78*(4), 791-808.

Cutler, B. L., & Wolfe, R. N. (1985). Construct validity of the concern for appropriateness scale, Journal of Personality Assessment, 49(3), 318-323.

Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology, 91,* 917-926.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment." *Journal of Abnormal and Social Psychology*, *51*(November), 629–636.

Durlauf, S. N. & Blume, L. E. (2008). *The New Palgrave Dictionary of Economics*, 2nd Edition, Basingstoke, Hampshire; New York: Palgrave Macmillan.

Ellison, N. B., Stienfield, C., & Lampe, C. (2007). The Benefits of Facebook ''Friends:'' Social Capital and College Students' Use of Online Social Network Sites. *Journal of Computer-Mediated Communication,* 12, 1143-1168.

Elster, J. (1989). The cement of society: A study of social order, Cambridge University Press

Fehr, E., & Fischbacher, U. (2004). Social norms and human cooperation, *Trends in Cognitive Sciences*, *8*(April). 185-190.

Euromonitor International. (March 2012). Green Buying Behaviour: Global Online Survey Strategic Analysis.

Gockeritz, S., Schultz, P. W., Rendo, T., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2010). Descriptive normative beliefs and conservation behaviour: The moderating roles of personal involvement and injunctive normative beliefs. *European Journal of Social Psychology*, *40*, 514-523.

Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels," *Journal of Consumer Research, 35*, 473-482.

Gorlin, M., & Dhar, R. (2012). Bridging the gap between joint and individual decisions: Deconstructing preferences in relationships, *Journal of Consumer Psychology, 22*, 320-323.

Grier, S. A., & Deshpande, R., (2001). Social dimensions of consumer distinctiveness: The influence of social status on group identity and advertising persuasion, *Journal of Marketing Research*, *38*(May), 216-224.

Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology. 98*(3), 392-404.

Hamilton, R., Vohs, K. D., Sellier, A.-L., & Meyvis, T. (2011). Being of two minds: Switching mindsets exhausts self-regulatory resources. *Organizational Behaviour and Human Decision Processes*, *115*, 13-24

Hampton, K. N., Sessions, L. F., & Ja Her, E. (2011). Core Networks, social isolation, and new media: How internet and mobile phone use is related to network size and diversity. *Information, Communication & Society*, *14*(1), 130-155.

Hill, R. A., & Dunbar, R. I. M. (2003). Social network size in humans. *Human Nature*, 14(1), 53-72.

Hogg, M., Terry, D. & White, K. (1995). A tale of two theories: A critical comparison of identity theory with social identity theory. *Social Psychology Quarterly, 58*, 255-269.

Hogg, M., & Vaughan, G. (2002). Social Psychology, 3rd ed., London, Person-Prentice Hall.

Hox, J. J. (2002). *Multilevel Analysis: Techniques and Applications* (Second ed.). Multilevel Analysis: Technique, NJ: Multilevel Analysis: Techniques and Applications.

Iyer, E. S., & Kashyap, R. K. (2007). Consumer recycling: Role of incentives, information and social class. *Journal of Consumer Behaviour*, *6*(1), 32-47

Janssen, L., Fennis, B. M., Pruyn, A. T. H., & Vohs, K. D. (2008). The path of least resistance: Regulatory resource depletion and the effectiveness of social influence techniques. *Journal of Business Research*, *61*, 1041-1045.

Jenkins, R. (2008). Social identity - Third Edition. Routledge. New York. 112-113.

John, O. P., & Srivastava, S. (1999). The big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York, NY: Guilford.

Johnson, A. L., Crawford, M. T., Sherman, S. J., Rutchick, A. M., Hamilton, D. L., Ferreira, M. B., & Petrocelli J. V., (2006). A functional perspective on group memberships: Differential need fulfillment in a group typology, *Journal of Experimental Social Psychology*, 42(6), 707-719.

Kelley, J., & Evans, M. D. (1995). Class and class conflict in six western nations. *American Sociological Review, 60,* 157-178.

Krauss, R. M , Freedman, J. L , & Whitcup, M. (1978). Field and laboratory studies of littering. *Journal of Experimental Social Psychology, 14,*109-122.

Kuhnen, U., Hannover, B., & Schubert, B. (2001). The semantic-procedural interface model of the self: The role of self-knowledge for context-dependent versus context-independent modes of thinking. *Journal of Personality and Social Psychology*, *80*(March), 397–409.

Leary, M. R., Nezlek, J. B., Downs, D., Radfort-Davenport, J., Martin J., & McMullen, A. (1994). Self-presentation in everyday interactions: Effects of target familiarity and gender composition, *Journal of Personality and Social Psychology*, *67*(4), 664-673.

Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, *46*(6), 1349-1364.

Lickel, B., Hamilton, D. L., & Sherman, S. J. (2001). Elements of a lay theory of groups: Types of groups, relational styles, and the perception of group entitativity. *Personality and Social Psychology Review*, *5*, 129-140.

Lickel, B., Hamilton, D. L., Wieczorkowska, G., Lewis, A., Sherman, S. J., & Uhles, A. N. (2000). Varieties of groups and the perception of group entitativity. *Journal of Personality and Social Psychology*, *78*, 223-246.

McGuire, W. J., & McGuire, C. V. (1988). Content and process in the experience of self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 97–144). San Diego, CA: Academic.

Miller, K. P., Brewer, M. B., and Arbuckle, N. L. (2009). Social identity complexity: Its correlates and antecendents. *Group Processes & Intergroup Relations*, *12*(1), 79-94.

Muraven, M., Tice, D., & Baumeister, R. (1998). Self-control as a limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, *74,* 774–789.

Nie, N. H. (2001). Sociability, interpersonal relations, and the Internet: Reconciling conflicting findings. *The American Behavioral Scientist, 45*, 420–35.

Nigbur, D., Lyons, E., & Uzzell, D. (2010). Attitudes, norms, identity and environmental behaviour: Using an expanded theory of planned behaviour to predict participation in a kerbside recycling programme. *British Journal of Social Psychology*, *49*, 259-284.

Orth, U.R., and Kahle, L.R. (2008). Intrapersonal variation in consumer susceptibility to normative influence: Toward a better understanding of brand choice decision. *The Journal of Social Psychology*, *148*(8), 423-447.

Palackal, A., Mbatia, P. N., Dzorgbo, D.-B., Duque, R. B., Ynalvez, M. A., & Shrum, W. M. (2011). Are mobile phones changing social networks? A longitudinal study of core networks in Kerala. New Media and Society, 13(3), 391-410.

Peattie, K., (2010). Green consumption: Behaviours and norms. *The Annual Review of Environment and Resources, 35*, 195-228.

Pollet, T. V., Roberts, S. G. B., & Dunbar, R. I. B. (2011). Use of social network sites and instant messaging does not lead to increased offline social network size, or to emotionally closer relationships with offline network members, *Cyberpsychology, Behavior, and Social Networking*, *14*(4), 253-258.

Ramayah, T. Lee, J. W. C., & Lim, S. (2012). Sustaining the environment through recycling: An empirical study. *Journal of Environmental Management, 102*, 141-147.

Recyc-Québec. (2009). Bilan 2008 de la Gestion des Matières Résiduelles au Québec.

Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, *64*(1), 104-112.

Roberts, S. G. B, Wilson, R., Fedurek, P., & Dunbar, R. I. M. (2008). Individual differences and personal social network size and structure. *Personality and Individual Differences*, *44*, 954-964.

Roccas, S., & Brewer, M.B. (2002). Social identity complexity. *Personality and Social Psychology Review*, *6(*2), 88-106.

Schmid, K., Hewstone, M., Tausch, N., Cairns, E., & Hughes, J. (2009). Antecedents and consequences of social identity complexity: Intergroup contact, distinctiveness threat, and outgroup attitudes, *Personality and Social Psychology Bulletin*, *35*, 1085-1098.

Schultz, P. W. (1999). Changing behavior with normative feedback interventions: A field experiment of curbside recycling. *Basic and Applied Social Psychology*, *21*, 25-36.

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms, *Psychological Science*, *18*(5), 429-434.

Société de Transport de Montréal (2012). "*Québec's first Public Transit Policy: Mission accomplished for Société de transport de Montréal"*. Retrieved June 25, 2012, from http://www.stm.info/English/info/comm-12/a-co120420.htm

Statistics Canada. (2008). Households and the Environment: Recycling and Composting. Retrieved July 8, 2012, from: http://www.statcan.gc.ca/pub/11-526-x/2007001/5100142-eng.htm

Steenkamp, J. E. M., De Jong, M. G., & Baumgartner, H. (2010). Socially desirable response tendencies in survey research, *Journal of Marketing Research*, *47*(2),199-214.

Stiller, J., & Dunbar, R.I.M. (2007). Perspective-taking and memory capacity predict social network size. *Social Networks*, *29*, 93-104.

Stryker, S. & Stacham, A. (1985). Symbolic interaction and role theory. In G. Lindzey and E. Aronson, Eds.), Handbook of Social Psychology, Vol. 1, (pp. 311-378). New York: Random House.

Tajfel, H. & Turner, J. C. (1986). The social identity theory of inter-group behaviour. In S. Worchel and L. W. Austin (eds.), *Psychology of Intergroup Relations*. Chigago: Nelson-Hall

Tajfel, H., (1974). Social identity and intergroup behaviour. *Social Science Information*, *13*(April). 65-93.

TerraChoice. (2010). The Sins of Greenwashing 2010: A Report on Environmental Claims Made in the North American Consumer Market.

Tian, K. T., Bearden, W. O., & Hunter, G. L. (2001). Consumers' need for uniqueness: Scale development and validation. *Journal of Consumer Research. 28*, 50-66.

Trop, L.R., and Wright, S.C. (2001). Ingroup Identification as the Inclusion of ingroup in the self. *Personality and Social Psychology Bulletin*, *27*(5), 585-600.

Turner, J. C. (1984): Social identification and psychological group formation. In: Tajfel, H. (ed.): *The social dimension: European developments in social psychology*. Cambridge. 518–538.

Vohs, K.D., Baumeister, R.F., Schmeichel, Ciarocco, N.J. (2005). Self-Regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology*, *88*(4), 632–657.

Vohs, K.D., Baumeister, R.F., Schmeichel, B.J., Twenge, J.M., Nelson, N.M., & Tice, D.M. (2008). Making choices impairs subsequent self-control: A limited-resource account of decision making, self-regulation, and active initiative. *Journal of Personality and Social Psychology*, *94*(5), 883-898.

Vohs, K.D., & Faber. R. J. (2007). Spent resources: Self-regulatory resource availability affects impulse buying. *Journal of Consumer Research*, *33*, 537-547.

Vohs, K., D., & Heatherton, T., F. (2000). Self-regulatory failure: A resource-depletion approach, *Psychological Science, 11*, 249-253.

Wasserman, T. (2012). Facebook to Hit 1 Billion User Mark in September. January 12. Retrieved July 2, 2012, from http://mashable.com/2012/01/12/facebook-1-billion-users/

Watson, D., & Clark, L. A. (1997) Extraversion and its positive emotional core. Hogan, Robert (Ed); Johnson, John A. (Ed); Briggs, Stephen R. (Ed), (1997). Handbook of personality psychology., (pp. 767-793). San Diego, CA, US: Academic Press, XXIV, 987

Webster, F. E. (1975). Determining the characteristics of the socially conscious consumer. *Journal of Consumer Research*, *2*(3), 188-196.

Appendix A – Product Pairs

Gift A	Gift B
100% Organic Cotton Facial Pads *Soft and gentle on the skin* *50 pads - $1.19*	Quilted Cotton Facial Pads *Exfoliating* *50 pads - $0.99*
Pure Clean Bar Soap *No residue on skin* *4.25 oz. bar - $1.99*	Bar Soap with 100% plant-based formula *With Yoghurt Protein* *4.25 oz. bar - $2.29*
Hand soap made from natural fruit extract *Recycled Plastic Bottle* *450 ml - $4.39*	Hypoallergenic Hand soap *With Moisturizers* *450 ml - $3.79*
Spring Bottled Water *500 ml - $1.99*	Locally Sourced Bottled Water *500 ml - $2.19*
Organic Loose Leaf Green Tea *Strong, Rich flavour* *125 g - $8.59*	Jasmine Green Tea *Individual Fresh Packs* *125 g - $7.49*
Gourmet Italian Espresso Coffee *1 pound bag - $12.99*	Fair Trade Coffee *1 pound bag - $14.99*
Compostable Disinfectant Wipes *99% Naturally-Derived* *30 wet wipes - $2.89*	Thick Disinfectant Wipes *Kills Flu Viruses* *30 wet wipes - $2.39*
All-Purpose Cleaner made with Naturally-Derived Ingredients *Leaves no residue* *32 oz. - $4.99*	Multi-Purpose Cleaner with Long-Lasting Fresh Scent *Advanced Technology Formula* 32 oz. - $4.29
Potato Chips *Zero Trans Fat* *300 g - $3.49*	Veggie Chips *No Preservatives* *300 g - $3.99*
All-Natural Peanut Butter *No Artificial Colors, Flavors or Preservatives* *750 g - $6.99*	Creamy Peanut Butter *25% Less fat* *750 g - $5.99*
Whole Wheat Pasta *Ready in 7 minutes* *500 g - $2.69*	Organic Pasta *Packaging made from renewable resources* *500 g - $3.09*
Biodegradable Garbage Bags *Pack of 100 - $11.99*	Heavy Duty Garbage Bags with Ties *Pack of 100 - $10.49*
Biodegradable Sandwich Bags Fully Biodegradable within 18-24 months Leaves no traces on foods *50 bags - $4.29*	Plastic Sandwich Bags *Easy Zipper Close* *Freezer Safe* *50 bags - $3.69*
Customizable Photo Travel Mug *16 oz - $13.99*	Travel mug made with 100% recycled materials *16 oz. - $15.99*
Premium Presentation Printing Paper *Bright White* *Luxurious weight and feel* *500 sheets - $11.99*	Eco-Friendly Printing Paper *Non-Bleached* *At least 50% post-consumer content* *500 sheets - $13.79*

Note: For a sample of the complete questionnaire, please contact the author at s_peck@jmsb.concordia.ca or Dr. Onur Bodur at bodur@jmsb.concordia.ca

Appendix B – Correlations

Correlations Between SIC and OSIC Constructs

Constructs	Similarity Complexity	Online Similarity Complexity	Overlap Complexity	Online Overlap Complexity
Similarity Complexity	1	.279**	.641**	.286**
Online Similarity Complexity	.279**	1	.236**	.555*
Overlap Complexity	.641**	.236**	1	.295**
Online Overlap Complexity	.286**	.555*	.295**	1

*p <.05. **p < .01.

Correlations Between SIC and OSIC Constructs and Personality Factors

Constructs	Extraversion	Susceptibility to Normative Influence
Similarity Complexity	-.123*	-.203**
Online Similarity Complexity	-.064	-.236**
Overlap Complexity	-.073	-.148*
Online Overlap Complexity	-.122*	-.278**

*p <.05. **p < .01.

Correlations Between SIC and OSIC Constructs and Online Social Networking Habits

Constructs	Number of Facebook friends	Number of Facebook groups	Weekly contact	Monthly contact	Log-on frequency	Number of social networks
Similarity Complexity	-.028	-.088	-.026	-.043	-.030	-.028
Online Similarity Complexity	-.079	-.077	-.150*	-.134*	-.124*	-.072
Overlap Complexity	-.026	-.062	-.032	-.077	-.062	.089
Online Overlap Complexity	-.108	-.119	-.280**	-.192**	-.097	-.186**

*p <.05. **p < .01.