

SPSD II

RENDERING SUSTAINABLE CONSUMPTION BEHAVIOUR MORE SUSTAINABLE: PSYCHOLOGICAL TOOLS FOR MARKETING PROSOCIAL COMMITMENT

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PART 1

SUSTAINABLE PRODUCTION AND CONSUMPTION PATTERNS



GENERAL ISSUES



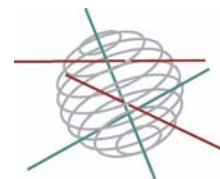
AGRO-FOOD



ENERGY



TRANSPORT



Part 1:
Sustainable production and consumption patterns

FINAL REPORT



**Rendering sustainable consumption behaviour more sustainable:
psychological tools for marketing prosocial commitment.**

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1. Research Overview and Implications

Introduction

Sustainable consumption patterns in individual consumers are in society's best interest. But for most people in most circumstances, sustainability will conflict with self-interest. Unsustainable products are cheaper, unsustainable means of disposal are less effortful, driving ones' own car is more comfortable than using public transportation, etc... Each of these choices confronts the individual consumer with a social dilemma: the choice between an easy solution that hurts society at large, and a sustainable alternative for which the individual pays a price. Government (at different levels) acts as a social marketer, assuming the difficult responsibility of promoting individual consumer choices in favour of the collective (sustainable) interest, and against one's personal interest. To promote sustainable consumption the government has two kinds of marketing instruments at its disposal: communication instruments and instruments for direct behavioural control. With the second instrument, consisting of fines and taxes, the government can achieve a change in behavior without achieving a change in mentality. However, this may cause long-term problems, because mandatory participation to sustainable consumption requires airtight control on citizens' behavior, which may be unaffordable over time. Moreover, in a democratic order, government policy needs the support of a majority of the population (which is often not the case). Therefore, the government complements carrot and stick approaches with communication-based social marketing, which strives to achieve a real change in mentality of citizens (which is also an explicit objective of Agenda 21 of the United Nations, 1992). To achieve a change in mentality, authorities may use classic advertising channels, but may also use messages that can be posted on product packaging, on garbage containers, etc. These messages should make people more aware of the reasons to make sustainable choices. We have our doubts whether simply providing people with information on reasons to choose the sustainable alternative, will have the desired results. Reflecting about behavioral options activates not only the pros of this option but also the cons, and consequently also the pros and the cons of alternative, non-sustainable behavioral options. The communication strategy may be effective for radical decisions (e.g., deciding to use alternative energy to heat the house). However, we suppose that this strategy may be very ineffective for simple waste sorting behaviors, which have to be carried out several times per day and which occur in a context of time pressure and mental load. Consumers and citizens probably will not extensively consider these decisions, and if they think about them they will probably come up with counter-arguments very easily. The self-interest (e.g., saving money) will always be more salient than the collective sustainable interest.

In this project, we investigated the potential of another type of persuasion strategies for the promotion of sustainable decision making. These strategies use a more subtle approach. They do not involve coercion, nor do they provoke active thinking about the pros and cons of behavioral alternatives. They simply use situational cues which activate certain thought contents.

This thought content may refer, for example, to latent motives to behave sustainable, or to an inconsistency between one's goals and actions, or to one's self-perception as a pro-sustainable citizen. Activating these

contents increases their accessibility and salience and makes them more probable to influence speedy and mostly subconscious behavioral decision processes, of which we carry out hundreds a day.

We investigated how several techniques, using this principle, may be applied as a promotional tool to increase sustainable decision making. The government's responsibility is to both instigate sustainable behavior, and to foster a change in mentality that will *make sustainable behavior self-sustainable*. We investigate how these two kinds of instruments can be optimally used and combined. We cover two specific research questions: (1) Does the government have to attempt to convince, or is it better to use more subtle means to activate existing pro-sustainable motivations, and (2) if direct behavioral control is necessary, how does one go from mere behavioral change to a true change in mentality and behavioral persistence in the long run?

In the next part of the report we will summarise our findings and report the implication for policy. For a detailed account of our studies we refer the reader to the second part of the report.

Summary and implications

Our research project covers two major questions of general importance to the marketing of brotherhood. Our first question deals with the instigation of sustainable behaviour, and the accompanying question about which type of government message would be most suitable to initiate the behaviour. Our second question deals with the persistence of such behaviour, especially in cases where the behaviour was first initiated with 'carrot-and-stick' methods such as rewards or the threat of fines. For both matters, we examined the potential of several techniques. All are inspired by the research literature on social and cognitive psychology. The scientific output of our studies has been or will be submitted to journals in this field, as well as in the field of (social) marketing.

All of the persuasion techniques presented in this report, bear on a conflict of interests present in most citizens. On the one hand, reports show in increased interest of the general public in sustainable development issues. We all feel positive about a green and pollution-free environment, for example. On the other hand, people usually associate the behaviours related to sustainability with behavioural costs like money, time, effort and inconvenience. This means that although we are potentially motivated to make sustainable decisions, there are many barriers that prevent us from doing so. Although educating and sensitizing the public is an obvious necessity when promoting the sustainable cause, we approached the problem from another angle in this project. We have searched for subtle ways to modify people's perception of choice alternatives by facilitating the access to certain thought contents, with the aim of increasing the probability of making the sustainable choice .

Instigation of sustainable behaviour

First, we want to investigate which kind of communication is best suited to induce sustainable behaviours in consumers who also have more selfish options. Traditionally, the government's position has been that of an advocate, trying to convince consumers to take the collective interest into account. Social marketing of the traditional kind is the art of presenting convincing arguments, trying to make consumers change their minds about what is the best thing to do. We suspect that this approach is not optimal. Thinking about alternatives activates the pros but also the cons of each behavioural option, including the self-interested one. We

propose an alternative approach that uses the principle of priming, heavily studied in social psychology. Pro-social priming is the art of unobtrusively bringing subtle cues in the environment, which activate available pro-social memory content, and subtly guide behaviour in pro-social directions, typically without the recipient of the information being aware. We conducted two series of studies, using different types of procedures and information content. We found that in financial games, where participants exchange money and can make defective or cooperative choices, most participants behave more cooperatively after being exposed to cooperation primes (see Doc 1.1. *Do Not Prime Hawks With Doves: The interplay of Construct Activation and Consistency of Social Value Orientation on Cooperative Behavior*). One group did the opposite; they behaved less cooperatively after being exposed to cooperation primes. These were the pro-selfs, a category of people known to attach more importance to personal than to group gains. We replicated our findings in several experiments and we could also demonstrate that the effects of primes on behavior are mediated by expectations of other people's cooperative behavior (people that were also involved in the game). Thus, for most citizens the spontaneous expectation that other people will act in a cooperative sustainable manner is a stimulation to behave in the same cooperative sustainable manner. However, the expectation that other people will cooperate stimulates consistent proselves to free ride on the cooperative efforts of other people. This means that for a limited number of people prosocial communication has a contradictory effect! A second series of experiments showed this effect is limited to situations with a large degree of interdependence. Situations in which there is a smaller degree of interdependence between interactions partners led to another pattern of results. Then low-consistent individuals assimilated their behavior to the primes, while high-consistent ones followed their social value orientation (Due to space restrictions we did not add the complete text on these studies in this report. Interested readers can find it as annex 2 of the intermediary report: *About Prisoners and Dictators: The Role of Other-Self Focus, Social Value Orientation, and Stereotype Primes in Shaping Cooperative Behavior*).

In a test whether these effects generalize to sustainable choices, we focused on environmentally-friendly behavior. We primed the concept 'environment' positively (e.g. recycling) and negatively (e.g. pollution). Three experiments indicated that in this case (1) only negative primes have the desired effect; and (2) this effect is independent of their habits regarding sustainable behavior (see doc 1.2. *The unconsciously sustainable consumer: Exposure to environmentally unfriendly concepts promotes ecological consumer behavior*).

A second method we tested is the induced hypocrisy technique (Aronson, 1999) (see doc 1.3. *Induced hypocrisy: making people aware of their own imperfections*). This technique consists of confronting people with the inconsistency between their attitude and their behaviour. It does so by asking individuals to make a (public) statement (e.g., written, videotaped, petition) about their attitude (i.e., commitment). As this commitment can not be withdrawn, subsequently remembering past failures (i.e., mindfulness) to behave in line with this attitude would reveal an inconsistency. This inconsistency is experienced as an aversive state (i.e., hypocrisy or cognitive dissonance; Fried & Aronson, 1995), which can be solved by assimilating one's behaviour to his or her initial positive attitude. We investigated the possibility of implementing the induced hypocrisy procedure in large scale marketing campaigns, as well as in more direct one-to-one marketing strategies, in order to promote environment-friendly behaviors. Data revealed mixed results: sometimes, the behavioral effect of hypocrisy was positive; in other studies, this effect was negative, and data from one study did not reveal any behavioral effect. Based on previous literature, we concluded that it is important to know that under some conditions hypocrisy can backfire. Moreover, we observed that induced hypocrisy can be used as a powerful persuasion tool in a one-to-

one (individualized) marketing approach. We also observed that it is possible to induce hypocrisy in large scale communication campaigns. However, we did not observe any behavioral effect in the context of a large-scale marketing study conducted in a supermarket. We suspect that this absence of behavioral effect is due to the fact that we used a delayed and diffuse consumer choice measure instead of explicit and direct requests classically used to measure hypocrisy effects.

In a third line of research we examined how and why sustainable and commercial goals can be combined in one bundled offer (see doc 1.4. *Adding exchange to charity: a reference price explanation*). The rationale is that individuals sometimes need an ‘excuse’ to demonstrate their sustainable intentions. Simply donating money or doing an effort for a cause is economically unfavourable. Additionally, the present societal norm of self-interest threatens people to be ridiculed by others for displaying such ‘soft’ pro-social behaviour. Presenting the donation or the effort as part of an economic exchange might provide such an excuse. In a first experiment, we collected more money in the condition in which people received a small object in return for their donation. In the next experiment, we tested the hypothesis that perhaps it is not the exchange which facilitates donation, but the fact that people were presented with an ‘appropriate’ amount to give. This study showed that simply asking people to donate a certain amount increased the revenue. These studies suggest that people often refrain from donating because they do not know how much they should give.

Implications

We studied the potential of three techniques for the instigation of sustainable behaviour. These techniques do not suffer from the flaws associated with the persuasion methods typically used by governments, namely behavioural control and communication-based campaigns. We do recognise that education is essential, as people need to gather procedural knowledge of *how* to execute behaviours which are more environmentally friendly, for example. We do have our doubts, though, about the effectiveness of communication strategies aimed at making people think about the *why* of performing these behaviours. Thinking about the pro’s leads to thinking about the cons of these behaviours as well. Moreover, thinking of the sustainable alternative might lead to thinking about the pro’s and cons of the selfish alternative as well. The self-interest (e.g., saving money) will always be more salient than the collective sustainable interest. Therefore such explicit thinking usually results in non-sustainable decisions. The behavioral control strategies might be effective, but they are expensive as well, and do not lead to a mentality change. The subtle techniques we proposed here, aim at achieving that last thing.

If the results of the first priming studies with financial games could be generalized to sustainable decisions, implications are rather pessimistic. This would mean that a certain group of people, who are mostly negatively motivated (e.g. avoiding fines) to make sustainable choices will react negative to pro-environmental messages. Even though this might be a small group, they might infect others to start making selfish choices as well (the rotten apple effect). We used a sustainable behavior setting in our second series of priming studies. Here we found that apparently the perception of the dilemma-situation is different than the one with the financial games.

We found that priming negative concepts, that are related to sustainability, like ‘pollution’, results in more sustainable decisions than priming positive concepts, like ‘recycling’. This suggests that people

spontaneously tend to reflect very little on the impact of their behavior on the environment and other people when making a decision. If the thought content about this negative impact is activated, people will take it into account. This conclusion is partially supported by the third set of experiments, on the induced hypocrisy technique. We showed that confronting people with the inconsistency between their (pro-sustainable) attitudes and their (non-sustainable) behavior can result (under specific conditions) in more sustainable choices afterwards. Rather than inviting people to explicitly think about the possible disastrous consequences of their behavior, it seems to be more appropriate to subtly refer to these consequences. Activating this thought element makes it more accessible when considering a sustainable dilemma. The target is subtly reminded of the pros of the sustainable option, without activating the cons of the desired behavior and the pros of the selfish alternative.

The last set of studies has a simple but very useful implication. When collecting money for a charity, one should indicate which is an appropriate amount to donate. Doubts about how much to give easily leads to not giving anything at all, even though there was an intention to donate.

Persistence of sustainable behaviour

Our second objective is to investigate how the social marketer should combine communication with direct behaviour modification techniques (pricing, regulations) championed by lawyers and economists. Carrots and sticks are necessary because there are some who are not to be convinced of the collective interest in any other way. But what happens to those for whom the carrots and sticks were not necessary? The available evidence suggests that they will take a step backwards. They will now justify their behaviour on the basis of the rules or price advantages of sustainable behaviour, and lose intrinsic motivation.

We introduce the practice of social labeling as a potential solution to this problem. Labeling is a summary for any social marketing intervention suggesting consumers that their behaviour is due to the kind of person they are. Concretely, in a first step behavioural control methods provoke a certain sustainable choice. For example, one can put a price promotion on an environmentally friendly product. In the next step a social label is communicated, attributing the choice to the personality of the consumer (e.g. 'you chose an environmentally friendly product, apparently you are a person caring for the environment'). Some limited evidence suggests that labeling may foster persistence of behaviour, because it makes consumers see their sustainable behaviour as their own motivated choice, not forced by the environment. Limited evidence was gathered in areas other than sustainable consumer choices. We wondered whether, due to specific characteristics of sustainable behaviours, the technique needed some adjustments to be successful for our purposes as well. We studied the usefulness and limits of this technique. We found that it is very well suited for promoting sustainable behaviour, but care has to be taken that the target person is prevented from reflecting on the actual reason they made the ecological choice in the first place. If the message is passed through in a smooth way, it will be accepted by the target person. We were successful in obtaining self-perception changes, as people rated themselves more as environmentally friendly consumer after we communicated such a social label. People often make choices based on their self-perception, which explains why they made more sustainable choices afterwards.

A second method builds upon the same self-perception process. Any technique that makes the target person see himself as a sustainable person, increases the probability of making sustainable choices. When

someone asks himself the question: “Am I the kind of person which would choose the sustainable alternative?”, he look for an answer by scanning his memory looking for examples of sustainable behaviour in the past. The more examples one finds, and the easier it is to do so, the more he sees himself as someone who behaves sustainable. This implies that facilitating the search for past sustainable behaviour increases the probability of making sustainable decisions in the future. Actually, we found that it is enough to *suggest* that it is easy to find such examples. We did this by selecting some sustainable behaviours that most people execute, for whatever reason. Then we presented this list to our participants with the question: ‘do you usually perform these behaviours’. The mere suggestion that examples of previous sustainable behaviour are easily recalled resulted in an altered self-perceptions, more favourable attitudes towards specific sustainable behaviours, and in an increase in sustainable decisions.

Implications

Usually sustainable campaigns implicitly convey the message that most people do not take sustainability issues at heart sufficiently. Although this is true –it is the reason the campaign was set up- this message may have counterproductive results. First, it implies that everybody around me still fails to make sustainable choices. An individual might wonder why, if all the others seem to stick to traditional, non-sustainable life-styles, he should change his behaviour. After all, we know that our individual behaviour has little impact on the large scale. Secondly, it suggests that the individual, who hears or reads the campaign, is a person who does not care enough for the environment and for others. This is a social label. A person acting on this label will make even less sustainable choices in the future.

The two methods we described, approach the individual in a positive way. Instead of socially sanctioning one’s failure to do the right thing, campaigns should ‘reward’ people. It seems even sufficient to give them the impression they are doing ok. Communicating a social label after provoking a certain behaviour seems to work best if people are prevented from reflecting on the actual reason for this initial behaviour. The label can be communicated by short messages on the packaging of bio- and fair trade products, for example. The message should be presented smoothly to avoid people actively thinking about the real reason for the purchase (e.g. a price promotion on this product) and rejecting the label. Subtle reinforcements which refer to the target’s personality being the reason for a sustainable choice influence his or her self-perception lead to more sustainable choices.

To conclude, the result of our studies indicate that promoting sustainable choices can be achieved either by subtly activating a *negative thought element referring to the consequences an individual’s actions*. A subtle activation prevents pondering about alternatives. It is very important that the message focuses on the consequences of a certain behavior. This way the target person does not feel personally addressed and blamed. Deliberating a sustainable dilemma involves a choice between pursuing personal benefits and benefits of society at large. Usually the selfish arguments (like money, time, and effort) are most salient, resulting in non-sustainable choices. Priming the disastrous consequences of a selfish choice for the environment of society, makes these more salient and more probable to influence the decision.

A second successful strategy is to activate a *positive thought element that refers to the target's personality*. People often make decisions, based on the question whether they think they are the kind of person choosing a specific choice alternative. Making them think about themselves as someone who usually chooses the sustainable alternative, increases the probability they will actually do so.

2. Results

<p><i>Part 1. Instigation of sustainable behaviour</i></p>

Doc 1.1.

Do Not Prime Hawks With Doves: The Interplay of Construct Activation and Consistency of Social Value Orientation on Cooperative Behavior

Doc 1.2.

The unconsciously sustainable consumer: Exposure to environmentally unfriendly concepts promotes ecological consumer behavior

Doc 1.3.

Induced hypocrisy: making people aware of their own imperfections

Doc 1.4.

Adding exchange to charity: a reference price explanation

Doc 1.1.

Do Not Prime Hawks With Doves:

The Impact of Dispositions and Situation-Specific Features on the Emergence of Cooperative Behavior in Mixed-Motive Situations

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In interdependence dilemmas, individuals are faced with a conflicting choice between the collective interest and self-interest. Their outcomes do not only depend on their own choices but also on the choices of others. An individual is often tempted to make a non-cooperative, self-interested choice, because it yields higher outcomes to the individual than a cooperative, collectively interested choice, irrespective of what others may do. However, if all interested parties choose to follow their self-interest, they are all worse off than if they had acted in a cooperative manner (Dawes, 1980). Therefore, mutual cooperative behavior is better for all parties than mutual defection.

It is largely assumed that individuals do not necessarily follow their immediate self-interest in mixed-motive interdependence situations. Individuals may also behave according broader preferences of outcomes for self and others (Kelley & Thibaut, 1978). Behaving more or less cooperatively depends on whether individuals relinquish self-interested preferences to pursue broader preferences like enhancing the outcomes of a collective or enhancing equality in outcomes (Van Lange, 1999). Interpersonal dispositions (embodied in social value orientations) and situation-specific features may both drive cooperative behavior. Social interaction in mixed-motive interdependence situations is best predicted by a disposition x situation interaction (Van Lange, 2000; Van Lange, Agnew, Harinck, & Steemers, 1997a), such that the influences of social value orientations on cooperative behavior should be larger in ambiguous than in unambiguous situations. In the latter situations, cooperative behavior may rather follow from individuals' susceptibility to situation-specific features.

Our objective is to extend and test this perspective. We will test whether susceptibility of individuals to disambiguating situation-specific features depends not only on the nature, but also on the consistency of one's own social value orientation. We also examine whether subtle situation-specific features may be strong enough to disambiguate a situation. We test our view by unobtrusively confronting our participants with either morality-related features or with might-related features.

Interdependence Theory

Behaving cooperatively towards others involves departure from the individual's self-interested preferences (i.e., given preferences). Movement away from given preferences results from transformation of motivation, a process that may lead individuals to relinquish their immediate self-interest and to act on the basis of broader goals (Kelley & Thibaut, 1978; see also Rusbult & Van Lange, 1996). Transformation of motivation yields a re-conceptualized, effective set of preferences, which are assumed to directly guide cooperative behavior.

Several transformation processes have been identified (see Allison & Messick, 1990; Griesinger & Livingston, 1975; MacCrimmon & Messick, 1976; McClintock, 1972; Messick & McClintock, 1968). They are often categorized into two broad categories. A first category of transformation processes is a pro-social transformation, including cooperation (MaxJoint, i.e., maximizing joint outcomes), equality (MinDiff, i.e., minimizing absolute differences between one's own and others' outcomes) and altruism (MaxOther, i.e., maximizing the others' outcomes with little or no consideration about one's own outcomes). Recently, Van Lange (1999) found evidence for an integrative model of pro-social transformations. He established that cooperation and equality are positively associated with each other, i.e. individuals engaged in pro-social transformations assigned greater weight to both outcomes for self and others and to equality in outcomes. This means that if individuals want to

enhance joint outcomes, they also want to enhance equality in outcomes. A second category of transformation processes is a pro-self transformation, including individualism¹ (MaxOwn, i.e., maximizing one's own outcomes with little or no consideration about others' outcomes) and competition (MaxRel, i.e., maximizing the difference between one's own and others' outcomes). Both individualism and competition can be conceptualized as pro-self transformations, because they both focus on enhancing outcomes for the self (e.g., Van Lange & Liebrand, 1989, 1991a, 1991b).

Individuals repeatedly encounter patterns of interdependence and therefore the transformation process may occur automatically. It has been found that transformational tendencies may be shaped by social dispositions, often referred to as social value orientations. However, transformation may also depend on situation-specific features: in some situations (e.g., a communal environment) individuals may routinely engage in pro-social transformation; whereas in other situations (e.g., a business environment) individuals may typically behave individualistically. Cooperative behavior, through the activation of transformation processes, is therefore assumed to result from both dispositional and situational influences.

Impact of Social Value Orientations and Situation-Specific Features on Cooperative Behavior

A large body of research has focused on individual differences in preferences for particular types of transformations, reflecting the way in which outcomes for self and others are evaluated². These individual differences have been referred to as social value orientations (Messick & McClintock, 1968; McClintock & Liebrand, 1988). Some individuals (called pro-socials) are more inclined to behave in a pro-social manner, whereas others (called pro-selfs) are more inclined to behave in a pro-self manner. Social value orientations have been found to predict fairly accurately cooperative behavior in all kinds of mixed-motive situations (e.g., De Dreu & Van Lange, 1995; Liebrand & Van Run, 1985; McClintock & Allison, 1989; Van Lange & Liebrand, 1989; Van Vugt, Meertens, & Van Lange, 1995). Pro-socials always tend to behave more cooperatively than pro-selfs.

Social value orientations have also been found to influence perceptual and cognitive processes. Whereas pro-selfs believe that most others will behave non-cooperatively, pro-socials assume that other individuals are more heterogeneous in this respect, some behaving cooperatively and others behaving non-cooperatively (Kelley & Stahelski, 1970). Social value orientations are also linked to differences in the way others' behavior is perceived. Pro-socials tend to judge another person's behavior in terms of morality: Someone who behaves in a cooperative manner will be judged as a moral and honest person whereas someone who behaves in a non-cooperative manner will be judged as immoral and dishonest. Pro-selfs tend to judge another person's behavior more in terms of might/competence: someone who acts cooperatively will be judged as a strong and competent person whereas someone who acts non-cooperatively will be judged as weak and unintelligent. This difference in the way pro-socials versus pro-selfs judge other individuals' behavior is called the might-versus-morality

¹ An individualistic transformation reflects no real outcome transformation because outcome preference is consistent with the outcomes displayed in the given matrix.

² Decomposed game techniques have been developed to measure disposition-based differences (the Triple-Dominance Technique of Social Values, e.g., Kuhlman & Marshello, 1975; Van Lange, Otten, De Bruin, & Joireman, 1997b; or the Ring Measure of Social Values, e.g., Liebrand, 1984; Liebrand & McClintock, 1988). In both techniques, participants have to make choices among various combinations of outcomes for the self versus outcomes for an imaginary other person. These techniques can indicate whether participants have a pro-social or pro-self social value orientation.

phenomenon (e.g., Liebrand, Jansen, Rijken, & Suhre, 1986; McClintock & Liebrand, 1988; Sattler & Kerr, 1991; Van Lange & Kuhlman, 1994).

Cooperative behavior may also be contingent upon situation-specific features, such as information about the partner (De Bruin & Van Lange, 1999) or specific features of the interpersonal relationship (e.g., Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox, 1997c; Wieselquist, Rusbult, Foster, & Agnew, 1999). Furthermore, activation of social norms can also have strong effects on the emergence of cooperative behavior in mixed-motive situations. Hertel & Kerr (2001) showed that priming a 'loyalty norm' led to greater in-group favoritism in a resource allocation task than priming an 'equality norm'. Studies such as these show that even subtle situation-specific features may significantly affect cooperative behavior in mixed-motive situations.

The Combined Role of Social Value Orientations and Situation-Specific Features

To be sure, one should not expect behavior to be influenced in an additive manner by individuals' social value orientation or the features of the situation. Indeed, Van Lange (2000) argued that it would be dysfunctional for individuals to always approach interdependent others in the same manner. He suggested that influences of social value orientations should only be large in ambiguous mixed-motive situations. Because mixed-motive situations are by definition ambiguous, lacking relevant cues to guide one's own cooperative behavior, dispositional influences should likely affect social interaction. However, situation-specific features may disambiguate situations and provide cues to guide preferences and cooperative behavior. Under such circumstances, dispositional influences should be substantially weaker and, instead, individuals should be highly susceptible to situation-specific features. Assuming that participants encounter situations of non-correspondent outcomes with regularity, cooperative or non-cooperative behavior may become automatically associated with situation-specific features (Van Lange, 2000; Van Lange et al., 1997c; Wieselquist et al., 1999). Bargh (1997; Bargh, Chen, & Burrows, 1996) also argued that social behavior should be capable of becoming directly and automatically activated by the presence of subtle features in the environment.

Therefore, comparing ambiguous with unambiguous situations, one should expect a disposition x situation interaction to emerge (Van Lange, 2000; see also Van Lange et al., 1997a). Generally speaking, Van Lange et al. (1997a) argued it is more useful to consider interactions between social value orientations and situational features in addition to additive models focusing on either dispositional influences or situation-specific influences.

A study conducted by Kramer, McClintock, and Messick (1986) provides a clear illustration of this view. These authors studied the impact of social value orientations in two types of resource dilemma situations: a situation in which a common resource depletes rapidly and a situation in which a common resource is sustained through replenishment. Social value orientations only predicted cooperative behavior in the rapid depletion condition: pro-selfs took more for themselves than pro-socials. In the rapid depletion condition the conflict between self-interest and collective interest was most acute because feedback given about the rate of the common resource indicated that the future of that source was seriously threatened. In contrast, in the sustained use condition, the cooperative behavior of pro-socials and pro-selfs was highly similar across trials. Pro-socials and pro-selfs appeared to convert the given situation according to the same transformation processes. Kramer et al. (1986) argued that individuals in this condition were highly susceptible to implicit group norms promoting conformity activated by the sustained character of the situation. These activated norms might have functioned as disambiguators.

Individual Differences in Susceptibility to Situation-Specific Features: The Role of Consistency of Social Value Orientations

In a recent study, Hertel & Fiedler (1998) argued that susceptibility to situation-specific features in mixed-motive situations may well depend on the consistency of one's social value orientation. Participants were confronted with subtle situation-specific features (i.e., primes) related to cooperation or competition. The effect of primes was assessed on allocation behavior in the Ring Measure of Social Values (Liebrand, 1984). The Ring Measure is a technique that allows assessing a person's social value orientation along with its consistency (e.g., Liebrand, 1984; Liebrand & McClintock, 1988). Hertel & Fiedler (1998) used the consistency of choices in the Ring Measure as an individual difference variable and found that only low consistent individuals were highly susceptible to the primes. Specifically, the behavior of these individuals assimilated to the primes with more cooperative behavior in cooperative priming conditions and less cooperative behavior in competitive priming conditions. Hertel & Fiedler (1998) argued that a low consistent individual's social value orientation is not strong enough to resist priming influences. High consistent individuals were less influenced by the cooperative or competitive primes, supposedly because in their case priming influences may be overridden by strong individual dispositions. On the basis of these findings, Hertel & Fiedler (1998) suggested that consistency of one's social value orientation may moderate the interaction between the nature of social value orientation (pro-social vs. pro-self) and the impact of situation-specific features. Because Hertel & Fiedler (1998) did not use a standardized technique for measuring social value orientations before the priming phase, their results do not allow making specific predictions for pro-socials and pro-selfs separately and it may be assumed that the impact of relevant situational features (i.e., primes) was similar for both pro-socials and pro-selfs.

The Purpose of the Present Experiments

Building upon the work by Hertel and Fiedler (1998), we decided to further examine the combined impact of dispositional and situational factors on people's cooperative behavior. We conducted four experiments to test the interaction between the consistency and nature of social value orientations and situation-specific features. In so doing, we in fact adapted van Lange's (2000) view by predicting that the disposition x situation interaction only occurs for low consistent individuals but not for high consistent individuals.

Our four experiments had all the same structure. In a first phase, we measured each participant's social value orientation and the consistency of that orientation. In a second phase, participants were confronted with 'morality' primes, neutral primes or 'might' primes using supraliminal or subliminal priming techniques (Bargh, 1997; Bargh & Chartrand, 2000). Finally, we observed the priming effects on cooperative behavior in one-trial mixed-motive games.

The heart of our predictions concerned a three-way interaction involving the nature of participants' social value orientation, its consistency, and the direction suggested by the primes. That is, we expected to find the interaction between the dispositional and situational factors only in the group of low consistent individuals. For this group of individuals, we expected only a significant impact of social value orientations in ambiguous situations (i.e., the neutral priming condition) but not in unambiguous situations. We expected a situation with morality features to elicit more cooperative behavior than an ambiguous situation, and a situation with might features to elicit less cooperative behavior than an ambiguous situation.

Because high consistent individuals should not be susceptible to disambiguating situation-specific features, we predicted only a main effect of social value orientations indicating that high consistent pro-socials act more cooperatively than high consistent pro-selfs in ambiguous situations as well as in situations with morality or might features. In other words, high consistent individuals' cooperative behavior should not be influenced by primes³.

EXPERIMENT 1

Some features of this study deserve attention. First of all, unlike Hertel & Fiedler (1998), we conducted the Ring Measure of Social Values (Liebrand, 1984), as a measure of social value orientations and consistency of these orientations, before the priming phase. Second, we used a one-trial simultaneous 2-person give-some game (e.g., Van Lange & Kuhlman, 1994). Participants had to make one choice without having any information about their partner. We wanted to observe priming effects as purely as possible, and we wanted to rule out that our participants used their partner's choice as a basis for making their own choice. Third, following the might-versus-morality effect (see Liebrand et al., 1986; Sattler & Kerr, 1991), we used morality primes to activate cooperative behavior and might primes to activate non-cooperative behavior.

We predicted only a main effect of social value orientations for high consistent individuals. High consistent pro-socials should behave more cooperatively than high consistent pro-selfs (Hypothesis 1). Furthermore, we expected a main effect of primes on cooperative behavior for low consistent individuals. We predicted morality primes to elicit more cooperative behavior than neutral primes and we predicted might primes to elicit less own cooperative behavior than neutral primes (Hypothesis 2). Finally, we predicted a significant interaction between social value orientation and primes for low consistent individuals. Low consistent pro-socials were expected to behave more cooperatively than low consistent pro-selfs only in the neutral priming condition (Hypothesis 3).

Method

Participants and design

The participants were 203 undergraduates at the Katholieke Universiteit Leuven, as a partial fulfillment of course requirements. All were native Dutch speakers. The experimental design included three between-subjects factors. These three factors were social value orientation (pro-social versus pro-self), consistency (high versus low), and primes (morality versus neutral versus might). The dependent variable was participants' own cooperative behavior in a prisoner's dilemma game.

Procedure and materials

Upon entering the laboratory, participants were welcomed by a male experimenter. They were told that they would participate in a number of unrelated experiments, and brought to individual soundproof cubicles. They were requested to perform a sequence of four tasks: (a) the Ring Measure of Social Values; (b) a filler task; (c) the priming procedure and (d) a

³ One could argue that high consistent pro-socials might be somewhat susceptible to morality primes and high consistent pro-selfs might be somewhat susceptible to might primes (according the might-vs.-morality phenomenon, see Liebrand et al., 1986). However, because Hertel & Fiedler (1998) did not report any findings on an interaction between social value orientation and primes, we just follow their basic finding, which suggested that high consistent individuals are not susceptible at all to primes.

simultaneous, single-trial prisoner's dilemma task. After participants completed all these tasks, they were requested to fill out a post-experimental questionnaire. Finally, they were thanked for their participation and debriefed.

Measuring Social Value Orientations and Consistency

The experiment started by assessing each participant's social value orientation and consistency, using the Ring Measure of Social Values (Liebrand, 1984). The Ring Measure is a computerized task that confronts participants with 24 choice trials. Each trial presents a pair of imaginary money distributions among the self and another person. Amounts of money for the self and for the other person can be either positive or negative. An example of a pair is the choice between Alternative A: 1450 BEF for the self and 300 BEF for the other and Alternative B: 1500 BEF and 0 BEF for the other. The 24 pairs of outcomes lie on a circle in the own/other outcome plane defined by two orthogonal dimensions: a horizontal dimension representing the outcomes for the self and a vertical dimension representing the outcomes for the other person. Specific own/other outcomes are defined as points in the plane. The center of the circle coincides with the origin of the outcome plane, i.e., the origin denotes 0 BEF for the self and 0 BEF for the other person. The radius of the circle is 1500 BEF (1 US dollar is about 45 BEF). Each pair consists of two equidistant own/other outcome distributions that are located next to each other on the circle. For each of the 24 pairs, participants were instructed to choose their most preferred alternative.

After the participants made all their 24 choices, we calculated the total amount of money allocated to the self and the total amount of money allocated to the other person. These two totals can be represented as coordinates on the horizontal (own outcomes) and vertical (other's outcomes) axis, defining a single point in the plane. This point provides an estimate of the direction of the participant's orientation vector in the outcome plane. The vector represents the participant's social value orientation. Each orientation reflects a unique pattern of choices. Participants are classified on the Ring Measure as making choices consistent with one of the orientations. Participants with orientation vectors falling between 22.5° and 112.5° were classified as pro-socials and participants with orientation vectors falling between 292.5° (or -67.5°) and 22.5° were classified as pro-selfs. Of the 203 participants, 101 could be identified as pro-socials and 98 could be identified as pro-selfs. Four participants could not be identified because they had an orientation vector of exactly 22.5° .

We used the Ring Measure not only to determine each participant's social value orientation but also to determine the consistency of each orientation. A maximal consistency score implies that the participant's preferred orientation on the Ring Measure remains consistent across all trials (Liebrand, 1984). This consistency score will decrease when participants follow another orientation on some trials. We decided to label participants who obtained a consistency score of at least 90% as individuals with a high consistent social value orientation and participants who obtained a consistency score of at most 85% as individuals with a low consistent social value orientation. Participants who scored between 85% and 90% were discarded from the analysis. We did not perform a common median split on the consistency scores because we really wanted to create a clear distinction between participants who displayed a very high consistency score and participants who yielded a lower consistency score. We wanted to make this distinction even more clearly by omitting participants who fell in between our two criteria (i.e., between 85% and 90%). The average level of consistency was 88.3%. Of the remaining 199 participants, 110 could be labeled as high consistent

individuals and 86 could be labeled as low consistent individuals⁴. Three additional participants were discarded from the analysis because they exhibited a consistency score between 85% and 90% or because they had a consistency score that was less than 60%. This means that a total of 196 participants remained for the analysis. Fifty-three participants were classified as high consistent pro-socials, 45 participants were classified as low consistent pro-socials, 57 participants were classified as high consistent pro-selfs, and 41 participants were classified as low consistent pro-selfs⁵.

After the Ring Measure, all participants took part in a filler-experiment that took 15 minutes. Participants had to categorize several objects into different color categories (e.g., a banana into the yellow category), and were later asked how many objects they could remember.

Priming manipulation

We used the Scrambled Sentence Test (Srull & Wyer, 1979) as a supraliminal priming technique. The task was introduced to the participants as a “language skill” test. We used of 30 items, each requiring the participant to form a grammatically correct sentence out of four words from five words presented in a scrambled sentence. Word primes were embedded in 15 of the 30 items. We created three versions of the Scrambled Sentence Test, each with 15 different prime words. A first version used words related to morality (e.g., honest, trustworthy, fair). A second version used words related to might/competence (e.g., determined, smart, autonomous). A third version existed of words that were neutral and unrelated to any possible disambiguating feature (e.g., old, curved, silent).

Measuring cooperation in a one-trial simultaneous 2-person give-some game

We introduced the mixed-motive game in the form of a decision task. Each participant was told that s/he was paired with another participant in the laboratory. The game was adopted from prior research (e.g., Van Lange, 1999, Study 3; Van Lange & Kuhlman, 1994). Each participant was given four chips and was told that the partner also received four chips. For both players in the game, each chip had a value of 10 BEF to themselves and a value of 20 BEF to the partner. Participants had to decide how many chips (none, one, two, three, or four) they would give to the partner. They were also told that the partner also had to decide how many chips s/he would give to the participant. Each chip the participant would receive from the partner would also be worth 20 BEF. Maximal cooperation was to give four chips and maximal non-cooperation was to give zero chips⁶. Participants could end up with a total amount between 0 BEF and 120 BEF. Participants did not receive any information about the partner. In reality, this 2-person give-some game was a fictitious game. All participants understood the task structure and, therefore, no additional data were excluded. After participants made their decision, they were requested to fill out a post-experimental questionnaire, which probed their suspicion about any relatedness among tasks and on the priming procedure. None of the participants indicated any suspicion. Finally, students were thanked for their participation and debriefed.

⁴ In fact, a median split matched the same distribution of participants across high and low consistency categories (for all four experiments). Moreover, different analyses using median split and a priori criteria revealed the same pattern of results.

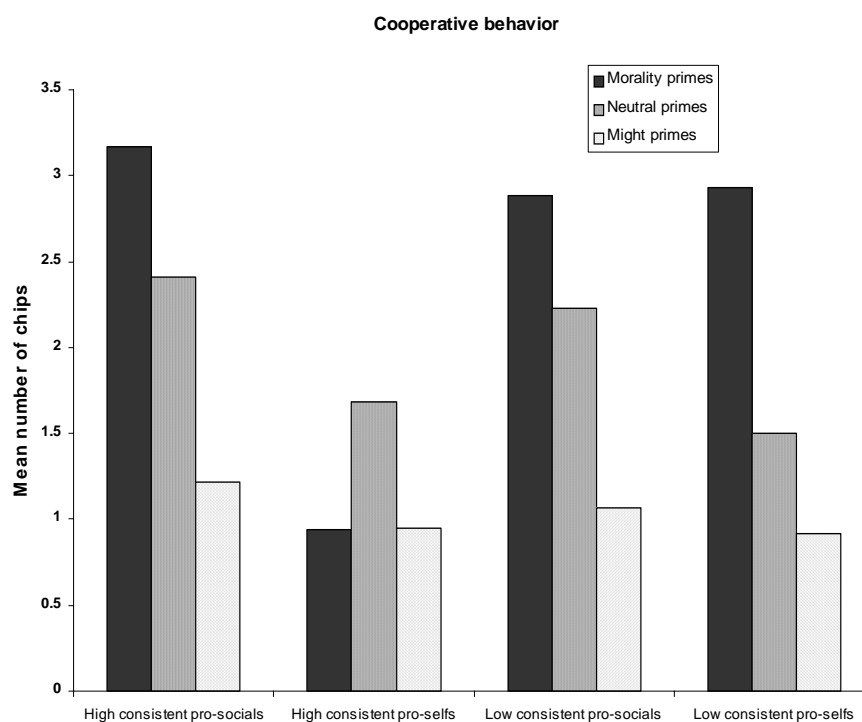
⁵ For all four experiments, individualists and competitors were equally distributed across low and high consistent pro-selfs.

⁶ We never used the words cooperation, non-cooperation, pro-social behavior or pro-self behavior in the instructions.

Results

A 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVA was conducted on cooperative behavior. This analysis revealed the presence of two significant main effects. First, we obtained a main effect of social value orientation, $F(1, 184) = 23.10, p < .001$. Pro-socials ($M = 2.16$) showed more cooperation than pro-selfs ($M = 1.48$). Second, a main effect of primes, $F(2, 184) = 36.50, p < .001$ revealed that morality primes ($M = 2.48$) produced significantly more cooperation than neutral primes ($M = 1.95$), which in turn produced significantly more cooperation than might primes ($M = 1.04$).

Figure 1. Mean Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes



Furthermore, we obtained a significant three-way interaction between social value orientation, consistency, and primes, $F(2, 184) = 6.99, p < .01$. The means for this three-way interaction are shown in Figure 1. To further analyze this interaction, we conducted separated 2 (social value: pro-social vs. pro-self) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVAs for high consistent participants and for low consistent participants.

For high consistent participants, the analysis unexpectedly revealed two significant main effects. First, we obtained the predicted main effect of social value orientation, $F(1, 104) = 32.99, p < .001$. High consistent pro-socials ($M = 2.26$) displayed greater cooperation than high consistent pro-selfs ($M = 1.19$). Second, the analysis showed also a main effect of primes, $F(2, 104) = 12.07, p < .001$. Might primes ($M = 1.08$) elicited significantly less cooperation than morality primes ($M = 2.05$) and neutral primes ($M = 2.04$). However, these main effects were qualified by a significant two-way interaction between social value orientation and primes, $F(2, 104) = 9.92, p < .001$. Post-hoc comparisons using Tukey HSD

showed indicated that high consistent pro-socials cooperated more than high consistent pro-selfs in the neutral priming condition ($\underline{M} = 2.41$ vs. $\underline{M} = 1.68$) and in the morality priming condition ($\underline{M} = 3.16$ vs. $\underline{M} = 0.94$), but not in the might priming condition ($\underline{M} = 1.22$ and $\underline{M} = 0.95$). Post-hoc comparisons also revealed that high consistent pro-socials showed greater cooperation in the morality priming condition ($\underline{M} = 3.16$) than in the neutral priming condition ($\underline{M} = 2.41$) and showed less cooperation in the might priming condition ($\underline{M} = 1.22$) than in the neutral priming condition. Additional post-hoc comparisons indicated that high consistent pro-selfs showed less cooperation in the morality priming condition ($\underline{M} = 0.94$) and in the might priming condition ($\underline{M} = 0.95$) than in the neutral priming condition ($\underline{M} = 1.68$). There was no significant difference between high consistent pro-selfs in the morality priming condition and those in the might priming condition. These results disconfirm Hypothesis 1.

Turning to the low consistent participants, the analysis only revealed the presence of a significant main effect of primes, $F(2, 80) = 28.85$, $p < .001$. As predicted by Hypothesis 2, morality primes ($\underline{M} = 2.90$) elicited greater cooperation than neutral primes ($\underline{M} = 1.86$), $F(2, 80) = 16.71$, $p < .001$, whereas might primes ($\underline{M} = 0.99$) elicited less cooperation than neutral primes ($\underline{M} = 1.86$), $F(1,80) = 11.17$, $p < .01$. In order to test Hypothesis 2, we calculated a planned comparison between low consistent pro-socials and low consistent pro-selfs in the neutral priming condition. This marginally significant contrast revealed that low consistent pro-socials exhibited more own cooperative behavior than low consistent pro-selfs in the neutral priming condition ($\underline{M} = 2.23$ vs. $\underline{M} = 1.50$), $F(1, 80) = 3.87$, $p < .06$. Additional planned comparisons revealed no significant differences between low consistent pro-socials and low consistent pro-selfs in the morality priming condition ($\underline{M} = 2.88$ and $\underline{M} = 2.92$), $F(1, 80) < 1$, *ns*, and in the might priming condition ($\underline{M} = 1.06$ vs. $\underline{M} = 0.92$), $F(1, 80) < 1$, *ns*. Hypotheses 2 and 3 were supported.

Discussion

These results of Experiment 1 only partially supported our predictions. Although we did not obtain a statistically significant disposition x situation interaction pattern for low consistent individuals, the pattern clearly showed that social value orientations only affected cooperative behavior in the neutral priming condition and not in the morality and might priming conditions. Furthermore, cooperative behavior of low consistent individuals shifted in prime consistent directions. Our predictions for high consistent individuals were not supported. Instead of only a main effect of social value orientation, we obtained a disposition x situation interaction, which indicated that, contrary to Hertel & Fiedler (1998), high consistent individuals were in fact sensitive to the primes. High consistent pro-socials' cooperative behavior clearly assimilated to the primes. This pattern suggests that they may remain sensitive to the context and behave cooperatively or non-cooperatively depending on situation-specific features. High consistent pro-selfs' behavior however assimilated to the primes in the might priming condition only. Indeed, high consistent pro-selfs actually behaved less cooperatively in the morality than in the neutral priming condition.

How can we explain why high consistent pro-selfs exhibited the same degree of (non-) cooperative behavior in might and morality priming conditions? Is it possible that morality features directly lead high consistent pro-selfs to behave selfishly? An explanation may be offered by referring to earlier work by Herr (1986; see also Neuberg, 1988). Herr (1986) suggested that in mixed-motive interdependence situations beliefs about partner's cooperation likely play a central role in connecting situation-specific features with cooperative behavior. It might be that, in Experiment 1, our participants engaged in some sort of a spontaneous expectation formation process. Previous social dilemma research already demonstrated that

expectations of partner's cooperation serve as an important ingredient in an individual's decision (e.g., Van Lange & Kuhlman, 1994; Kuhlman & Wimberley, 1976). Interdependence theory and related perspectives (Kelley & Thibaut, 1978; McClintock, Kramer, & Keil, 1984; Messick & Cook, 1983) also stated that cooperative behavior may be shaped by expectations or beliefs regarding pro-social intentions and behavior by the partner. Research also indicated that the extent to which expectations serve as an ingredient for behaving in dilemmas may depend on one's social value orientation. Pro-socials are found to follow a 'behavioral assimilation' principle (Kelley & Stahelski, 1970). These individuals desire reciprocity: they act cooperatively as long as they expect the other to cooperate but act selfishly if they expect the other be a non-cooperative individual. Pro-selfs are less guided by considerations of reciprocity and rather exhibit tendencies to exploit cooperative behavior of interdependent others.

Building upon this analysis, we suggest that participants in Experiment 1 engaged in some expectation formation process, and that the resulting expectations were influenced by the presence of the primes. In the neutral priming condition, lacking a situation-based direction, participants' expectations may have been influenced by their social value orientation. Kuhlman & Kimberley (1976) indeed found that pro-socials expected more cooperation from other individuals than pro-selfs in an ambiguous mixed-motive setting. In situations with more explicit indications (e.g., the morality and might priming conditions), individuals may rely on the nature of the primes to form expectations. Morality features being linked to cooperative persons (Deutsch, 1982; Liebrand et al., 1986; Van Lange & Kuhlman, 1994), they could have encouraged participants to expect a high degree of cooperation from the partner. Might features being linked to non-cooperative persons (Liebrand et al., 1986; Sattler & Kerr, 1991; Van Lange & Liebrand, 1989), they could have induced participants to expect a low degree of cooperation from the partner. In turn, these expectations regarding the level of partner's cooperation may have triggered specific behavioral tendencies.

The above rationale can easily account for the fact that high consistent pro-socials as well as low consistent individuals showed behavioral assimilation to the primes (Kelley & Stahelski, 1970). More importantly, such an explanation also clarifies why high consistent pro-selfs did not always show behavioral assimilation. As a matter of fact, they acted in a non-cooperative manner in the neutral priming condition and played more competitively after their confrontation with might primes. However, they also played more non-cooperatively in case of morality primes. If morality primes caused these individuals to perceive their partner as a cooperative person, than their non-cooperative reaction could be typified as 'exploitation'. In other words, because high consistent pro-selfs likely judge cooperative others as rather weak and stupid persons who are very exploitable, they are tempted to adopt a non-cooperative strategy.

Our next experiments were undertaken in order to test the intriguing hypothesis that expectations are spontaneously formed in a mixed-motive situation. We predicted that dispositional and situation-specific features would influence participants' expectations of their partner's cooperation, depending on the ambiguity of the situation. Next, we expected these expectations to be used by participants to determine their own cooperative behavior. Clearly, the way such expectations would serve as an ingredient for making decisions was expected to be moderated by the nature and consistency of the social value orientation.

EXPERIMENT 2

The purpose of this experiment was to replicate the findings of Experiment 1 and to assess the viability of our interpretation. For Experiment 2, we hypothesized a main effect of primes on expectations of partner's cooperation: morality primes should elicit more expected cooperation of the partner than neutral primes and might primes should elicit less expected cooperation of the partner than neutral primes (Hypothesis 1). We also predicted a main effect of social value orientation on expectations of partner's cooperation: Generally speaking, pro-socials should expect more cooperation from their partners than pro-selfs (Hypothesis 2), but the effect should be larger in the neutral priming condition than in the morality and might priming conditions (Hypothesis 3). As far as cooperative behavior is concerned, we hypothesized that (high and low consistent) pro-socials should behave more cooperatively than (high and low consistent) pro-selfs in the neutral priming condition (Hypothesis 4). We expected high consistent pro-socials and low consistent participants to act more cooperatively in the morality priming condition than in the neutral priming condition and less cooperatively in the might priming condition than in the neutral priming condition (Hypothesis 5). High consistent pro-selfs should behave less cooperatively in the morality and might priming conditions than in the neutral priming condition (Hypothesis 6). Finally, we expected correlations between expectations of partner's cooperation and own cooperative behavior to be positive and to be negative for high consistent pro-selfs in the morality priming condition (Hypothesis 7).

Method

Participants and design

In total 193 students at the Katholieke Universiteit Leuven participated in the experiment as partial fulfillment of course requirements. All were native Dutch speakers. The experimental design included the same three between-subjects factors as in Experiment 1. We assessed expectations of partner's cooperation as well as each participant's own cooperative behavior.

Procedure and materials

The procedure was, except for the assessment of participants' expectations of partner's cooperation, identical to the procedure in Experiment 1. The experiment started by assessing each participant's social value orientation and consistency. Of the 193 participants, 98 could be identified as pro-socials and 94 could be identified as pro-selfs. One participant could not be identified because of an orientation vector of exactly 22.5°. The average level of consistency was 85.6%. Of the remaining 192 participants, 98 could be labeled as high consistent individuals and 88 could be labeled as low consistent individuals. Six additional participants were discarded from the analysis because they exhibited a consistency score between 85% and 90% or because they had a consistency score that was less than 60%. This means that a total of 186 participants remained for the analyses. Fifty participants were classified as high consistent pro-socials, 45 participants as low consistent pro-socials, 48 participants as high consistent pro-selfs, and 43 participants as low consistent pro-selfs.

After finishing the filler-experiment, participants were randomly assigned to one of three priming conditions (morality vs. neutral vs. might primes). Immediately after resolving the thirty sentences of the Scrambled Sentence Test, participants took part in the same fictitious 2-person give-some game as in Experiment 1. In addition to the procedure of

Experiment 1, we asked each participant the following question: “How many chips do you expect the other will give to you?” Whereas one half of the participants received this question before making their own decision; the other half received this question after making their own decision⁷. All participants understood the task structure and, therefore, no additional data were excluded. Afterwards, participants also had to fill out a post-experimental questionnaire. None of the participants indicated any suspicion on the priming procedure or on any relatedness among the different tasks of the experiment. Finally, after making their decisions, participants were thanked for their participation and debriefed

Results

Expectations of partner's cooperation

We conducted a 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVA on expectations of partner's cooperation. This analysis revealed two significant main effects. We obtained the predicted main effect of primes, $F(2, 174) = 61.39, p < .001$. In line with Hypothesis 1, planned comparisons revealed that morality primes elicited higher expectations of partner's cooperation than neutral primes ($M = 2.93$ vs. $M = 2.26$), $F(1, 174) = 20.86, p < .001$, and that might primes elicited lower expectations of partner's cooperation than neutral primes ($M = 1.30$ vs. $M = 2.26$), $F(1, 174) = 41.64, p < .001$.

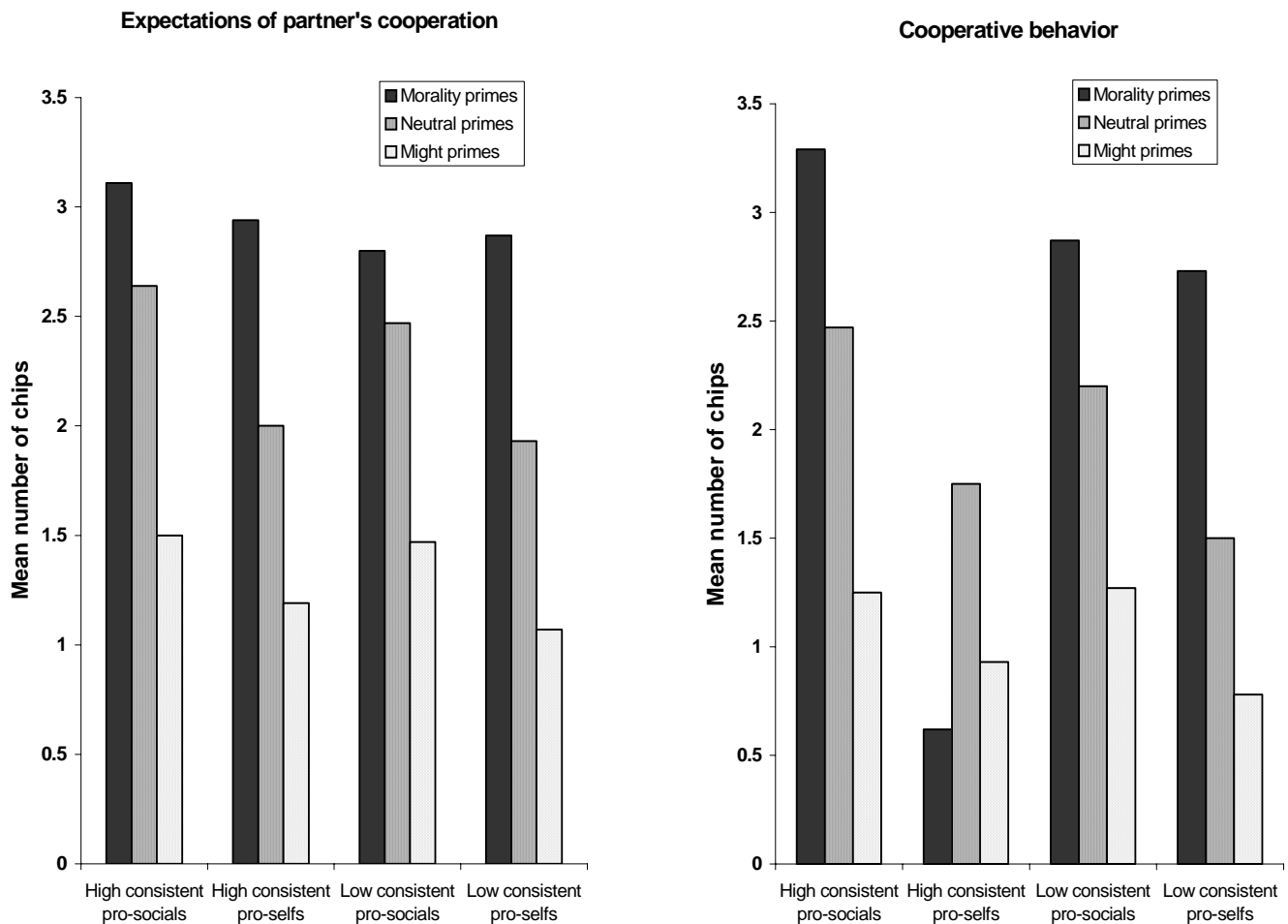
There was also a significant main effect of social value orientation, $F(1, 174) = 7.74, p < .01$, which revealed that pro-socials ($M = 2.33$) expected significantly more cooperation from their partners than pro-selfs ($M = 1.99$). A planned comparison revealed that there was a significant difference between pro-socials and pro-selfs at the neutral priming level ($M = 2.56$ vs. $M = 1.96$), $F(1, 174) = 8.08, p < .01$. No such difference emerged at the morality priming level ($M = 2.96$ and $M = 2.90$), $F(1, 174) < 1, ns$, and only a marginally significant difference was found at the might priming level ($M = 1.48$ and $M = 1.13$), $F(1, 174) = 2.84, p < .10$. In line with Hypothesis 3, the difference between pro-socials and pro-selfs was significantly larger at the neutral priming level than at the morality priming level, $t(123) = 3.89, p < .001$, and than at the might priming level, $t(122) = 1.74, p < .05$. The difference between pro-social and pro-selfs was also significantly larger at the might priming level than at the morality priming level, $t(121) = 2.09, p < .05$.

Own cooperative behavior

We conducted a 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVA on own cooperative behavior in the give-some task. This analysis revealed the presence of two significant main effects. First, a main effect of social value orientation, $F(1, 174) = 35.59, p < .001$, indicated that pro-socials ($M = 2.22$) cooperated more than pro-selfs ($M = 1.38$). Second, a main effect of primes, $F(2, 174) = 30.99, p < .001$, revealed that morality primes ($M = 2.37$) elicited significantly more own cooperative behavior than neutral primes ($M = 1.98$), while might primes ($M = 1.06$) elicited significantly less own cooperative behavior than neutral primes.

⁷ We found no effects of different expectation-choice orders in Experiment 2, 3 and 4. Therefore, we will not report anymore on this factor.

Figure 2. Mean Expectations of Partner’s Cooperation and Mean Cooperative Behavior as a function of Social Value Orientation, Consistency and Primes (Experiment 2).



Replicating the pattern found in Experiment 1, we also obtained a significant three-way interaction between social value orientation, consistency, and primes, $F(2, 174) = 9.72$, $p < .001$. The means of this interaction, together with the expectation means, are represented in Figure 2. To test Hypothesis 4, we conducted two planned comparisons at the neutral priming level. A first planned comparison revealed that high consistent pro-socials behaved more cooperatively than high consistent pro-selfs in the neutral priming condition ($M = 2.47$ vs. $M = 1.75$), $F(1, 92) = 4.35$, $p < .05$. A second planned comparison revealed that low consistent pro-socials behaved more cooperatively than low consistent pro-selfs in the neutral priming condition ($M = 2.20$ vs. $M = 1.48$), $F(1, 80) = 4.28$, $p < .05$. As a consequence, Hypothesis 4 is clearly supported.

To test Hypothesis 5, we performed two planned comparisons. A first planned comparison revealed that high consistent pro-socials and low consistent individuals cooperated more in the morality priming condition than in the neutral priming condition, ($M = 2.96$ vs. $M = 2.06$), $F(1, 174) = 20.95$, $p < .0001$. A second planned comparison revealed that high consistent pro-socials and low consistent individuals cooperated less in the might priming condition than in the neutral priming condition, ($M = 1.10$ vs. $M = 2.06$), $F(1, 174) = 22.74$, $p < .0001$. These results provide unambiguous support for Hypothesis 5. A planned

comparison of morality and might primes versus neutral primes for high consistent pro-selfs also confirmed Hypothesis 6. High consistent pro-selfs cooperated less in the morality and might priming conditions than in the neutral priming condition, ($\underline{M} = 0.78$ vs. $\underline{M} = 1.75$), $\underline{F}(1, 174) = 11.00$, $p < .01$.

Relationship between expectations of partner's cooperation and own cooperative behavior

Correlations were calculated to explore the relationship between expectations of partner's cooperation and own cooperative behavior (see Table 1). All correlations, except the correlation for high consistent pro-selfs in the neutral priming condition, $r = -.16$, ns, $N = 16$, were significant. The correlation between expectations and behavior for high consistent pro-selfs in the morality priming condition was strongly negative, $r = -.81$, $p < .0001$, $N = 16$. All the other correlations were strongly positive and ranged between .58 and .93. Such a pattern is highly supportive of Hypothesis 7.

Table 1. Correlations Between Expectations of Partner's Cooperation and Own Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes (Experiment 2)

Social Value Orientation	Consistency	Primes		
		Morality	Neutral	Might
Pro-social	High	.65**	.92***	.79***
Pro-self	High	-.81***	-.16	.93***
Pro-social	Low	.70**	.78***	.58*
Pro-self	Low	.72**	.63*	.80***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

With respect to participants' cooperative behavior, we replicated the results of Experiment 1. Moreover, we extended the results of Experiment 1 by showing that social value orientation and situation-specific features combined to influence participants' expectations of partner's cooperation. Specifically, the effect of social value orientation on expectations was only significant at the neutral priming level but not at the morality priming level or the might priming level. In these conditions, the situation-specific features simply overrode the dispositional influences on expectations.

A remarkable finding is that expectations of partner's cooperation assimilated to the primes for all subjects. This highlights an important result of our study: Whereas expectations held by high consistent pro-selfs assimilated to morality primes, their behavior did not. A strong negative correlation between the expectations and the behavior of high consistent pro-selfs also corroborated this contrast reaction. This means that the more high consistent pro-selfs believed their partner to be cooperative the more they exploited him or her.

High consistent pro-socials and low consistent individuals all showed strong positive correlations between expectations of partner's cooperation and own cooperative behavior. This confirms that for these individuals expectations are an important ingredient for regulating behavioral assimilation⁸. High consistent pro-selfs in the neutral priming

⁸ Correlations were calculated with the assumption that expectations of partner's cooperation influenced own cooperative behavior. Behavior may in part influence expectations but two arguments are against this. First, we counterbalanced the order of assessing expectations and behavior. There was no order effect. Thus, making a choice did not influence the formation of expectations. Second, and more importantly,

conditions are less affected by expectations and generally behaved in a non-cooperative manner. High consistent pro-selfs are more affected by expectations in the morality and might priming conditions. The strong positive correlation in the morality priming condition and the strong negative correlation in the might priming condition showed that these individuals were strongly inclined to, respectively, compete with non-cooperative others and exploit cooperative others.

The results of Experiment 2 thus provide encouraging support for our explanation of the results of Experiment 1 in terms of an expectation formation process. In the remaining experiments, we investigated whether this pattern could also be replicated when subliminal rather than supraliminal priming is used (Experiment 3) and when a N-person dilemma game is proposed (Experiment 4).

EXPERIMENT 3

In Experiment 3 we wanted to investigate whether the priming effects on expectations of partner's behavior could also be obtained in a context that relies on unconscious priming. This would dispel possible doubts about the impact of demand characteristics and the conscious or strategic nature of the obtained priming effects (Bargh & Chartrand, 2000). We tried to replicate the results of Experiment 2 using subliminal priming. Compared to Experiment 2, we omitted the neutral primes and only used morality and might primes.

Method

Participants and design

One hundred forty students at the Katholieke Universiteit Leuven participated in the experiment as partial fulfillment of course requirements. Two participants were nonnative Dutch speakers and their data were excluded from all subsequent analyses. The experimental design included three between-subjects factors: social value orientation (pro-social vs. pro-self), consistency (high vs. low), and primes (morality vs. might). As in Experiment 2, we assessed our participants' expectations of partner's cooperation and their own cooperative behavior in a 2-person prisoner's dilemma game.

Procedure and materials

The same procedure as in previous experiments was followed. Of the 138 participants, 64 could be identified as pro-socials and 68 could be identified as pro-selfs. Six participants could not be identified because of an orientation vector of exactly 22.5°. The average level of consistency was 86.1%. Of the remaining 132 participants, 67 were labeled as high consistent individuals and 61 were labeled as low consistent individuals. Four additional participants were discarded from the analysis because they exhibited a consistency score between 85% and 90% or because they had a consistency score that was less than 60%. A total of 128 participants remained for the analyses. Thirty-two participants were classified as high

high consistent pro-selfs in the morality priming conditions showed a high degree of expected cooperation while they acted in a non-cooperative manner. If one assumes that individuals used their own behavior as a basis for forming expectations, then one should expect that high consistent pro-selfs used their own non-cooperative behavior in the morality priming condition to form non-cooperative expectations of their partner. Instead, these individuals had strong cooperative expectations of their partner's cooperation. Therefore, we assume that, because all individuals' expectations assimilate to the primes, expectations of partner's cooperation have a much stronger impact on own cooperative behavior than vice versa.

consistent pro-socials, 30 participants as low consistent pro-socials, 35 participants as high consistent pro-selfs, and 31 participants as low consistent pro-selfs.

After performing the filler-task, participants were confronted with a subliminal priming experiment. Participants were randomly assigned to one of two priming conditions (morality vs. might primes). They were seated in front of a computer screen and told that they were going to perform a lexical decision task. A series of letters strings was going to be presented on the screen and participants had to indicate after each presentation of a letter string whether this string was an existing word or not. The participants were informed that each presentation would be very brief. The lexical decision task started with 6 practice trials, followed by 30 experimental trials. On each trial, a fixation point first appeared on the computer screen. Participants had to press the key '2' to start the presentation of a letter string. This letter string remained on the screen for 27 ms. and was immediately replaced by a mask ('XQFBZRMQWGBX'), which remained on the screen for 225 ms. After each trial, participants faced a blank screen and were asked to indicate their decision by pressing a key on the keyboard ('1' for an existing word, '3' for a non-word). Once the answer was given, a new fixation point appeared on the screen after a 1500 ms. pause. The same morality and might primes as in Experiments 1 and 2 were used. All these words were used once. Hence, the thirty experimental trials consisted of fifteen prime-words and fifteen non-words. The six practice trials and the thirty experimental trials were randomized for each participant.

After participants completed the lexical decision task, they took part in the same fictitious 2-person give-some game as in Experiments 1 and 2. Counterbalanced with the question about own choice, we also asked each participant about his/her expectations of their partner's cooperation. All participants understood the task structure and, therefore, no additional data were excluded. A post-experimental questionnaire ascertained that participants could not retrieve any of the presented primes. Finally, after making their decisions, participants were thanked for their participation and debriefed.

Results and discussion

Expectations of partner's cooperation

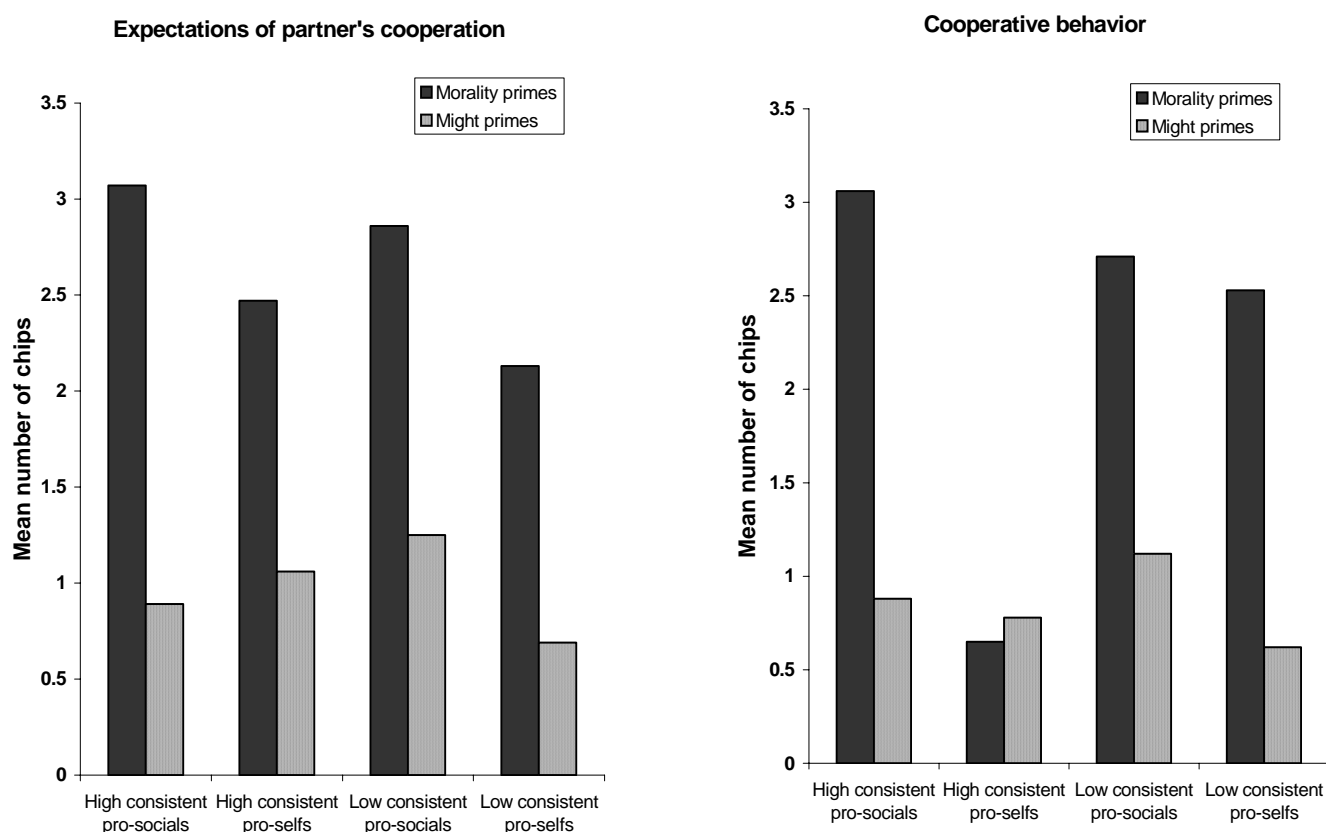
A 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 2 (primes: morality vs. might) between-subjects ANOVA on expectations of partner's cooperation was conducted. This analysis revealed the presence of two significant main effects. First of all, a main effect of social value orientation, $F(1, 120) = 8.32$, $p < .01$, indicated that pro-socials ($M = 2.01$) had higher expectations of partner's cooperation than pro-selfs ($M = 1.59$). Subsequent planned comparisons revealed that this main effect was due to a significant difference between pro-socials and pro-selfs at the morality priming level, ($M = 2.96$ vs. $M = 2.31$), $F(1, 120) = 9.46$, $p < .01$, while there was no significant difference at the might priming level ($M = 1.06$ and $M = 0.88$), $F(1, 120) < 1$, *ns*. Second, a main effect of primes, $F(1, 120) = 126.05$, $p < .001$, revealed that morality primes ($M = 2.63$) elicited higher expectations of partner's cooperation than might primes ($M = 0.97$).

Own cooperative behavior

We conducted a 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 2 (primes: morality vs. might) between-subjects ANOVA on own cooperative behavior. This analysis revealed three significant main effects. First of all, we obtained a main effect of social value orientation, $F(1, 120) = 27.30$, $p < .0001$. Pro-socials ($M = 1.95$)

displayed more cooperation than pro-selfs ($\underline{M} = 1.14$). Second, a main effect of consistency, $F(1, 120) = 7.01, p < .01$, revealed that low consistent participants ($\underline{M} = 1.75$) displayed more cooperative behavior than high consistent participants ($\underline{M} = 1.34$). Primes showed a third significant main effect, $F(1, 120) = 81.89, p < .001$, indicating that morality primes ($\underline{M} = 2.24$) elicited more own cooperative behavior than might primes ($\underline{M} = 0.85$).

Figure 3. Mean Expectations of Partner's Cooperation and Mean Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes (Experiment 3)



There was also a significant three-way interaction between social value orientation, consistency, and primes, $F(1, 120) = 18.43, p < .001$. Figure 3 presents the means of this interaction, together with the expectation means. A planned comparison revealed that high consistent pro-socials and low consistent individuals cooperated more in the morality priming condition ($\underline{M} = 2.77$) than in the might priming condition ($\underline{M} = 0.88$), $F(1, 120) = 111.04, p < .001$. Another planned comparison revealed that there was no significant difference for high consistent pro-selfs between the morality and the might priming condition, ($\underline{M} = 0.64$ and $\underline{M} = 0.77$), $F(1,120) < 1, ns$.

Relationship between expectations of partner's cooperation and own cooperative behavior

As in Experiment 2, we calculated correlations between expectations of partner's cooperation and own behavior. All these correlations were statistically significant. The correlation between expectations and behavior for high consistent pro-selfs in the might priming condition was strongly negative, $r = -.74, p < .001, N = 17$. All the other correlations were strongly positive and ranged between .66 and .89. Correlations are presented in Table 2.

Table 2. Correlations Between Expectations of Partner's Cooperation and Own Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes (Experiment 3).

Social Value Orientation	Consistency	Primes	
		Morality	Might
Pro-social	High	.89***	.80***
Pro-self	High	-.74**	.86***
Pro-social	Low	.66*	.79***
Pro-self	Low	.80***	.79***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

In Experiment 3, we again obtained evidence showing that expectations of partner's cooperation assimilated to the primes, even if participants were unaware of the priming influence. Low consistent pro-selfs showed strong behavioral assimilation to beliefs of the partner, as did both groups of pro-socials. High consistent pro-selfs however displayed the same degree of own cooperative behavior in the morality and might priming conditions. The strong correlations showed that expectations of partner's cooperation were an important ingredient in their decisions, either to compete with a non-cooperative partner (positive correlation) or to exploit a cooperative partner (negative correlation).

EXPERIMENT 4

In Experiment 4, we tried to obtain further support for the idea that expectations are spontaneously formed and play an important role in mixed-motive interdependence situations. To obtain additional evidence we investigated whether this expectation formation process also occurs in a N-person mixed-motive game context. There is a lot of evidence that expectations play an important role in a 2-person game (e.g., De Bruin & Van Lange, 1999; Kelley & Stahelski, 1970; Van Lange & Kuhlman, 1994). We raised the question whether individuals in a N-person game also spontaneously form expectations of other persons' cooperation. There is not much evidence regarding whether expectations have an important information function in a N-person game just like in the 2-person game (for some evidence see Kuhlman & Wimberley, 1976). Research also remains silent as to how expectations of others' cooperation in a N-person game affect own cooperative behavior. In the present experiment, we investigated whether participants spontaneously create expectations of other individuals' cooperation and whether one's own cooperative behavior is strongly related to these expectations.

We told our participants that they would participate in a 10-person divisible public-good game. Apart from the number of individuals involved in the game, there is another difference with the game used in previous experiments. In a 2-person game, one has to give to the partner and vice versa. Given chips are considered as a loss. In the 10-person game, participants were told that they had to give to the group as a whole (the value of what they gave would be doubled). Afterwards, the monetary value of the group total would be divided by the number of individuals involved in the game (i.e., 10). This means that every participant would receive back one fifth of the original value of every own given chips. This game had every characteristic of a dilemma game (Dawes, 1980): non-cooperation always yields higher outcomes than cooperation and mutual cooperation is always better than mutual non-cooperation.

Method

Participants and design

One hundred sixty-seven students at the Katholieke Universiteit Leuven participated in the experiment as partial fulfillment of course requirements. All were native Dutch speakers. The experimental design included the same three between-subjects factors as in Experiments 1 and 2. We also assessed expected cooperation of all the other participants in the 10-person game and the participant's own cooperative behavior.

Procedure and materials

We followed the same procedure as in the previous experiments. Of the 167 participants, 86 could be identified as pro-socials and 76 could be identified as pro-selfs. Five participants could not be identified because of an orientation vector of exactly 22.5°. The average level of consistency was 87.1%. Of the remaining 162 participants, 78 were labeled as high consistent individuals and 77 were labeled as low consistent individuals. Seven additional participants were discarded from the analysis because they exhibited a consistency score between 85% and 90% or because they had a consistency score that was less than 60%. This means that a total of 155 participants remained for the analyses. Of those remaining participants, 40 were classified as high consistent pro-socials, 41 as low consistent pro-socials, 38 as high consistent pro-selfs, and 36 as low consistent pro-selfs.

After performing the filler-experiment, participants were instructed to resolve the same Scrambled-Sentence Test as in Experiments 1 or 2. Participants were randomly assigned to one of three priming conditions (morality vs. neutral vs. might primes). After completing the priming procedure, they took part in a one-trial simultaneous 10-person give-some game. Participants were informed that they were members of a 10-person group, but they would not receive any information about the identity of their fellow group members. All group members were given four chips, which could be used to invest. The chips one did not invest would accrue totally to one-self. Each chip invested, however, would result in a group pay-off of two times the value of that chip. The total group pay-off would be divided equally among all group members. Each own chip had a value of 10 BEF. to the person himself or herself and a value of 20 BEF. to the group. Participants were told that their task was to decide how many chips (none, one, two, three, or four) they would give to the group. Maximal cooperation was to give four chips and maximal non-cooperation was to give zero chips. Participants were also told that all the other participants had to make the same decision. In reality, this game was fictitious.

We also asked each participant about his/her expectations of the other members' cooperation ("How many chips do you think the other nine members will give collectively to the group?"), which was again counterbalanced with the own choice. All participants comprehended the task structure and, therefore, no additional data were excluded. Participants also did not indicate any suspicion on the priming procedure or on any relatedness among the different tasks of the experiment. After making their decisions, participants were thanked for their participation and debriefed.

Results and discussion

Expectations of partners' cooperation

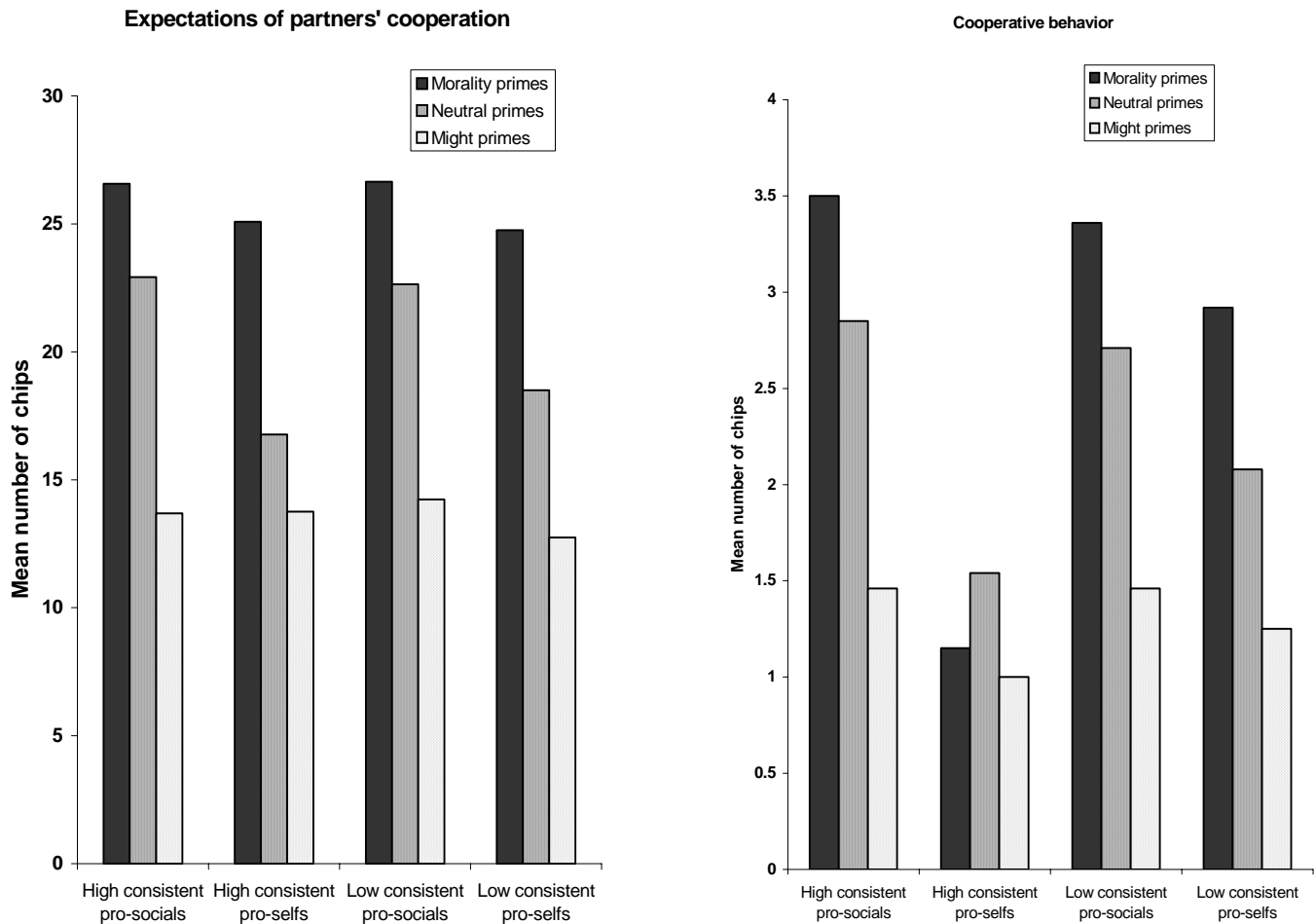
A 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVA on expectations of partners' cooperation was conducted. This analysis revealed two significant main effects. A main effect of social value orientation, $F(1, 143) = 12.31$, $p < .001$, indicated that pro-socials ($M = 21.11$) expected more cooperation of the other members than pro-selfs ($M = 18.60$). There was also a main effect of primes, $F(2, 143) = 95.37$, $p < .001$. Morality primes ($M = 25.76$) elicited higher expectations of partners' cooperation than neutral primes ($M = 20.21$) and might primes ($M = 13.60$) elicited lower expectations of partners' cooperation than neutral primes.

These two main effects were qualified by an interaction between social value orientation and primes, $F(2, 143) = 3.50$, $p < .05$. Planned comparisons clarified this two-way interaction by showing that pro-socials had higher expectations of their partners' cooperation than pro-selfs in the neutral priming condition ($M = 22.78$ vs. $M = 17.61$), $F(1, 143) = 17.27$, $p < .0001$, and not in the morality priming condition ($M = 26.60$ vs. $M = 24.92$), $F(1, 143) = 1.90$, *ns*, or in the might priming condition ($M = 13.96$ vs. $M = 13.25$), $F(1, 143) < 1$, *ns*. Differences in means between pro-socials and pro-selfs were larger in the neutral priming condition than in the morality priming condition, $t(103) = 3.66$, $p < .001$, and in the might priming condition, $t(100) = 5.31$, $p < .001$. Differences in means between pro-socials and pro-selfs did not differ between the morality priming condition and the might priming condition, $t(101) = 1.14$, *ns*.

Own cooperative behavior

A 2 (social value orientation: pro-social vs. pro-self) x 2 (consistency: high vs. low) x 3 (primes: morality vs. neutral vs. might) between-subjects ANOVA was conducted on own cooperative behavior in the fictitious 10-person game. We found three significant main effects. First of all, we obtained a main effect of social value orientation, $F(1,143) = 51.54$, $p < .0001$, which indicated that pro-socials ($M = 2.55$) cooperated more than pro-selfs ($M = 1.65$). Second, we obtained a main effect of consistency, $F(1,143) = 9.22$, $p < .01$, showing that low consistent participants ($M = 2.29$) cooperated more than high consistent participants ($M = 1.91$). Third, we obtained a main effect of primes, $F(2,143) = 45.74$, $p < .0001$. Morality primes ($M = 2.73$) elicited significantly more own cooperative behavior than neutral primes ($M = 2.29$), and might primes ($M = 1.29$) elicited significantly less own cooperative behavior than neutral primes.

Figure 4. Mean Expectations of Partners' Cooperation and Mean Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes (Experiment 4).



The three-way interaction between social value orientation, consistency and primes reached a conventional level of significance, $F(2, 143) = 3.94$, $p < .05$. The means for this three-way interaction, together with the expectations means, are shown in Figure 4. The exact nature of this interaction was examined by means of a series of planned comparisons.

Planned comparison calculated at the neutral priming level revealed that high consistent pro-socials cooperated more than high consistent pro-selfs ($M = 2.84$ vs. $M = 1.53$), $F(1, 143) = 18.32$, $p < .001$, and that low consistent pro-socials cooperated more than low consistent pro-selfs, ($M = 2.71$ vs. $M = 2.08$), $F(1, 143) = 4.24$, $p < .05$. For high consistent pro-socials and low consistent individuals, a planned comparison revealed that there was more own cooperative behavior in the morality priming condition ($M = 3.22$) than in the neutral priming condition ($M = 2.54$), $F(1, 143) = 16.34$, $p < .001$. Another planned comparison revealed that high consistent pro-socials and low consistent individuals cooperated less in the might priming condition ($M = 1.39$) than in the neutral priming condition ($M = 2.54$), $F(1, 143) = 42.35$, $p < .001$. Finally, we computed a planned comparison for high consistent pro-selfs comparing the morality and might priming conditions with the neutral priming conditions. This comparison was significant, $F(1, 143) = 3.00$, $p < .05$, and showed that high

consistent pro-selfs once again cooperated less in the morality and might priming conditions ($\underline{M} = 1.07$) than in the neutral priming condition ($\underline{M} = 1.53$).

Relationship between expectations of partners' cooperation and own cooperative behavior

Correlations between expectations and behavior were calculated and were all statistically significant (see Table 3). There was a negative expectation-behavior correlation for high consistent pro-selfs in the morality priming condition, $r = -.72$, $p < .01$, $N = 13$. All the other expectation-behavior correlations were positive and ranged between .59 and .85.

Table 3. Correlations Between Expectations of Partners' Cooperation and Own Cooperative Behavior as a Function of Social Value Orientation, Consistency and Primes (Experiment 4).

Social Value Orientation	Consistency	Primes		
		Morality	Neutral	Might
Pro-social	High	.66**	.78***	.60*
Pro-self	High	-.72**	.73**	.69*
Pro-social	Low	.72**	.84***	.59*
Pro-self	Low	.70*	.69*	.85***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

The results of Experiment 4 clearly replicated those of Experiments 2 and 3. Individuals also spontaneously form expectations in a 10-person game context. Social value orientation and situational features jointly influenced expectations. In the morality and might priming conditions, expectations assimilated to the primes. Expectations-behavior correlations generated strong positive correlations except for high consistent pro-selfs in the morality priming condition where a negative correlation was found.

GENERAL DISCUSSION

On the role of expectations about the partner

Previous research has found that both social value orientation and situation-specific features impact on people's cooperative behavior. More recently it was suggested that social interactions in mixed-motive settings reflect a disposition x situation interaction (Van Lange, 2000; Van Lange et al., 1997a), with dispositional influences playing a larger role in ambiguous than in unambiguous situations. Building on the work by Hertel & Fiedler (1998), we predicted that the later interaction would be more pronounced among low than high consistent individuals. Although we did not obtain the predicted statistical interaction between social value orientations and primes on cooperative behavior among the low consistent individuals, the results showed that both low consistent pro-self and low consistent pro-social individuals assimilated their behavior towards the primes, and that differences between these groups were obtained in the neutral priming condition only. We basically obtained the same pattern of data among the high consistent individuals, with the notable exception that high consistent pro-selfs contrasted their behavior away from the morality primes.

We suggested an interpretation of the later intriguing contrastive finding in terms of an expectation formation process. We reasoned that the priming of morality concepts may have

led high consistent pro-selfs to expect more cooperation from their partners, and to exploit them as a result of this impression. Results of Experiments 2, 3, and 4 confirmed our reasoning. Expectations about the partner's cooperation were significantly influenced both by participants' social value orientation and the nature of the supraliminal (Study 2 and 4) or subliminal (Study 3) primes. However, while correlations between the expectation and cooperation measures were significantly positive in all conditions, they came out significantly negative for high consistent pro-selfs primed with morality related words. This is an important finding as it shows that high consistent pro-selfs became less cooperative as they expected more cooperation from their partner. It is noteworthy that the formation of expectations occurred in a very spontaneous manner in the present research. This can be illustrated by the fact that, although expectations were measured in Experiment 2 but not in Experiment 1, we obtained the same pattern of data in both Experiments. Moreover, expectations were elicited in very unobtrusive ways in the present studies (see for instance Exp. 3, which used a subliminal priming technique).

As a whole, the present findings suggest that dispositional and situational influences may not directly impact on people's cooperative behavior in mixed-motive interdependence situations. Rather, these factors may guide people's impressions about their partner, and these impressions may in turn determine people's behavioral options. This suggestion is perfectly in line with previous empirical and theoretical work (e.g., Kelley & Stahelski, 1970; Kelley & Thibaut, 1978; Kuhlman & Wimberley, 1976; Van Lange & Kuhlman, 1994), suggesting that expectations about the partner's cooperation is a crucial antecedent of decision-making in mixed-motive situations.

Consistency of social value orientations

Consistency of social value orientations has rarely been investigated in the literature (see also Hertel & Fiedler, 1998). Our studies show that this factor may be an important moderator for future research on social value orientations. As we saw, high consistent pro-selfs behaved in a different manner than low consistent pro-selfs in the morality priming condition. Previous studies suggest that pro-selfs generally behave in an individualistic manner. However, it has been proposed that pro-selfs start cooperating when they believe that the partner is a cooperative person and that his or her cooperativeness is due to moral, honest intentions (Van Lange & Kuhlman, 1994; Van Lange & Semin-Goossens, 1998). Our findings suggest that the later effect may be true for low consistent pro-selfs only. A study conducted by Smeesters, Van Avermaet, & Warlop (2001) actually tested this reasoning in a sequential dilemma game by giving participants information about personality characteristics and cooperative intentions regarding their partner. Results showed that low consistent pro-selfs but not high consistent pro-selfs reciprocated the cooperative behavior of a moral person. Hence, pro-self individuals should not be expected to all behave in the same way: the consistency of one's social orientation does make a difference.

If one focuses on the groups where behavioral assimilation was obtained (that is, the low-consistent pro-selfs, and the low and high consistent pro-social individuals), only slight differences emerged. The pro-social individuals always acted in the same manner and low consistent pro-selfs differed from the pro-socials in the neutral priming condition only. It was expected that pro-socials behaved more cooperatively than pro-self individuals in the neutral priming conditions. The interesting result is that behavioral differences vanished when the priming of morality or might concepts disambiguated the situation (more specifically, disambiguated participants' expectations about the partner). Does this mean that in unambiguous situations, pro-socials and low consistent pro-selfs should be expected to always

behave in the same manner? Not necessarily. It is clear that all these individuals will generally tend to behave less cooperatively when expecting a lack of cooperation from their partner, and more cooperatively when expecting cooperation from a moral partner (Van Lange & Kuhlman, 1994; Van Lange & Semin-Goossens, 1998). Future research may however benefit from examining situations in which differences emerge among these individuals. For instance, Smeesters et al. (2001) recently found that high consistent prosocials behave cooperatively in more types of unambiguous situations than low consistent individuals and that these individuals behave cooperatively in more types of unambiguous situations than high consistent pro-selfs.

Biased Perception

To the best of our knowledge, the present research is the first that evidenced behavioral contrasts following the subliminal priming of concepts. Our results may thus have important implications for research on automaticity. In that literature, there is strong support to the view that subtle situational influences may have a direct impact on social behavior (e.g., Bargh et al., 1996; Carver, Ganellen, Froming, & Chambers, 1983; Dijksterhuis & Corneille, 2001; Dijksterhuis & Van Knippenberg, 1998; for reviews see Bargh & Ferguson, 2000; Dijksterhuis & Bargh, 2001). Direct influences are assumed to operate via the activation of mentally represented traits, stereotypes, or goals (Bargh, 1997). Recently, some authors argued that some findings obtained under the automatic behavior framework may actually be explained by a biased perception principle (see Wheeler & Petty, 2001; see also Herr, 1986; Neuberg, 1988). This principle refers to a process whereby the primes would influence individuals' behavior not in an automatic fashion, but via the influence they would have on the appraisal of the situation.

Our research (together with Herr, 1986; Neuberg, 1988) suggests that biased perception processes may indeed sometimes account for what would otherwise appear as automatic behavior processes. That the subliminal priming of morality concepts elicited more cooperative behavior among some participants but less cooperative behavior among others provides a strong support for this view. The contrastive influence of the primes obtained for high consistent pro-selfs could not be accounted for by correction-based process. This correction process is likely to emerge when an individual recognizes the potential of primes to bias behavioral responses (Strack, Schwarz, Bless, Kübler, & Wänke, 1993). Specifically, individuals who enjoy sufficient attentional resources sometimes overcorrect for the mental contamination of the primes in restoring the authenticity of their responses (e.g., Corneille, Vescio, & Judd, 2000; Martin, Seta, & Crelia, 1990; Moskowitz & Skurnik, 1999).

In the present research, one may however wonder how participants could have noticed the contaminating influence of the primes. If contrastive effects have been occasionally reported in studies that relied on the classic scrambled sentences task (Corneille et al., 2000; Moskowitz & Skurnik, 1999), they have not been reported in a study that relied on a subliminal priming task. In addition, one may also wonder why correction process would have emerged only under the priming of morality concepts and only among high consistent pro-self individuals (and only at the behavioral level). One possibility is that our morality traits appeared to be more extreme to high consistent pro-selfs than to the others individuals (as it has been established that extreme primes may sometimes lead to contrastive judgments). However, the recent modelization of priming effects proposed by Moskowitz & Skurnik (1999) made it clear that only extreme exemplars (and not extreme traits) should result in contrastive effects. And, in the present study only traits were activated. For all these reasons, we strongly doubt that a contrast emerged in the present studies because of a correction for

mental contamination. Rather, there are good reasons to think that the high consistent pro-selfs primed with the morality concepts took advantage of a partner's who was appraised as particularly cooperative because of the influence of the prime.

Finally, we do certainly not mean to argue here that social behavior is alien to automatic influences. Rather, the present research suggests that in some situations biased perception may be the best explanation for behavioral effects that would otherwise appear automatic. Recently, Wheeler & Petty (2001) also argued that biased perception processes might offer a plausible explanation for some automatic behavior effects and that this explanation should be thus be considered and assessed as a plausible alternative. Future research we think should pay close attention to this possibility and design experiments to determine conditions in which primes influence behavioral choices throughout automatic or mediated processes.

Conclusion

The present research demonstrated that transformation processes and cooperative behavior in part emerge from people's expectations about the partner. These beliefs are influenced by dispositional and situational influences, depending on the ambiguity of the situation. Furthermore, our results indicated that all individuals are to some extent sensitive to these partner-based beliefs. Expectations of partner's cooperation determine own cooperative behavior in an assimilative or contrast manner, depending on the nature and consistency of one's social value orientation. A remarkable finding in our studies is that high consistent pro-selfs were as sensitive as the other individuals to their environment and that their expectations regarding the partner's cooperation strongly influenced their decision process. They however decided to exploit their partner rather than subscribing to a norm of reciprocity that the other participants appeared to share (as indicated by the pattern of correlations between expectation and cooperation measures reported in Exp. 2, 3, and 4).

Our results only hold to first-trial social interactions. Often social interactions comprise more than one confrontation. In that case, individuals are often provided with feedback about their partner's cooperation. This feedback information may then distort the initial beliefs about partner's cooperation and people might use this information to determine their own cooperative behavior. For instance, individuals might use specific norms or strategies (e.g., Tit-for-Tat) to deal with partner's cooperation in sequential games. Future research of course should investigate how long initial beliefs, influenced by social value orientations and situation-specific features, will last.

Doc 1.2.

The unconsciously sustainable consumer:

Exposure to environment-unfriendly concepts promotes ecological consumer behavior

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Dominant models in the psychology of consumer behavior have classically conceived of individuals as decision-makers who deliberately select and assess various pieces of information in order to maximize choice quality and satisfaction (for reviews, see Bagozzi, Gürhan-Canli, & Priester, 2002; Mullen & Johnson, 1993). According to this perspective, external cues are not assumed to influence consumer choices unless they are explicitly and deliberately attended to, and processed, by the consumer (Wilkie, 1994). Recent theoretical developments on behavioral automaticity challenged this view and proposed that situational cues can automatically elicit the activation of behavioral schemas that guide subsequent behaviors, without neither intentional decision nor awareness (Bargh, 1997; Dijksterhuis & Bargh, 2001). According to this view, individuals are rarely conscious about the causes of their own behaviors and they have only a limited access to their mental processes (Bargh, 2005). In the most of contexts, salient situational cues unconsciously trigger behavioral schemas. Then, schemas implicitly guide individual behaviors in order to produce fast and adequate answers (Bargh, 1997 ; Dijksterhuis & Bargh, 2001). Automatic processes are economic and useful. Individuals do not need to process the complete body of information that is available in a current situation before selecting the appropriate behavior to produce. For instance, if people are confronted with elderly persons, this situation will implicitly lead the people to act slowly and smoothly without any consciousness of this process (Bargh, Chen, & Burrows, 1996).

For a long time in consumer psychology research, the unconscious effect of the situation on behaviors was quite inhibited or rejected by the scientific community (see Dijksterhuis, Aarts, & Smith, 2004, for a review). As a consequence of the "Vicary affair", the unconscious relation between perception and action was considered as a taboo thing. During the early 50's, James Vicary has claimed to have strongly increased popcorn and sodas sells in a cinema thanks to the simple projection of subliminal - under the perceptive consciousness threshold - messages on the screens (i.e., "drink Coke" and "eat popcorn") during the movies. A few years later, Vicary confessed that this study was actually a fake developed in order to save his advertising firm from bankruptcy. Later on, researches were mainly designed in order to demonstrate the inexistence of subliminal perception and its absence of effect on behavior (e.g., Holender, 1986; Pratkanis, 1992). Subliminal perception and persuasion were henceforth considered as a myth shared between lay people.

In the early 90's, the unconscious influence of the perception on behaviors was brought up to date in cognitive social psychology by Bargh and his collaborators (Bargh, 1990, 1992, 1994, 1997, 2002, 2005; Bargh et al., 1996; Bargh & Chartrand, 1999 ; Chartrand & Bargh, 1996). These authors proposed a new perspective dissociated from subliminal persuasion. They proposed that salient cues that are present in a social situation can automatically (unconsciously, not controlled, not volitionally) guide behaviors in order to ensure fast and appropriate answers to the situation. These effects were investigated thanks to *priming* procedures (Bargh & Chartrand, 2000). A priming procedure is designed in order to implicitly activate (to prime) a concept in the mind of the participants using perceptive channels. The idea is not to persuade individuals⁹. Rather, the basic assumption is that cues that are salient in a given social context (e.g., skin color, age, gender, clothes, music, smells, observed behaviors, etc.) make possible for individuals to interpret the context and to react fast without any deliberative process.

More recently, Bargh (2002 ; see also Dijksterhuis, Smith, van Baaren, & Wigboldus, 2005 ; Fitzsimons et al., 2002 ;) has proposed to apply this conception of the perception-behavior link to consumer behaviors. When we look at some marketing practices, this

⁹ Note that recent data show that subliminal persuasion may emerge under particular conditions (Strahan, Spencer, & Zanna, 2002).

proposal is highly relevant. Recent sensorial marketing and neuromarketing streams aim at exploiting perceptual and implicit memory processes in order to subtly orient consumer choices and preferences. For instance, a famous US coffee brand (i.e., Starbucks coffee™) gives off an agreeable scent of fresh coffee in the close area of their shops. In the Belgian supermarkets, breads are cooked directly in the stores and diffuse a sweet smell of hot bread in the whole bakeries' shelf. In these two instances, the goal is to trigger positive memory associations in order to increase sells. In order to illustrate the unconsciousness of the relation between perception and action in consumption settings, let's take an example from Dijksterhuis et al. (2005, p. 193):

"Picture yourself in a supermarket. You are navigating through aisles, around people, occasionally dropping something in your cart. After about 20 min, you find yourself at the counter with 26 different items in your cart, among them a tuna pizza with anchovies, as well as bananas, peanut butter, detergent, and Ben & Jerry's New York Super Fudge Chunk® ice cream. Now, how did all of these things end up there? Sure, you picked them yourself, but why? If you would be probed to explain, for all 26 items individually, why you chose them, you would likely find yourself troubled. A few choices are easy to explain. For example, you were all out of detergent and you are going to a conference tomorrow and really want to bring two shirts that need to be washed first. Many other choices, however, will likely be introspectively almost blank. "Ice cream? Well, I really felt like ice cream, I guess."

According to this example, people often consume unconsciously and situational cues can be arranged in order to prime specific consumer behavioral patterns. For instance, Mandel & Johnson (2002) have shown that individuals prefer to choose a comfortable sofa (even it is the more expensive one) when the concept of comfort is primed by the situation. In the opposite direction, people select more often the cheapest sofa (even it is the less comfortable one) when the concept of price is activated by the situational cues. These effects emerge independent of participants' consciousness of the priming.

Basing on the literature on automatic behavior in social psychology, we propose to examine the consequences of different environment-related primes on consumer choices. According to automatic behavior research, it could be possible to activate ecological concepts in individuals. This activation should promote the selection of proenvironmental products. The question of automaticity in consumer choices has not yet received large empirical support and no research was designed in order to examine priming effects on ecological consumer patterns.

Research on behavioral automaticity has generally pointed to *assimilation* effects. This means that contextual cue results in behaviors that are marked in the direction of this cue. To illustrate, priming the "elderly" concept makes people walk slower (Bargh, Chen & Burrows, 1996) and perform worse on a memory task (Dijksterhuis, Bargh, & Miedema, 2000). Evoking the "violence" concept elicits aggressive reactions (Todorov & Bargh, 2002). Priming the concept "professor" improves performance in a quiz task (Dijksterhuis & van Knippenberg, 1998), facilitates the learning of new information (Haddock, Macrae et Fleck, 2002), and increases memory performance (Dijksterhuis, Bargh, et Miedema, 2000).

Interestingly, recent work by Smeesters and colleagues (Smeesters, Warlop, Van Avermaet, Corneille, & Yzerbyt, 2003) provided evidence for *contrastive behavioral automaticity*. In these authors' studies, highly consistent pro-self individuals confronted with a prisoner dilemma game expressed more competitive choice when primed with *cooperative* rather than neutral concepts. In a prisoner dilemma game, the outcome of one's decision is dependent on the decision of the partner in the game and the best individual outcome is

reached when one is making a competitive choice and the partner is making a cooperative choice. In Smeesters et al (2003), participants perceived their partner as being more cooperative when primed with cooperative than neutral or competitive concepts. Although this perception generally increased collaborative choices (i.e., an assimilation effect), it led to even stronger levels of competition among highly consistent pro-self participants (i.e., a contrast effect). Apparently, priming highly consistent pro-self individuals with cooperation had them take advantage of the expected cooperation from their partner to maximize their individual outcome. For these individuals, perception of cooperation activated competitive behavioral schemas.

The studies by Smeesters and colleagues (2003) are noteworthy because they are the first to provide evidence for the existence of contrastive behavioral automaticity following *subliminal* concept activation, a procedure that offers better guarantees regarding the truly implicit character of priming influences. To the best of our knowledge, prior research reporting on contrastive behavioral automaticity had always relied on supraliminal procedures (e.g., Dijksterhuis, Spears et al., 1998; Dijksterhuis, Spears, & Lépinasse, 2001). Given that the data presented by Smeesters et al. (2003) remain the only example of contrastive behaviors in the context of subliminal priming, it would be useful to replicate these findings. Ideally, we would want to see the same contrastive behavior emerge in the context of both a supraliminal and a subliminal procedure.

Although the literature on contrastive behavioral automaticity remains scarce, one can easily think of a variety of situations in which people spontaneously display behaviors that contrast with the concepts activated in the situation. For instance, when interacting with an authoritative figure, people may be expected to spontaneously exhibit humility and submission rather than pride or arrogance. Or, when perceiving an aggression on a street, people may be more likely to help the victim than to beat her alongside the perpetrator. In these and other situations, complementary goals may be automatically activated by the environment. In turn, these goals may elicit behaviors that seem to contrast with the concepts that are activated in the situation.

In the present research, we examined and provided further evidence for the reality of these effects in the context of consumer behavior. Specifically, participants were expected to make more pro-environmental consumer decisions following the activation of concepts negatively associated with the perception of a clean and healthy environment. Given the existence of relatively salient pro-environmental norms within the European Union, we expected that the perception of a polluted and unhealthy environment would automatically increase the likelihood of environment-friendly choices in our participants.

Overview of the studies

In all three studies, participants were exposed to a priming task and were then asked to make a choice between a series of television sets that differed in ecological value. In Study 1, the priming task required participants to report two recent instances of behavior in which they had performed or failed to perform pro-environmental behaviors. In Study 2, participants were subliminally primed with concepts that were either not related, positively related, or negatively related to the preservation of the environment. Crossed with this manipulation was the priming (or not) of the participant's self concept (i.e., the first name of the participant). In Study 3, participants were primed with neutral concepts, negative ecological concepts, or negative ecological concepts associated with the self. This study also examined whether of the impact of the primes was moderated by participants' ecological habits.

EXPERIMENT 1

Method

Participants and design

A total of 60 undergraduate students from the Catholic University of Louvain at Louvain-la-Neuve took part in the experiment in return for course credit. They were randomly assigned to one of three ecological priming conditions (i.e., neutral, positive, or negative).

Procedure

Once in the laboratory, participants were individually seated and given instructions for the priming task. Participants were asked to recall two instances of behaviors that they had recently displayed and which may have contributed to preserve the environment (i.e., positive ecological priming condition) or were asked to recall two instances of behaviors that they might have, but had not, displayed and which may have contributed to preserve the environment (i.e., negative ecological priming condition). In both conditions, participants were asked to recall these instances of behaviors using the 'I' form, in order to anchor their acts with their self-concept. Participants in the control condition did not complete any priming task and proceeded to the second part of the experiment.

In the second, allegedly unrelated, part of the experiment, participants were taken to a different lab room. There, another experimenter first asked them to take five minutes to complete a questionnaire that was irrelevant to the purpose of the present study. Participants were then given the consumer choice task, the *TV Set Choice Task*, a task borrowed from Verplanken and Holland (2002).

In this *TV Set Choice Task*, participants were presented with 20 products (i.e. television sets) presented in a 20 x 7 matrix format. The rows corresponded to the 20 televisions sets (represented by letters ranging from A to T) and the columns referred to seven technical attributes (e.g. screen quality, sound quality, etc). These attributes were briefly described underneath the matrix. Each cell contained one of five symbols (– –, –, 0, +, or ++) that were informative of the quality of the product on a given attribute, one of which related to the ecological value of the product (i.e. described as 'electrical consumption, presence of polluting components, presence of recyclable materials, etc'). Overall, no product was better than any other product but some were definitely better than others in terms of ecological value (see attachment A).

Participants completed three dependent measures. On the first page, they were asked to choose one TV set. For each participant, we examined the ecological value of their choice, ranging from “-2 (= very unfavorable)” to “+2 (= very favorable)”. This score informed us about the *ecological value of the chosen product*. On the second page, participants were presented with the same matrix but this time they had to indicate all those TV sets which they identified as acceptable choices. The mean ecological value of these choices was computed and reflected the *ecological value of acceptable choices*.

Following the choice task, participants reported the extent to which they thought each attribute was important for determining their choice on 7-point scales ranging from 1 (= not at all important) to 7 (= very important). The answer on the ecological attribute informed us about the *subjective importance* given to the ecological value of the chosen product.

Once these tasks were completed, we checked for the unawareness of the participants regarding our hypothesis and regarding the association of the two allegedly unrelated parts of the experiment. Participants were then debriefed, thanked for their collaboration, and dismissed.

Results

Ecological value of the chosen product

A main effect of priming was obtained, $F(2, 56) = 3.55, p < .05$ ¹⁰. Only the control and negative priming conditions significantly differed from each other, $t(37) = 2.70, p < .01$, with the strongest pro-environmental choices made in the negative priming condition ($M = 0.82, SD = .95$), the weakest pro-environmental choices made in the control condition ($M = -0.23, SD = 1.31$), and intermediate choices made in the positive priming condition ($M = .20, SD = 1.32$). Complementary analyses revealed that pro-environmental choices were significantly higher than zero only in the negative priming condition, $t(16) = 3.57, p < .005$.

Ecological value of acceptable choices

Two participants were removed from the analyses because they did not answer this question. Results on this second dependent measure replicated those obtained on the first one. A main effect of priming was obtained, $F(2, 54) = 3.19, p < .05$. The negative ($M = 0.87, SD = .61$) and neutral ($M = 0.19, SD = .99$) priming conditions differed from each other, $t(35) = 2.46, p < .02$. The positive priming condition fell in the between ($M = .44, SD = .78$). The positive priming condition did not differ from the control condition ($t < 1$), and differed marginally significantly from the negative condition, $t(35) = 1.83, p < .08$. Pro-environmental choices were significantly higher than zero in the negative priming condition, $t(16) = 5.91, p < .001$, and in the positive priming condition, $t(19) = 2.53, p < .025$.

Subjective importance of the ecological attribute

No effect of priming was obtained on this measure.

Discussion

Experiment 1 supports our hypothesis. We observed contrastive behavior following concept activation: more ecological consumer choices emerged in the negative priming than in the control condition. Such a pattern provides original evidence for automatic behavioral contrast in the context of consumer choices. Experiment 1 is encouraging but remains inconclusive in three respects. First, the impact of the positive priming condition is difficult to interpret: this condition significantly departed neither from the neutral priming condition nor from the negative priming condition. Second, to the extent that the self concept was activated in the negative priming condition, one may wonder whether this condition increased the likelihood of pro-environmental choices (a) because of the activation of negative ecological

¹⁰ One outlier was removed from all analyses as the participant's score was more than 2 *SD* away from the average scores in each experimental condition.

concepts *per se*, or (b) because of the priming of a self-concept negatively associated with the preservation of the environment. Third, to the extent that Experiment 1 relied on a supraliminal priming procedure, the negative priming condition might have increased pro-environmental choices because of participants' explicit willingness to re-affirm the positivity of their self. Although no participant reported having been aware of the association between the priming and the choice task, the latter possibility cannot be entirely dismissed.

In Experiment 2, we jointly address these three issues. First, we relied on a more powerful design (we increased sample size), which would make it easier to draw firmer conclusions about the role of positive ecological priming. Second, we crossed the ecological priming manipulation with a manipulation of the level of activation of the self-concept. Finally, and most importantly, we relied on a subliminal priming procedure.

EXPERIMENT 2

Method

Participants and design

Participants were 91 undergraduate students from the catholic University of Louvain at Louvain-la-Neuve who took part in this experiment in return for course credits. They were randomly assigned to one of six conditions of a 2 (Self priming: present versus absent) x 3 (Ecological priming: neutral versus positive versus negative) factorial design.

Procedure

Participants were individually seated in front of a computer screen in order to complete the priming task which was presented to them as a visual detection task. This task was a parafoveal priming procedure adapted from Riketta & Dauenheimer (2003; see also Bargh & Chartrand, 2000). Participants were briefly exposed (120 ms) to letter strings and had to report as fast as possible whether these stimuli appeared on the right or the left side on the screen by pressing one among two keys labeled '*left*' and '*right*'. On each trial, participants had to look at a fixation point presented on the center of the screen, before the target stimulus appeared on the screen.

All stimuli comprised two rows of letter strings presented at the same time (one below the other). Depending on the priming condition, the top row did or did not include the first name of the participants (i.e., *self* prime vs. *neutral* prime) and the bottom row contained a meaningless letter string (i.e., *neutral* prime), or words either positively or negatively associated with the preservation of the environment (see appendix B for the list of primes used in Experiments 2 and 3).

Each stimulus was randomly presented in one of the four quadrants of the screen (in the parafoveal visual field between 2° and 6°) after a random delay (i.e., 1000, 1500, 2000, or 2500 ms). This procedure ensured that participants could not anticipate the location and the moment of the stimulus presentation. Target primes were presented for 60 ms, and then masked for an additional 60 ms with a meaningless letter string. Participants completed 52 detection trials in total (i.e., each of the 13 words was presented in each quadrant) and were

seated at a distance of 80 cm from the screen. A chinrest was used to keep the eye-screen distance constant.

Once this ‘detection’ task was completed, participants proceeded to complete the same TV Set Choice task as in Experiment 1. Finally, participants were debriefed, thanked for their participation, and dismissed.

Results

Ecological value of the chosen product

The ecological value of the selected television set was entered in a 2 (Self priming: present versus absent) x 3 (Ecological priming: neutral versus positive versus negative) ANOVA (see Table 1 for the full set of means). We found a main effect of ecological priming, $F(2, 85) = 8.19, p < .005$, with more pro-environmental choices in the negative priming conditions ($M = 0.37; SD = 1.07$) than in the neutral priming ($M = -0.67, SD = 0.99$), $t(58) = 3.89, p < .001$, and the positive priming conditions ($M = -0.61, SD = 1.23$), $t(59) = 3.32, p < .005$, conditions. The main effect of self priming and the interaction between self priming and ecological priming were not significant, $F(1, 85) = 1.15, p > .25$, and $F(2, 85) = 0.07, p > .90$, respectively. In other words, we obtained evidence for contrastive behavioral contrast irrespective of whether the self was or was not associated with negative ecological primes.

Ecological value of the acceptable choices

No significant effects were obtained on this variable.

Subjective importance of the ecological attribute

A main effect of ecological priming was obtained, $F(2,85) = 5.19, p < .01$, with more importance given to the ecological attribute in the negative priming condition ($M = 5.17, SD = 1.37$) than in the neutral priming condition ($M = 3.90, SD = 1.45$), $t(58) = 3.49, p < .001$, and in the positive priming condition ($M = 4.29, SD = 1.83$), $t(59) = 2.11, p < .04$. The main effect of self priming and the interaction between self priming and ecological priming were clearly not significant, $F(1, 85) = 0.10, p > .75$, and $F(2, 85) = 1.66, p > .19$, respectively.

Table 1. Means and standard deviations for the dependent measures as a function of self and ecological priming (Experiment 2).

Self Priming	Ecological priming	Consumer choice measures		
		Ecological status of the alternative chosen	Ecological status of the acceptable alternatives	Importance given to the ecological attribute
Neutral	Neutral	$M = -.73$ $SD = .96$	$M = -.38$ $SD = .83$	$M = 3.60$ $SD = 1.55$
	Positive	$M = -.75$ $SD = 1.13$	$M = -.29$ $SD = .87$	$M = 4.31$ $SD = 1.74$
	Negative	$M = .20$ $SD = 1.32$	$M = .01$ $SD = .94$	$M = 5.60$ $SD = 1.12$
Self	Neutral	$M = -.60$ $SD = 1.06$	$M = -.17$ $SD = .71$	$M = 4.20$ $SD = 1.32$
	Positive	$M = -.47$ $SD = 1.36$	$M = -.09$ $SD = .83$	$M = 4.27$ $SD = 1.98$
	Negative	$M = .53$ $SD = .74$	$M = .23$ $SD = .72$	$M = 4.73$ $SD = 1.49$

Discussion

As was the case in Experiment 1, Experiment 2 revealed the presence of contrastive behaviors after priming. Importantly, Experiment 2 relied on subliminal priming, thereby increasing our confidence that participants' awareness of the primes plays no role in this phenomenon. It thus seems that contrastive behaviors have the potential to emerge automatically, and independently of explicit self-(re)affirmation processes.

This time, positive and negative priming effects were significantly different from each other: more pro-ecological choices emerged after priming environment-unfriendly than environment-friendly concepts. This finding suggests that pro-environmental behaviors may be more easily elicited by the confrontation with an endangered environment than by the confrontation with a clean and healthy environment. We will come back to this point in the general discussion.

Finally, Experiment 2 suggests that the contrastive behavioral automaticity effects obtained here were more likely due to the activation of environment-unfriendly primes than to the activation of environment-unfriendly self-concepts: the association of the self-concept with the negative ecological primes did not add to the influence of these primes.

EXPERIMENT 3

Given the importance of the pattern obtained in Experiment 2 may be, it was important to seek replication. Also, we wanted to secure more power in the study so as to check for the impact of a reference to the self. To this end, Experiment 3 relied on the same priming

procedure as in Experiment 2 but focused only on three priming conditions: neutral, negative ecological primes, and negative ecological primes associated with the self. Finally, we were also interested in the potential moderating impact of individual differences in ecological consumer habits. That is, it is possible that priming negative ecological concepts influences behavior equally whether people confronted with the primes are generally sensitive or insensitive to ecological aspects of their behavior. Alternatively, it could be that negative ecological primes exert a different impact as a function of participants' chronic level of concern for the ecological consequences of their consumer choices. One likely pattern is that people chronically concerned by the ecological aspects of their behavior would hardly be affected by the confrontation with negative ecological primes. In contrast, it could be that only those very same participants show some sensitivity to the primes. To examine this issue, we included a self-report ecological consumer habit measure in our dependent variables.

Our main hypothesis was straightforward in that we again expected to find support for the existence of automatic contrastive behavior. Specifically, we predicted that participants would make more pro-environmental choices and afford more importance to ecological features of the products after having been subliminally confronted with negative ecological than with neutral primes. As for the impact of the self-concept, we did not expect any significant difference between the negative ecological primes condition and the condition in which the negative ecological primes were associated with the self. Finally, our predictions with respect to the role of previous concern for ecological aspects of one's consumer behavior were less clear. Although we did expect a main effect of this individual difference variable, we were left unsure as to its moderating role with respect to the influence of negative ecological primes on environmental choices.

Method

Participants and design

A total of 104 undergraduate students from the Catholic University of Louvain at Louvain-la-Neuve received course credits in return for their participation. Three experimental sessions were aborted (two participants did not follow the instructions correctly, and one participant was removed due to a mistake made by the experimenter in the priming task). Students were randomly assigned to one of three priming conditions (neutral, negative ecological primes, negative ecological primes associated with the self). Participants in all conditions completed the priming task before completing the consumer decision task and the ecological consumer habit questionnaire.

Procedure

We applied the same procedure (i.e. priming and measures) as in Experiment 2 with two exceptions. First, although the angle range was kept constant (parafoveal field ranged from 2° to 6°), the chinrest was set at 60 cm (instead of 80 cm) from the screen. Given the size of the font (*Chicago* 12) used in our priming task, this modification was intended to improve the parafoveal (implicit) readability of the primes. Second, following the consumer decision task, we added a questionnaire aimed at assessing the ecological consumer habits of our participants. This questionnaire comprised six items to be answered on 7-point scales ranging from 1 (= totally disagree) to 7 (= totally agree). The items were (1) The preservation of the nature is a central value in my life, (2) When I buy a product, I am sensitive to nature

preservation issues, (3) I care for the negative environmental consequences of the products I buy, (4) When possible, I purchase goods that preserve the natural environment, (5) I use to think of the environmental consequences of my consumer behavior, (6) When I go shopping, avoiding to pollute is an essential criterion for me. Because this questionnaire had a high level internal consistency ($\alpha = .93$), individual scores on the six items were averaged to form a score that reflected the ecological consumer habits of participants (i.e., the higher the score the stronger the ecological consumer habits).

Results and discussion

Two participants were discarded from the analyses because they were found to be outliers¹¹. Data for the remaining 99 participants were analyzed by means of regression analyses. Because we had our participants assigned to one of three conditions, Helmert contrasts were entered as predictors in regression analyses (Contrast 1: neutral: -2, negative: +1, negative and self: +1; Contrast 2: neutral: 0, negative: +1, negative and self: -1). Additional predictors entered in the models were the centered ecological consumer habit score, and two product terms involving the centered habit score and Contrast 1 on the one hand and the centered habit score and Contrast 2 on the other. Importantly, a preliminary analysis revealed that priming did not influence the self-reported ecological consumer habit scores, $F(2, 96) = 1.26, p > .28$, thereby legitimizing our regression analyses

These analyses revealed that Contrast 1 (but not Contrast 2) predicted the ecological value of the alternative chosen, $\beta = .19, p < .03$, the ecological value of acceptable alternatives $\beta = .17, p < .05$, and marginally predicted the subjective importance of the ecological attribute in the choice, $\beta = .11, p < .08$. As would be expected, consumer habits also predicted the same set of variables, $\beta = .55, p < .001, \beta = .59, p < .001, \beta = .79, p < .001$, respectively. Interestingly, however, no product term was significant, all $ps > .16$.

This pattern suggests that priming negative ecological concepts, whether or not these were associated with the self, increased pro-environmental choices *over and above* what would be expected from people chronic consumer habits. Similarly, ecological consumer habits increased pro-environmental choices *over and above* priming type. Finally, the absence of significant moderation effects suggests that priming effects were of the same magnitude at all levels of pre-existing consumer habits.

GENERAL DISCUSSION

The present set of findings significantly extends past research on behavioral automaticity and on consumer choices (see Bargh, 2002). In three studies, we obtained evidence for contrastive behavioral automaticity following concept activation. This pattern emerged under conditions of supraliminal priming (Exp. 1) as well as of subliminal priming (Exp. 2 and 3). Moreover, the contrastive behavior was triggered independently of the concurrent priming of the participants' self-concept and independently of the participants' self-reported ecological consumer habits. To the best of our knowledge, only the recent study by Smeesters and colleagues (2003; see also Smeesters, Yzerbyt, Corneille, Warlop, & Van Avermaet, 2004) reported evidence for the existence of contrastive behavioral automaticity under conditions of concept activation in the context of a subliminal priming procedure. Knowing that Smeesters et al. (2003) used a lexical decision task in their initial task, the

¹¹ Their score was more than 2 SD away from the mean of their experimental condition.

present series of experiments allow to generalize this effect to a new priming manipulation. Also, whereas Smeesters et al. (2003) used cooperative choices in the context of a prisoner dilemma game as their focal behavior, we relied on a novel behavioral context that entails obvious implications for consumer research and, more generally, for pro-environmental policies.

Theoretical implications

As we noted in the introduction, one can easily think of various situations in which people spontaneously react away from concepts that are activated in the situation. To be sure, the critical issues concern the circumstances and the reasons why it may be so. Although the present note was not aimed at providing definite answers to these latter questions, it seems important to speculate a bit about these questions, with the hope of providing insights for further research.

In our view, both dispositional and situational factors may play a role in the emergence of contrastive automaticity effects. Turning to the impact of dispositional factors first, the argument is that chronic individual differences would lead some people to react to specific primes in a way that is quite different from what can be observed among other people. Concretely, whereas some people would manifest assimilation effects when confronted with a specific set of primes, the same set of primes would translate into contrast effects for other people. A nice illustration of this pattern can be found in Smeesters and colleagues' (2003) study. When primed with cooperative concepts, highly consistent pro-selfs expect cooperation from their partner, and this expectation in turn elicits exploitation behaviors. A different story holds for pro-social individuals and low consistent pro-selfs who are likely to behave more cooperatively when they expect enhanced cooperation from their partner. In short, goals are automatically activated for all participants in response to the primed concepts but the content of these goals differs as a function of individual differences.

As to the role of situational factors, the rationale here is that the activation of certain concepts leads to markedly different lines of action as function of the characteristics of the situation. A well-known example comes from a study by Macrae and Johnston (1998, Exp. 1). In this study, participants confronted with cooperation primes did or did not provide help (pick up a pen that had fallen on the ground) as a function of the features of the situation (the pen was not or was covered with ink). Another perhaps more striking illustration of the impact of situational characteristics can be found in a recent study by Smeesters et al. (2004). These authors found that highly consistent pro-selfs are more competitive when primed with cooperative concepts in the context of interdependent but *not* in non-interdependent games. In non-interdependent contexts, there is hardly any need to form an expectation about others. Clearly, in Smeesters et al. (2004), contrastive behavioral automaticity was therefore conditional on both dispositional and situational factors.

A similar explanation in terms of situational influences may apply to the effects examined in the present research. Assuming the existence of relatively salient pro-environmental norms in our sample of participants, the perception of a polluted or soiled environment may have activated goals aimed at *restoring* the quality of this environment. Different effects may be obtained under circumstances actively promoting environment-unfriendly norms (e.g., a student party) or among people decidedly opposed to the preservation of the environment. This idea is reminiscent of the classic study by Cialdini, Reno & Kallgren (1990) in which a confederate who was seen littering elicited environment-unfriendly behaviors when observed in the context of a dirty environment (i.e., assimilation)

whereas, if anything, the opposite trend emerged in the context of a clean environment (i.e., contrast).

Overall, although fully automatic and implicit, the effects reported here and in Smeesters et al. (2003, 2004) are likely to be the consequence of the impact that the primes have on the perception of the environment (i.e., the existence of a cooperative partner in Smeesters et al, and that of an endangered environment in the present studies). The idea that automatic behavior effects are likely to result from the impact that the primes have on the construal of the situation has been recently discussed by Wheeler and Petty (2001). For instance, the priming of the concept of aggressiveness may lead one to perceive other people as being potentially aggressive and to behave aggressively accordingly (see Carver, Ganellen, Froming, & Chambers, 1983).

Practical implications

In the present research, pro-environmental choices increased after both the supra- and subliminal priming of environment-unfriendly concepts. In contrast, priming environment-friendly concepts increased pro-environmental choices marginally in Study 1 only and on one out of three dependent variables only. Overall, negative ecological priming thus proved much more efficient in promoting pro-environmental consumer choices. On the basis of these findings, we would like to suggest that the perception of an endangered environment may in fact be more effective in actively promoting pro-ecological behaviors than the perception of a clean, healthy, environment. In other word, people may be more motivated to *generate* behaviors that actively restore rather than actively preserve the quality of the environment.

Admittedly, more explicit settings may facilitate the impact of positive ecological priming on pro-environmental behavior. People explicitly reminded (or led to believe) that they stand high on ecological concerns may exhibit self-labeling effects. Pro-ecological self-labeling may in turn facilitate the emergence of consistent, pro-environmental, behaviors. Preliminary studies conducted in our laboratory however suggest that these self-labeling effects are more difficult to obtain than one would hope. In the meantime, and not unlike what has been found in the framing literature (Kahneman, Slovic, & Tversky, 1982), it may be more promising to adopt a strategy that capitalizes on people's motivation to avoid negative outcomes than on their enthusiasm to achieve positive state of affairs.

These studies suggest that social marketers and public governments may render their messages on ecology-promoting folders more efficient if they are cautious in the choices of the cues that are associated with the message on these folders (images, titles, etc.). Negative ecological cues may be more efficient in order to catch the readers' attention on the ecological message or recommendation. Moreover, when we look at the exponential growth of internet trade practices, the negative ecological dimension may be included in the backgrounds and pictures of sustainable brands website in order to promote ecological consumer choices. Recently, Mandel & Johnson (2002) have shown that pictures presented on the background of commercial webpages can implicitly influence consumer choices. Participants who had to choose a sofa selected a more comfortable sofa when they were previously confronted to a commercial webpage with a background containing clouds (i.e., activation of the concept of comfort). However, participants confronted to the same webpages with a background presenting coins (i.e., activation of price's concept) were more prone to select the cheapest sofa. In the same way, the selection of relevant backgrounds may favor ecological internet consumer patterns. These studies open new perspectives for social marketers and especially

provide insights in order to develop social neuromarketing techniques (i.e., based on implicit cognitive and brain processes).

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Attachment A

The Television Set Choice Matrix (*borrowed from Verplanken & Holland, 2002*)

Television	Screen quality	Screen quality in sun	Sound quality	Remote control	Ecological aspects	Prechoice facilities	Quality of the user's manual	Your choice
A	+	-	0	+	+	-	-	...
B	++	-	+	0	--	+	+	...
C	++	-	++	0	-	-	+	...
D	0	0	+	+	++	-	0	...
E	+	+	-	+	0	-	0	...
F	++	-	+	-	0	+	-	...
G	+	-	++	--	0	--	+	...
H	0	+	0	+	+	-	+	...
I	+	+	-	0	--	++	+	...
J	+	0	0	+	-	--	+	...
K	++	-	0	+	0	+	--	...
L	+	-	+	-	+	+	-	...
M	+	0	-	0	+	-	++	...
N	0	--	+	0	++	0	0	...
O	+	+	0	+	-	+	+	...
P	0	0	0	-	-	+	++	...
Q	+	0	++	+	--	+	++	...
R	+	--	0	0	++	--	-	...
S	+	0	+	0	--	+	-	...
T	0	0	+	-	++	0	--	...

Note. -- = very unfavorable ; - = unfavorable ; 0 = reasonable ; + = favorable ; ++ = very favorable.

Attachment B

List of ecological words primed in Experiments 2 & 3

Negative primes	Positive primes
Pollution (<i>pollution</i>)	To recycle (<i>recycler</i>)
Toxic (<i>toxique</i>)	Nature (<i>nature</i>)
Trash (<i>déchets</i>)	Respectful (<i>respectueux</i>)
Nuclear (<i>nucléaire</i>)	Thoughtful (<i>prévenant</i>)
To waste (<i>gaspiller</i>)	Ocean (<i>océan</i>)
Industrial (<i>industriel</i>)	Sorting (<i>tri</i>)
Smoke (<i>fumée</i>)	Conservation (<i>conservation</i>)
To destroy (<i>détruire</i>)	Ecological (<i>écologique</i>)
Car (<i>voiture</i>)	To preserve (<i>préserver</i>)
Dirty (<i>sale</i>)	Cleanness (<i>propreté</i>)
Monoxide (<i>monoxyde</i>)	To save (<i>sauvegarder</i>)
Rubbish (<i>détritus</i>)	Compost (<i>compost</i>)
To harm (<i>nuire</i>)	To protect (<i>protéger</i>)

Note. Participants were native French-speaking people. Original French primes are mentioned between brackets.

Doc 1.3.

Induced hypocrisy:

Making people aware of their own imperfections

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GENERAL INTRODUCTION

The Cognitive dissonance theory is a fundamental theory in social psychology (Festinger, 1957; Harmon-Jones & Mills, 1999). According to this theory, individuals experience an unpleasant psychological state (i.e., cognitive dissonance) when they perceive an inconsistency between two relevant cognitions, generally between their attitude and their behavior towards a given attitudinal object. In order to examine cognitive dissonance effects, experiments classically relied on forced compliance paradigm where participants were led to “freely” engage in counterattitudinal behaviors; that is, in behaviors that ran counter to their values and attitudes (Carlsmith, 1968; or *problematic behaviors*, Joule & Beauvois, 1998).

Because of this focus on problematic behaviors, the classical paradigm of cognitive dissonance generally dealt with the formation of problematic attitudes, such as making people enjoy an unpleasant task (Festinger & Carlsmith, 1959), an unpleasant food (Zimbardo et al., 1965), or an attitudinal object that is negatively valued in their social group (Scher & Cooper, 1989). In comparison, little research based on the CDT sought to strengthen positive attitudes or to promote pro-attitudinal behaviors in the individuals. During the past decade, Aronson & colleagues (Aronson, 1999; Aronson et al., 1991; Dickerson et al., 1992; Fried, 1998; Fried & Aronson, 1995; Stone et al., 1994; Stone et al., 1997) addressed this issue in the context of new paradigm: the Induced Hypocrisy (IH) paradigm.

Aronson & colleagues observed that individuals often hold positive attitudes (e.g., value sustainable behaviors) but fail to behave in agreement with them (e.g., exceed speed limits when driving back from a meeting of the Green party). On the basis of the CDT principles and of Self-Consistency theories (Aronson, 1968, 1999), these authors proposed that rendering salient these inconsistencies in the individual may motivate them to re-adjust their behavior in line with their attitude. This reformulation of the cognitive dissonance paradigm allowed researchers to exploit dissonance principles that were difficult to apply in social marketing settings, in which ‘good’ behaviors are often more difficult to create than ‘good’ attitudes.

The IH paradigm relies on a two-stages procedure. In a first, *public commitment*, stage participants are asked to make public statements (e.g., signing a petition) that are supportive of the attitudinal object under study (e.g., they have to make public statements about the importance of using condoms). In a second, *mindfulness*, stage they are rendered mindful of their own behavioral transgressions of their attitudes (e.g., they have to recall instances of behaviors in which they did not use condoms whereas they should have). People facing such inconsistencies realize that they do not behave in agreement with what they preach for others. This unpleasant psychological state (Fried & Aronson, 1995) can motivate them to restore a more positive and coherent self-conception (Aronson, 1968, 1999; Thibodeau & Aronson, 1992) by complying with a subsequent request that supports the attitudinal object.

The IH paradigm has been successfully applied to various domains of public interest where good behaviors are often less easy to obtain than good attitudes: water consumption (Dickerson et al., 1992), recycling (Fried & Aronson, 1995), condom use (Stone et al., 1994; Stone et al., 1997), road safety (Fointiat, 2004), help to homeless people (Stone et al., 1997). Despite the seducing aspect of the reasoning that underlies the IH research and the practical significance of this paradigm, several points remain unclear that were addressed in our research.

First, several authors observed that slight variations in the original IH paradigm can have disastrous behavioral consequences. For instance, Fried (1998) showed that identifying people publicly with their transgressions can inhibit any positive impact of IH on behaviors.

In our review of the IH literature, we identified several factors that need to receive further empirical attention, among which *self-(re)affirmation opportunities* and *social support information*. These variables will be described later on and were examined in Study 1A and 1B that are reported here.

Second, no research was designed to apply the IH paradigm to consumers' settings. This issue was tackled in Study 1B and 1C, which provide information about the possibilities to implement induced hypocrisy in large scale ecology-related sensitization campaigns.

Third, we examined the behavioral effects of induced hypocrisy in a door-in-the-face context (DITF, making an excessive request before introducing a target request; Cialdini et al., 1975). Study 2B was designed to examine the added value of combining several influence techniques in a one-to-one marketing context in order to promote compliance with an ecology-related request.

Fourth, in Study 2A we investigated the emotional consequences of induced hypocrisy. Fried & Aronson (1995) proposed that induced hypocrisy generates an unpleasant psychological state. However, no prior research explored the emotional components of this state. Study 2A provides information about the specific emotions and feelings aroused by IH.

1.3.1. EXAMINING THE BOUNDARY CONDITIONS OF INDUCED HYPOCRISY EFFECTS AND APPLYING THIS PARADIGM TO MARKETING COMMUNICATIONS.

Introduction

On the detrimental impact of Self-(re)affirmation.

People who experience hypocrisy feelings can use direct dissonance reduction strategies for reducing this negative state, among which changing their behavior. However, people can also reduce their dissonance by using indirect dissonance reduction strategies. For instance, they can reaffirm the positivity of their self on dimensions that are unrelated to their experience of dissonance. Based on this reasoning, several authors proposed that self-affirmation opportunities may interfere with the positive effects of IH. Specifically, people experiencing a negative self state due to hypocrisy induction may restore the positivity of their self by engaging in positive behaviors that are conceptually unrelated to their experience of hypocrisy.

Stone et al. (1997) induced - or not (control condition) - hypocrisy feelings towards condom use in their young participants (see also Stone et al., 1994). Young people generally hold a positive attitude towards condom use even though they would readily agree that they may not systematically use them, for instance in circumstances involving alcohol, embarrassment, or strong sexual arousal. Stone et al. (1997) made this contradiction salient in their participants by relying on a commitment/mindfulness procedure. Depending on conditions, participants were then offered a possibility to reduce their dissonance by complying with a related request (i.e., to give money to support the fight against AIDS) or to an unrelated request (i.e., to donate money for homeless people). Results showed that participants experiencing hypocrisy preferred to comply with the direct than to the indirect request. Interestingly too, this study further showed that participants experiencing hypocrisy complied more to the unrelated request when this self-(re)affirmation strategy was the only one that was available to them.

Stone et al. (1997) concluded from these findings that individuals who can choose between indirect and direct modes to decrease hypocrisy feelings give preference to the direct one. They also assumed, but did not show, that participants may seek to reduce their dissonance feeling by engaging in a self-(re)affirmation behavior that is unrelated to the hypocrisy induction. In order to provide more direct evidence for the latter claim (i.e., self-(re)affirmation may inhibit the positive effects of IH), it would be necessary to show that people comply less with a dissonance-related request after they have positively responded to a dissonance-unrelated request that allows them to re-affirm the positivity of their self. This assumption, which is central to the induced-hypocrisy framework, was examined in Study 1A.

Generalizing IH effects to private commitment situations.

In the past IH research, the experimental procedures were systematically based on *public* commitment tasks (e.g., supporting an attitudinal object in front of a TV camera; Stone et al., 1994; signing a petition poster; Dickerson et al., 1992). No research questioned this public aspect of the initial pro-attitudinal commitment. However, although public acts are more prone to commit individuals, public actions are not a *necessary condition* for eliciting commitment (Kiesler, 1971; see also Joule & Beauvois, 1998).

Recent data reported by McKimmie et al. (2003) support the latter statement. These authors showed that simply asking people to anonymously express their positive attitude (towards generosity) on a questionnaire can serve as a commitment base for hypocrisy induction. Expressing positive attitudes towards socially acceptable and desirable objects may motivate people to respect this attitude. People who are confronted with a subsequent mindfulness task are more prone to feel inconsistency and discomfort than controls (McKimmie et al., 2003).

Thus, the initial behavior does not need to be publicly expressed in order to elicit commitment feelings (see also Harmon-Jones et al., 2003, for data supporting the same idea). This is an important issue when it comes to applying IH principles to real-life settings, where public commitment is heavy to implement in large scale sensitization campaigns that rely on the mass-media. In Studies 1B and 1C below, we examined the possibility of inducing hypocrisy in participants via a lighter, private commitment, procedure.

Relying on social support information for enhancing the positive impact of IH.

Although Festinger (1957) usually considered dissonance as an intraindividual process, he suggested in the last chapters of his book that dissonance may be generated through interpersonal processes:

"The larger the number of people that one knows already agree with a given opinion which he holds, the less will be the magnitude of dissonance introduced by some other person's expression of disagreement. Since knowing that someone else holds the same opinion is consonant with holding that opinion oneself, the more people who agree with an opinion, the more cognitive elements there are which are consonant with the cognition corresponding to that opinion. If, then one member in a group disagrees with a person's opinion while there are several who agree, the magnitude of the total dissonance created for the person will be less than if only the disagreement existed." (p. 179)

Thus, when individuals perceive that their behavior is disapproved by significant others in their social groups, cognitive dissonance is more likely to emerge (see Matz & Wood, 2005,

for empirical data supporting this assumption). Stone & Cooper (2001, 2003; Cooper & Fazio, 1984) similarly suggested that people can feel dissonance when they realize that they behave in contradiction with normative standards. Consistent with this idea, McKimmie et al. (2003) induced hypocrisy towards generosity in their participants and manipulated the (fake) social support information communicated to the participants: some participants received high social support information (suggesting that other students in the university act as negatively as they do) while the other received low social support information (suggesting that most of the students in the university act better than they do). As predicted, positive attitude changes was obtained to a larger extent in the *low* support condition.

To our knowledge, however, no prior study examined the *behavioral* consequences of social support in the IH literature. Past research shows that norms can serve as good personal justifications to explain overconsumption and littering behaviors (Cialdini et al., 1990). In this perspective, individuals in an IH condition may use the norm to rationalize their own inconsistencies and decrease their perceived discomfort. Individuals may thus use normative information to justify their irresponsible behaviors. This possibility was examined in Study 1B below.

STUDY 1A

Stone et al. (1997) showed that people in whom hypocrisy is induced prefer to restore their positive self-concept by adjusting their behaviors to their attitudes rather than by engaging in indirect self-(re)affirmation strategies. These authors also showed that people experiencing IH do engage in self-(re)affirmation when this dissonance reduction mode is the only one that is available to them. Finally, it was assumed but not showed in the past IH research that self-(re)affirmation can inhibit the positive behavioral impact of IH procedures. We examined this possibility in the first study. Specifically, we manipulated hypocrisy (presence vs. absence) and self-affirmation opportunities (presence vs. absence). Next, participants were confronted with a direct request associated with the initial attitudinal object (i.e., water preservation). We expected hypocrisy to increase compliance with the request but only for participants who had no self-(re)affirmation opportunities available to them.

Method

Participants and design

94 participants (all first-year students at the Université catholique de Louvain) took part to this study for course credits. They were randomly assigned to one among 4 conditions in a 2 (Hypocrisy: presence vs. absence) by 2 (Self-affirmation: presence vs. absence) full factorial design.

Procedure

Hypocrisy induction. At their arrival at the lab, participants in the hypocrisy condition were invited to complete a public commitment task: they had the opportunity to contribute to the conception of a sensitization folder promoting water preservation in students. Instructions stressed the importance of water conservation and highlighted the freedom of the participants to accept or decline to participate (course credits were said to be given to them independent

of their decision)¹². Then, participants were invited to write a short text supporting water preservation and to sign their essay. The experimenter also took a digital photo of the participants in order to "identify the author with his/her text". Next to this commitment task, participants were invited to complete a second, allegedly independent, task (mindfulness). More precisely, the participants were asked to remember two water wasting behaviors they produced in the last weeks and months. This task was designed to stress the contradiction between the positive commitment and the personal behaviors. This procedure was expected to raise hypocrisy feelings in the participants.

Self affirmation. After the hypocrisy induction, the experimenter gave up the room "for a few minutes" (for participants who were in the self-affirmation condition only). During this time, a confederate of the experimenter knocked at the door, entered the room and presented herself as a student who was collecting money in order to support a condoms promotion campaign on the campus. She explained that the administration was seeking to control sexual diseases by implementing automatic condom distributors on the campus and was raising money to that aim. Then she presented a donation list and invited participants to freely fill it and give money¹³. The confederate then thanked the participants and left the room.

Target request. Once the experimenter was back in the room, participants were asked to read a (fake) letter issues by a non-profit ecological association that was allegedly trying to implement a longitudinal study on water consumption. The letter invited the participants to take part in this study for a number of weeks ranging from 0 to 10 weeks. The letter explained that their participation in this study would require them to complete a daily questionnaire about water consumption at home.

All participants were confronted to the target request, either directly (full control condition: absence of hypocrisy; absence of self affirmation), or directly after the hypocrisy procedure (presence of hypocrisy, absence of self affirmation), or directly after the self affirmation request (absence of hypocrisy, presence of self affirmation), or directly after the self affirmation request subsequent to the hypocrisy induction (presence of hypocrisy, presence of self affirmation).

Results and discussion

A 2 by 2 ANOVA was run on the acceptance scores of the target request (i.e., number of weeks of participation accepted by the participants) with Hypocrisy and Self Affirmation (SA) as between-participants factors (Figure 1)¹⁴. Results revealed a (marginally) significant effect of Hypocrisy, ($F(1, 89) = 3.72, p < .06$), with *lower* acceptance scores when hypocrisy was induced ($M = 1.36, SD = 1.57$) than when it was not ($M = 2.11, SD = 1.77$). A significant interaction between Hypocrisy and SA was also found, ($F(1, 89) = 4.58, p < .04$). Hypocrisy induction ($M = 1.08, SD = 1.32$) led to lower acceptance scores than no Hypocrisy induction ($M = 2.48, SD = 1.91$), ($t(49) = 3.01, p < .005$) in the absence of SA only. When SA is present, the difference between the Hypocrisy conditions is not significant, $t < 1$.

Looking at the pattern of means (see Figure 1), it is clear that both the hypocrisy and the self-affirmation manipulations had a detrimental impact on acceptance scores, as compliance to the request was highest in the full-control condition where neither hypocrisy

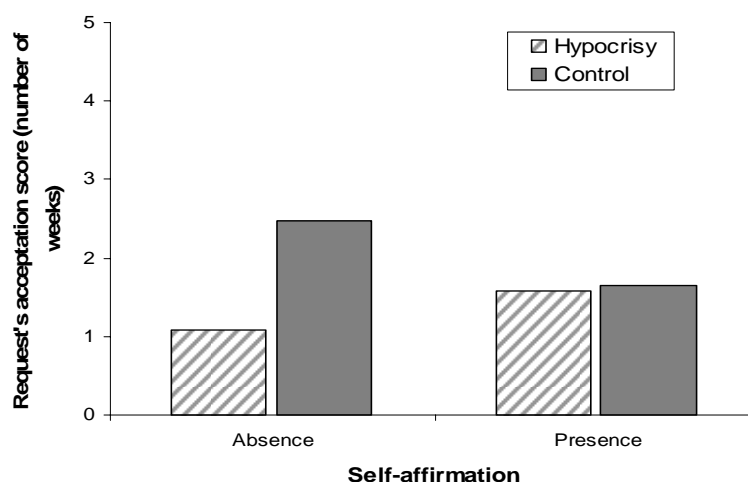
¹² No participant refused to complete this task.

¹³ Among the 42 Ps in self affirmation condition, 30 Ps provided money directly to the confederate. The 12 remaining Ps did not have any money in their pocket and asked the experimenter to contact them later.

¹⁴ One Ps was rejected from the analyses as outlier ($score > 3*SD$).

nor self-affirmation were induced. It is not so surprising that self-affirmation decreased compliance to the target request. Indeed, by complying with the condom promotion campaign, participants may have affirmed the positivity of their self, thereby experiencing less urgency to comply with the subsequent water preservation request. What is most surprising, however, is the detrimental impact that hypocrisy induction (in the absence of self-affirmation) had on participants' compliance to the target request. Clearly, this finding totally contradicts assumptions made in the IH research.

Figure 1. Mean acceptance scores of the request depending on the presence/absence of hypocrisy induction and the presence/absence of self-affirmation.



One possibility why IH reduced request compliance in the present study is that participants ended up considering as *normative* (i.e., commonly observed in their social environment) the personal instances of wasting behaviors they reported in the mindfulness task. More precisely, participants in the hypocrisy condition may have overestimated the prevalence of their negative behaviors in the student population in order to minimize the subjective responsibility of their acts. Consistent with this idea, Sutton & Bolling (2003) observed that smokers are more prone to overestimate the prevalence of smokers than non-smoker participants. According to these authors, this overestimation makes it possible for smokers to rationalize their smoking behavior. Similarly, hypocrisy induction may have led people to overestimate the prevalence of wasting practices in order to protect their positive self-concept.

A post-test study examined this idea. 18 participants were asked to complete the mindfulness task as in Study 1 (i.e., recalling two negative water wasting behaviors). Next, they were invited to evaluate the importance of these behaviors on a 7-points Likert-type scale (from 1 = not at all to 7 = extremely). Finally they were asked to estimate the percentage of people in the general population that they think produce similar behaviors (i.e., perceived norm). Data reveal that the reported negative behaviors are seen as only moderately serious ($M = 4.17$, $SD = 1.25$) and clearly normative ($M = 75\%$, $SD = 11.50$). However, we would need to compare perceived norms of participants in the presence versus absence of hypocrisy induction in order to examine whether hypocrisy induction can lead to overestimating the norms supportive of personal negative actions. This question was examined in Study 1B, which also ambitioned to apply the IH paradigm to private commitment situations.

STUDY 1B

In Study 1B, we attempted to design a social marketing communication based on the IH paradigm. We examined the impact of an IH procedure based on an initial *private* and *anonymous* commitment associated with ecological waste management. We predicted that hypocrisy effects may be observed in the absence of public commitment (Dickerson et al., 1992; Harmon-Jones et al., 2003; McKimmie et al., 2003). Hypocrisy was induced by having participants read anonymously a message that was intended to make salient their positive attitude towards a socially desirable object (i.e., ecological consumption), before confronting them to their past behavioral transgressions of this attitude. The present study also examined the moderating role of perceived norms (i.e., social support) on hypocrisy effects. In agreement with Festinger (1957; see also Matz & Wood, 2005; McKimmie et al., 2003), we expected participants in hypocrisy conditions who receive high (vs. low) social support information to feel less (vs. more) hypocritical.

Method

Participants and design

117 participants (all last year's highschool students at the *Collège Notre-Dame de Basse-Wavre*, Belgium) took part in this study in five group sessions. They were randomly assigned to one among 4 conditions (Control vs. Standard hypocrisy vs. Hypocrisy & High social support vs. Hypocrisy & Low social support).

Procedure

Hypocrisy induction. After being introduced to the students by the professor, the experimenter provided a folder to each participant of the group session. This folder included an advertisement sheet that participants were invited to read. This advertisement sheet was dealing with sustainable waste management and the information displayed on it varied across conditions. Participants in both the hypocrisy and control conditions read a first message about ecological waste management ("*A world without waste we'd like that! And you?*"). This message stressed the positive attitude of the participants towards ecological consumer practices as we suspected that all participants would implicitly respond 'Yes, I would too' to such message (i.e., private Commitment). Participants in the hypocrisy induction conditions then read a second message aimed at making them mindful of their personal transgressions of recycling behaviors ("*Do you occasionally...- use not reusable packages to preserve food - use not recycled paper even when it is not appropriate - use paper handkerchiefs and towels rather than textile ones*"). These behaviors were preselected in order to ensure that most participants would implicitly respond 'Yes' to these behavioral instances.

Social support. Next to the IH manipulation, the social support information was manipulated. Participants in the *high support* condition read that most students perform the three negative non-recycling behaviors (87%, 92%, and 82%). Participants in the *low support* condition were led to believe that only a minority of students perform these behaviors (17%, 22%, and 12%). High support was expected to reassure participants about themselves and reduce hypocrisy feelings. Low support was expected to amplify participants' discomfort and motivate them to decrease this negative state by complying more to a subsequent target request (Festinger, 1957; Matz & Wood, 2005; McKimmie et al., 2003).

Target request. Next the IH and social support manipulations, participants were asked to read a letter introducing the target request about sustainable wastes management. As in Study 1A, the letter invited the participants to take part in a longitudinal study for a number of weeks ranging from 0 to 10.

Other measures. After they had responded to the target request, the experimenter distributed a last questionnaire to the participants. This questionnaire was designed to examine the emergence of hypocrisy feelings in the participants, the report the social support information presented in the advertisement sheet, and to estimate the gravity of these acts, and to estimate the prevalence of these acts.

Hypocrisy perception. Two questions evaluated the hypocrisy feelings experienced by the participants (1) "When I read the advertisement sheet, I felt that some of my inappropriate behaviors were rendered salient", (2) "I realized that I do not always behave in the way I want to do in the management of my wastes". These questions were answered on a 7-points likert-type scale (from 1 = not at all to 7 = totally):

Occurrence of negative acts. Three questions were presented in order to check whether participants produce the three negative behaviors that were mentioned in the advertisement sheet for inducing mindfulness.

Perceived gravity of the negative acts. Participants indicated the extent to which they deemed these behaviors important (from 1 = not important at all to 7 = very important).

Prevalence of the negative acts. Participants were asked to report the social support information presented in the advertisement sheet (in percent, from 0 to 100).

Recognition task. Participants were asked to indicate which advertisement sheets they had previously received among three distracters.

Results

One participant was removed from the analyses because he did not recognize the assigned advertisement correctly. One additional individual was rejected from the sample because he did not respect the instructions during the study. Analyses were computed on a total of 115 participants.

Hypocrisy perception, importance of acts & prevalence estimates

The average scores of the different conditions for these measures are presented in Table 1. These scores were analyzed in the context of an ANOVA with the *Advertisement sheet* as the between-subjects independent variable.

Table 1. Means of posttest measures depending on experimental conditions.

Advertisement sheet	Measures		
	Hypocrisy perception	Importance of acts	Prevalence estimate
Hypocrisy – High support	$M = 4.57$ $SD = 1.56$	$M = 4.04$ $SD = 1.23$	$M = 83.88$ $SD = 6.11$
Hypocrisy – Low support	$M = 3.89$ $SD = 1.11$	$M = 3.74$ $SD = 1.26$	$M = 59.56$ $SD = 22.99$
Standard hypocrisy	$M = 4.14$ $SD = 1.74$	$M = 4.14$ $SD = 1.43$	$M = 81.59$ $SD = 8.88$
Control	$M = 2.83$ $SD = 1.28$	$M = 4.06$ $SD = 1.39$	$M = 76.74$ $SD = 14.05$
Total	$M = 3.84$ $SD = 1.57$	$M = 4.00$ $SD = 1.32$	$M = 75.41$ $SD = 17.16$

Hypocrisy perception. Responses to the two items measuring hypocrisy perception were aggregated into an average index ($r = .64, p < .001$)¹⁵. This index was sensitive to the Advertisement factor, ($F(3, 110) = 7.667, p < .001$). A contrast analysis further revealed that hypocrisy perception was lower for participants in the control condition than in the three hypocrisy conditions, ($t(110) = 4.44, p < .001$). Participants in the standard hypocrisy condition ($M = 4.14, SD = 1.74$) perceived more hypocrisy than controls ($M = 2.83, SD = 1.28$), ($t(57) = 3.29, p < .005$). Participants in the standard hypocrisy condition reported experiencing the same level of hypocrisy than participants in the social support conditions (high support, $M = 4.57, SD = 1.58$, vs. low support, $M = 3.89, SD = 1.11$), (t 's < 1). In contradiction with our hypothesis, participants in the high support condition experienced marginally more hypocrisy than participants in the low support condition, ($t(53) = 1.87, p < .07$).

Occurrence of negative behaviors. Most participants confessed producing the negative actions presented in the advertisement sheet. 86.1% of the participants reported using sometimes non-reusable packages, 82.6% reported using not-recycled paper when it is not justified, and 90.4% reported using paper handkerchiefs and towels. All participants admitted that they produce at least one of the presented behaviors ($M = 2.59, SD = 0.66$).

Perceived importance of negative behaviors. Advertisement had no impact on the perceived importance of the negative actions (see means in Table 1), ($F(3, 111) = 0.47, p > .70$). These behaviors are perceived as moderately important ($M = 4.00, SD = 1.32$).

Prevalence estimates. Advertisement had a significant effect on the estimates of social support towards negative acts, ($F(3, 107) = 15.34, p < .001$)¹⁶. Participants in the low support condition reported a lower prevalence of the negative behaviors ($M = 59.56, SD = 22.99$) than participants in the high support ($M = 83.88, SD = 6.11$), standard hypocrisy ($M = 81.59, SD = 8.88$) and control ($M = 76.74, SD = 14.05$) conditions. Participants in the standard hypocrisy condition tended to perceive a higher prevalence of these behaviors than the controls, ($t(56) = 1.54, p < .065, one-tailed$). Participants in the high support condition reported a higher

¹⁵ One Ps was removed from the sample as outlier (score $> 2*SD$)

¹⁶ Four Ps were removed from the analyses for this measure because they were outliers (scores $> 2*SD$)

prevalence than controls, ($t(55) = 2.41, p < .025$). The standard hypocrisy and the high support conditions did not differ from each other, ($t(51) = 1.09, p > .25$).

It is important to note that participants in the low support condition reported a much higher prevalence of negative behaviors than the 17% value that was mentioned in the advertisement sheet, ($t(26) = 9.62, p < .001$).

Acceptation of the target request

Acceptation scores were analyzed with a non-parametric *Kruskal-Wallis* procedure with Advertisement condition as the between-subjects factor. 84 participants (73.04% of the sample) rejected the request. Only 31 participants presented a score different from zero. Data were analyzed on the base of mean ranks for the different conditions. No effect emerges from this analysis, ($\chi^2(3) = 3.05, p > .35$). Thus, the advertisement had no effect on the request acceptance scores.

Discussion

The hypocrisy measures indicate that our private commitment procedure was effective in eliciting feelings of hypocrisy in the participants. This is an important finding as past IH research assumed that public commitment is necessary for inducing hypocrisy feelings, thereby compromising the usefulness of this paradigm for large-scale communication campaigns. Unfortunately, the IH procedure again failed to produce any positive behavioral impact. Thus, this study raises new doubts regarding the utility of this paradigm. One possibility however is that group sessions used for this study contributed to dilution of responsibility effects (Freeman, Walker, Bordon, & Latané, 1975; Latané & Darley, 1970). In other words, the salience of the group situation may have disengaged the participants from their individual responsibility.

Results obtained for the social support manipulation are disappointing as well. High support information did not elicit lower hypocrisy feeling in participants. On the contrary, data reveals that participants in the high support condition experienced more hypocrisy than those in the low support condition. This finding is unexpected and difficult to interpret according to the previous literature about group-based dissonance (Festinger, 1957; Matz & Wood, 2005; McKimmie et al., 2003). Two explanations seem plausible to interpret this finding. First, participants in the low support condition may have considered the bogus statistics as non-reliable. More precisely, they may have considered that the respondents on whom these statistics were collected simply did not dare to confess their negative behaviors. As a second possible explanation, participants in the high support condition may have been 'scared' by the statistics. Realizing that they are members of an irresponsible majority, they would experience greater hypocrisy feelings after preaching to others behaviors that are not normative and that they do not personally perform. Future research would be welcome that further examines these conjectures.

Finally, the findings obtained on the prevalence estimates measure reveal that participants in the low support condition strongly overestimated the prevalence of the negative behaviors when asked to report these statistics. This is consistent with the hypothesis, suggested in Study 1A, that participants who experience hypocrisy may overestimate the prevalence of their bad behaviors in the population, in order to reduce their psychological discomfort (i.e., I do produce these behaviors, but so do my friends and

relatives). Needless to say, this rationalization process would hardly contribute to the positive impact of IH on behaviors.

STUDY 1C¹⁷

When we examine the behavioral measures used in the Studies 1A and 1B some problems seem to emerge. It is possible that compliance to the target request did not provide a useful mean to reduce hypocrisy. More important, this request was possibly too heavy because participation to a longitudinal study on sustainable behavior may be seen as a risk of confirming negative actions in the future (e.g., continuous use of paper handkerchiefs and not-recycle paper) rather than as opportunity of restoring a positive self-concept. Study 1C was designed so as to overcome the latter problem by examining *direct* consumer choices. Study 1C also sought to implement the IH paradigm in a real consumer setting (i.e., supermarket).

As in Study 1B, we used a hypocrisy procedure adapted in a promotion folder that made salient positive attitudes towards ecological consumption (i.e., private commitment). As they entered the supermarket, consumers were given a reduction coupon and were asked to read an information folder before going shopping. The coupon code allowed us to examine the purchases made by the consumers in the different conditions. We expected IH folders to promote ecological consumer choices.

Method

Participants and design

345 participants (279 Women and 66 Men aged from 18 to 81, $M_{age} = 47.54$, $Mode_{age} = 48$) took part in this study for a 2€ reduction coupon. Participants were randomly assigned to one among 3 advertisement folder conditions (Control vs. Hypocrisy vs. Information).

Procedure

Sensitization folder, biographical questionnaire and memory task

As they entered the supermarket, participants were individually¹⁸ approached by the experimenter. They were invited to complete a 5-minutes study in exchange for a 2€ reduction coupon valid on the current day only. Participants in the hypocrisy and classic information conditions were invited to read a sensitization folder about ecological waste prevention. Participants in the hypocrisy condition were first presented with a folder containing a private commitment message ("*A world without waste we'd like that! And you?*"). Next, they were rendered mindful of the contradiction between this positive attitude and their actual consumer behaviors ("*Do you sometimes... - use plastic bottles instead of returnable bottles? - repeat the purchase of a product even if refill solutions are available? - buy products in individual packages instead of large sized packages? - buy already packed products even if they are available in bulk?*"). According to the IH literature and to Study 2, this procedure was

¹⁷ This study was realized in the *Champion* supermarket in Gozée (Belgium) in collaboration with Xavier Sohet, Jean-Marie Savino and Sabine Vigneron (Espace-Environnement Charleroi asbl). We thank John & Eric Mestdagh (Managers of Champion's stores and brand) and Mr Bruno (manager of the local supermarket in Gozée) for their help in the implementation of this study. We also thank Frédéric Bossu (undergraduate student under the supervision of Arnaud Liégeois) for his help in the conception of this study and the data collection in the supermarket.

¹⁸ We decided to approach only single consumers or consumers in pairs (2 adults or one adult with one child). For the couples, the experimenter asked to the person in charge of purchases at home to complete the questionnaire alone. Only consumers with caddies and baskets were approached in order to avoid consumers who would stop by the supermarket to buy only one or two items.

expected to induce hypocrisy. Participants in the classic information condition were confronted with a folder that stressed the individual benefits of ecological waste practices (i.e., argumentation). This information is classically used by Espace-Environnement in their sensitization folders. This was done in order to compare the relative added value of hypocrisy message compared to a traditional argumentative approach.

Next, participants in both conditions were confronted to the same information on the verso of the folder. This page included advices to consume more ecologically (these recommendations were about returnable bottles, refill solutions, large conditioning, and products sold in bulk). Next, they were asked to complete a first questionnaire about biographical data (age, gender, education, civil status, professional status, number of children, frequencies of visits in the supermarket, etc.). Participants in the control condition completed only this demographic questionnaire and did not receive any information about ecological consumption.

After the completion of the questionnaire, participants in the hypocrisy and the classic information conditions were invited to complete a cued recall task. More precisely, they were presented with the folder they had received before. However, five words were removed and participants were asked to recall the missing words. This task ensured that the cover was correctly read and reactivated the message in the participants' minds. Next, participants were thanked and they received the reduction coupon. They were also informed that some products would be identified as environment-friendly in the shelves by blue stickers (see Figure 2). The experimenter stressed that the coupon would remain valid on the current day only.

Figure 2. Example of blue sticker used to label the ecological products (e.g., large packages). These stickers were surrounding the price information (high visibility).



Measure of consumer choices

When participants paid their purchases in the pay-desk, they gave the coupon to the cashiers. When they received this coupon, cashiers knew that the customer was participating in the study. The cashiers then printed out a duplicate of the ticket in order to provide it later on to the experimenter. The cashiers also gave a debriefing sheet to the customers. This page contained information about the study and let them an opportunity to get back to the duplicate of their ticket should they disagree to make this information available to the researchers.

Three barcodes were associated with the three advertisement conditions on the coupons. When these coupons were scanned by the cashiers, they were labeled differently on

the printed purchases tickets. We also obtained the ticket number reference. This reference was used in order to identify the purchases of the participants.

Results

From the gathered tickets (provided in xml-format files for 333 Ps who present their coupons to the cashiers¹⁹), purchases were classified as ecological according to the list of labeled products. We were so able to calculate the proportion of ecological products selected by the participants. Moreover we calculated scores on the proportion of money dedicated to ecological products. These scores were analyzed in the context of an ANOVA with the *Sensitization folder* as the between-subjects independent variable.

Data for proportions of ecological products and amount of money dedicated to ecological products did not reveal any significant effect. Means for these proportions can be found in the Table 2.

Table 2. Means for the proportion scores (for the relative number of products chosen and money dedicated to these products) concerning ecological products depending on the condition.

Sensitization folder	Proportion scores (%)	
	Number of ecological products	Money dedicated to ecological products
Control	$M = 6.57$ $SD = 9.36$	$M = 8.26$ $SD = 15.96$
Classic information	$M = 5.90$ $SD = 9.98$	$M = 5.64$ $SD = 15.06$
Hypocrisy	$M = 6.08$ $SD = 9.84$	$M = 8.01$ $SD = 33.54$
Total	$M = 6.18$ $SD = 9.70$	$M = 73.19$ $SD = 22.97$

Discussion

According to this absence of significant effect, we cannot conclude anything about the behavioral effects of the sensitization folders. We might argue that simply add a label on the products displayed in the shelves is sufficient to favor ecological choices and that sensitization folder does not have any added value on the ecological value of the purchases. However, this idea requires comparing consumer choices in a condition labeled shelves with a non-labeled shelves condition.

¹⁹ Moreover, 2 Ps were removed from the analyses because no purchase was recorded for them.

1.3.2. SAYING ONE THING AND DOING ANOTHER: ON THE EMOTIONAL AND BEHAVIORAL CONSEQUENCES OF INDUCED HYPOCRISY

Introduction

The IH literature assumes that IH elicits negative self-views and arouses negative feelings. Surprisingly enough, however, only a few studies examined the emotional consequences of IH (Fried & Aronson, 1995; McKimmie et al., 2003). In a first study (2A), we assessed the consequences of hypocrisy on self-reported affective measures (*Dissonance Thermometer*; Elliot & Devine, 1994).

In a second Study (2B), we examined whether the combination of IH with a door-in-the face procedure increases the effectiveness of the door-in-the face technique (DITF; Cialdini et al., 1975). In a classical DITF procedure, individuals are invited to comply with an excessive request that they are most likely to reject. Next, a second lighter request (i.e., the target request) is introduced to the participants. Research on the DITF indicates that people are more likely to comply with the moderate target request after they have declined to comply with the first heavy one. For instance, Cialdini et al. (1975) showed that people are more likely to comply with the request of accompanying a mentally disabled person to a Museum (moderate target request) after they have been asked (and have declined) the request to take care of a mentally disabled person for two years on a weekly basis, compared to when directly asked to comply with the moderate request (50% versus 25% agreement).

These authors explain this DITF effect by the norm of reciprocity and the principle of contrast (see also Cialdini, 2001). According to the norm of reciprocity, when a person does a concession towards another individual, this individual needs to return something in exchange. Similarly, when refusing to comply with a given request, people feel like they should concede by agreeing on a subsequent request made by the same individual (e.g., if Paul agrees to come up with a lighter request, I should reciprocate by agreeing this time on his lighter request). Contrast is also involved in DITF effect: the lighter request seems more reasonable *in comparison to* the heavy one.

In Study 2B, we anticipated that hypocrisy feeling would be intense when participants just went through an IH procedure and are directly faced with a heavy request that they are reluctant to comply with. This may in turn increase their willingness to comply with the target request. Interestingly enough, hypocrisy feelings may also lead participants to comply with the initial (excessive) request, something they would hardly be willing to do in any other circumstances.

STUDY 2A

Study 2A examined the effects of induced hypocrisy on emotions and feelings. Participants were confronted or not to a IH procedure. Next, they were invited to complete a questionnaire measuring their feeling state (discomfort, negative feelings towards the Self, positive emotions; Elliot & Devine, 1994). We expected hypocrisy to generate discomfort, negative feelings towards the self-concept, and less positive emotions in the individuals.

Method

Participants and design

66 students at the Université catholique de Louvain took part in this experiment for courses credits. 7 participants were removed from this sample for different reasons (late arrival to the laboratory, suspicion, problems arising during the completion of the task, incomplete questionnaires). They were randomly assigned to one among 2 hypocrisy conditions (absence vs. presence).

Procedure

Hypocrisy induction. Upon their arrival at the lab, participants in the IH condition were invited to complete a public commitment task: they had the opportunity to contribute to the conception of a sensitization folder promoting ecological waste management in the student population. Instructions stressed the importance of waste management and highlighted the freedom of the participants to accept or decline to participate (course credits were said to be given to them independent of their decision)²⁰. Then, participants were invited to write a short text supporting ecological waste management and to sign their essay. Next to this commitment task, participants were invited to complete a second, allegedly unrelated task in which they were asked to recall two past wasting behaviors they produced during the last weeks and months (mindfulness). This task was designed to stress the contradiction between the positive commitment and the effective behaviors. This procedure was expected to raise hypocrisy feelings in the participants.

Emotions and feelings state. Once the hypocrisy induction procedure was complete, participants were invited to respond to a questionnaire assessing their emotions and feelings state; i.e., the Dissonance thermometer (Elliot & Devine, 1994). This questionnaire included 24 items concerning various feelings and emotions (e.g., angry towards myself, nervous, happy, etc.). Participants were asked to report the extent to which these emotions corresponded to their current state on 7-points likert-type scales (from 1 = not at all to 7 = totally).

Hypocrisy perception. Finally, participants were invited to answer two questions about their hypocrisy perception (see Study 1B) on 7-points likert-type scales. Participants were then debriefed and thanked.

Results and Discussion

Dissonance thermometer

Answers of 59 participants to the Dissonance thermometer (Elliot & Devine, 1994) were processed in a factorial analysis. Three factors emerged from this analysis: Discomfort (7 items, $\alpha_c = .89$; e.g., nervous, anxious, etc.), Negative self perception (Negself; 6 items, $\alpha_c = .86$; e.g., guilty, angry towards me, etc.), and Positive affects (5 items, $\alpha_c = .84$; e.g., happy, good, etc.). The items from each factor were averaged into composite scores of Discomfort, Negself, and Positive affect. 3 participants were removed from the analyses as outliers on these measures (scores $> 3*SD$). The remaining sample included 56 participants.

Next, we compared the composite emotion scores of the participants as a function of the experimental conditions (Hypocrisy vs. Control). These scores can be seen in the Table 3 below.

²⁰ No participant refused to complete this task.

Table 3. Average emotions and feelings (Discomfort, Negself, Positive) depending on hypocrisy presence or absence (control). Significant difference are marked.

	Discomfort	Negself	Positive
Hypocrisy	2.30 (1.05)	2.57 ** (1.20)	4.63 ** (.99)
Control	2.01 (.90)	1.37 (.38)	5.38 (.75)

Compared to controls, participants in hypocrisy condition reported feeling more negative towards themselves (Negself), ($t(54) = 4.87, p < .001$). They also reported less positive emotions (Positive), ($t(54) = 3.19, p < .005$). However, no significant difference was observed for discomfort, ($t(54) = 1.11, p > .25$).

Hypocrisy perception

Data for the 2 items on hypocrisy perception were also aggregated into an average index of hypocrisy perception ($r = .54, p < .001$). As hypothesized, data reveal that participants in hypocrisy condition ($M = 4.95, SD = 1.39$) perceive more hypocrisy than controls ($M = 4.02, SD = 1.42$), ($t(57) = 2.55, p < .015$).

This study shows that IH procedure does induce feeling of hypocrisy in the participants. More specifically, this procedure elicits negative feelings and negative self-views but may not elicit diffuse arousal states. However, according to the dissonance literature, self-reported measures are not optimal to assess the presence of physiological arousal and more direct measures may be useful to examine this question (e.g., skin conductance, blood pressure, etc.). These results provide original information regarding the conscious feelings elicited by IH. Future research should focus on the unconscious physiological reactions that are present when hypocrisy is induced.

STUDY 2B

In Study 2A, we designed a IH procedure that elicited negative affects and negative self-views in the participants, opening the door for effective behavioral changes. In Study 2B, we anticipated that participants experiencing IH and who are confronted with an excessive request would prove especially receptive to DITF effects (i.e., comply with a subsequent target request). Indeed, hypocrisy feelings should be very high for these participants as they just realized that they do not behave as positively as they think (and tell other) that they should. In Study 2B we used the same IH procedure as in Study 2A, and we crossed it with a DITF manipulation in which participants were asked to comply with a moderate request in the presence of an excessive prior request. We expected IH to increase compliance with the target request, and possibly with the initial request as well.

Method

Participants and design

116 first year's students at the Université catholique de Louvain took part in this study for course credits. 8 participants were removed from this sample for different reasons (late

arrival to the laboratory, suspicion, problems arising during the completion of the task, incomplete questionnaires). They were randomly assigned to one among two Hypocrisy conditions (absence vs. presence).

Procedure

Hypocrisy induction. The hypocrisy procedure was exactly the same as in Study 1. Participants in the IH condition were invited to write an essay about ecological waste management (public commitment) before being rendered mindful of their own wasting behaviors (mindfulness). Next, participants in the hypocrisy condition were introduced with the DITF procedure. Participants in the control condition were directly confronted to the DITF.

Door-In-The-Face. Participants were invited to comply with a first allegedly independent excessive request. They were given a promotion folder on ecological waste management and were asked if they would accept to distribute 800 folders in the street in order to inform the population about waste management. If participants refused (and we expected most participants to do so), they were asked if they would nevertheless agree to distribute a free number of folders in order to provide information in their social circles (target request). The number of folders they would accept to distribute informed us about their compliance to this second target request. Participants were then thanked and debriefed.

Results and Discussion

Different measures were analysed. First, we examined the frequencies of participants who accepted and refused the excessive request depending on the condition (Chi-squared analysis). Next, we focused on participants who rejected the first request and we repeated the same analysis on the second request. Finally, given the continuous aspects of the answers to the second request (free number of folders accepted), we were able to examine the number of folders that participants eventually agreed to distribute as a function of the experimental condition.

Acceptation of the excessive request. Data for this measure are reported in Table 4. Most participants rejected this first excessive request (80.6%). More interestingly, participants in hypocrisy condition (15.7%) accepted four times more often this request than controls (3.7%), ($\chi^2(1) = 8.84, p < .003$).

Table 4. Frequencies and percentage (between brackets) of participants who accept or refuse the excessive request depending on the hypocrisy presence vs. absence.

Condition	First excessive request		
	Rejected	Accepted	Total
Control	48 (44.4%)	4 (3.7%)	52 (48.1%)
Hypocrisy	39 (36.1%)	17 (15.7%)	56 (51.9%)
Total	87 (80.6%)	21 (19.4%)	N = 108 (100%)

Acceptation of the target request. Data for the remaining 87 participants who rejected the first request were analyzed in the same way for the acceptance of the target request. Only 3 participants (2 Ps in control condition and 1 Ps in hypocrisy condition) rejected this request. Acceptance/Rejection frequencies in hypocrisy condition and control condition do not differ from each other, ($\chi^2(1) = .17, p > .65$).

Commitment to the target request. The number of folders accepted by the 83 participants²¹ who rejected the first request were analyzed in a t-test in order to compare the two average numbers across conditions. Participants in the hypocrisy condition accepted to distribute twice as many folders ($M = 138.72, SD = 142.55$) than controls ($M = 72.27, SD = 50.53$), ($t(81) = 2.90, p < .005$).

These findings replicate the behavioral effect classically observed in the IH literature: hypocrisy induction increases compliance to a request. In our case, we have shown that participants in IH condition are four times more likely to accept an *excessive* and costly request than controls. Moreover, data for the second target request shows that IH *increased* participants' compliance to this second request. The combination of induced hypocrisy with DITF seems to be an efficient strategy to improve pro-environmental behaviors.

GENERAL DISCUSSION, CONCLUSION, AND RELEVANCE OF INDUCED HYPOCRISY FOR APPLIED MARKETING RESEARCH.

The studies presented in the doc 1.3 were designed to answer several questions on Induced Hypocrisy. The IH paradigm relies on a two-stages procedure. In a first stage (*public commitment*), participants are invited to make public statements (e.g., signing a petition) that are supportive of the attitudinal object under study (e.g., they have to make public statements about the importance of recycling). In a second stage (*mindfulness*), they are rendered mindful of their own behavioral transgressions of their attitudes (e.g., they have to recall instances of behaviors in which they did not recycle whereas they should have). People facing such inconsistencies realize that they do not behave in agreement with what they preach for others. This unpleasant psychological state can motivate them to restore a more positive and coherent self-conception by complying with a subsequent request that supports the attitudinal object. We examined the relevance of this paradigm for marketing environment-friendly behaviors. These questions and the related empirical answers are listed below.

1. Does Induced Hypocrisy represent an effective tool to promote proecological behaviors?

Previous literature on IH suggests that inducing hypocrisy is an effective procedure to promote responsible behaviors in various domains of public interest (in which good behaviors are often less easy to obtain than good attitudes): condom use (Stone et al., 1994, 1997), water preservation (Dickerson et al., 1992), road safety (Fointiat, 2004), recycling (Fried & Aronson, 1995), help to homeless people (Stone et al., 1997).

Classically, IH is *assumed* to raise negative feelings in individuals who are confronted to an IH procedure. However, no research was done in order to examine the feeling components that are raised by IH. Data from Study 2A revealed that IH generates negative feelings that the participants are motivated to decrease. More precisely, participants confronted to IH reported a more negative self-perception (e.g., guilt) and less positive

²¹ 4 Ps were removed from the analyses as outliers (scores > 3*SD)

feelings (e.g., happy) than controls. These results support the idea that IH is effective to generate negative feelings.

Moreover, data from Study 2B showed that people who experience hypocrisy comply more with a request (i.e., ecology-related behavior) that allow them to reaffirm their positive attitude in order to reduce the unpleasant feeling state. Participants were confronted or not to an IH procedure. Next, they were invited to comply with an excessive ecology-related request (mostly rejected) before being faced with a more reasonable request (i.e., door-in-the-face procedure, Cialdini et al., 1975). Data showed that participants in IH condition are four times more likely to accept an *excessive* and costly request than controls. Moreover, data for the second target request shows that IH *increased* participants' compliance to this second request. The combination of induced hypocrisy with door-in-the-face seems to be an efficient strategy to improve pro-environmental behaviors. These data suggest support the idea that IH is an effective tool to promote ecological practices. This study also propose a new compliance technique that combine IH and door-in-the-face procedures.

However, previous studies (Fried, 1998) and the present Study 1A suggest that we have to be cautious when we try to conclude about the effectiveness of IH. As Fried (1998) suggests, slight changes in the original procedure can have unexpected negative effects on the behavior to promote. In Study 1A, data revealed a negative effect of IH on compliance levels with an environment-related behavior. In order to ensure positive effects of IH, it seems that behaviors to promote need to be unambiguously perceived as opportunities to reaffirm the positive attitude towards the desirable object.

2. Is Induced Hypocrisy applicable to private situations?

In previous IH research, the procedures are typically based on *public* commitment tasks (e.g., supporting an attitudinal object in front of a TV camera, signing a petition poster). Although public acts are more prone to induce commitment, public actions are not a *necessary condition* for eliciting commitment (Kiesler, 1971; see also Joule & Beauvois, 1998). Recent data reported by McKimmie et al. (2003) support the latter statement. These authors showed that simply asking people to anonymously express their positive attitude on a questionnaire can serve as a commitment base for hypocrisy induction. Expressing positive attitudes towards socially acceptable and desirable objects may motivate people to act upon that attitude. People who are confronted with a subsequent mindfulness manipulation are more prone to feel inconsistency and discomfort than controls.

Thus, the initial behavior does not need to be publicly expressed in order to elicit commitment feelings (see also Harmon-Jones et al., 2003, for data supporting the same idea). This is an important issue when it comes to applying IH principles to real-life settings, where public commitment is difficult to implement in large scale sensitization campaigns that rely on the mass-media. In Studies 1B and 1C, we examined the possibility of inducing hypocrisy in participants via an easier to implement, private commitment, procedure. These studies are the first to examine the possibility to implement IH in large scale social marketing communications.

Data from Study 1B suggest that it is possible to induce feelings of hypocrisy in individuals. More precisely, results showed that being confronted with a sensitization folder that stress the contradiction between a positive attitude towards ecological waste management and negative behaviors that are commonly performed by most of individuals is effective to raise hypocrisy.

However, data from Studies 1B and 1C did not support the effect of this private procedure on ecology-related behaviors: No behavioral effect of hypocrisy emerged. In Study 1B, the behavioral effect was measured through levels of compliance with a direct request. Nevertheless, we suspect that the nature of this request was not perceived as an opportunity to reaffirm the positive attitude towards ecological waste management. In Study 1C (supermarket situation), the behavioral measure was the proportion of ecological products purchased by the participants. From these data and Studies 2A & 2B, we assume that the behavioral impact of IH is stronger when the targeted behavior is directly measured right after the hypocrisy manipulation. Once people are subjected to other communications in the supermarket (i.e., promotions, coupons, etc.), consumers can be distracted from their feelings of hypocrisy. As reported before, the targeted behavior also requires to be unambiguously seen as an opportunity to reaffirm the positive attitude. According to this idea, we assume that hypocrisy is more effective to influence compliance levels with an explicit and unambiguous request rather than diffuse and non explicit behaviors.

3. Is hypocrisy applicable in field settings?

Previous research (e.g., Dickerson et al., 1992; Fointiat, 2004) applied IH in real settings. These studies suggest that it is possible to implement hypocrisy in real life situations in order to promote desirable behaviors. Data from Study 2B reveal that it is possible to increase compliance levels with a costly request. According to the new tendencies of marketing practices in Belgium, mass marketing and mass advertisement is less invested in than before by most of the bigger brands. More and more, these brands develop street-marketing and one-to-one (i.e., individualized) marketing practices. They approach people directly (in the street, by phone, with personalized messages) in order to increase their impact on individuals. Some ecological and other non profit organizations developed the same practices since a few years (e.g., Greenpeace, Médecins Sans Frontières-Doctors Without Borders, Amnesty International). They are mostly present in the street to meet people and inform them directly or propose personalized information. In this context, IH seems to be a useful tool. Study 2B proposes a new approach that is directly applicable to street and one-to-one social marketing practices. This technique associates two different influence techniques (induced hypocrisy and door-in-the-face) to improve ecology-related behaviors.

However, data from Studies 1B & 1C were not conclusive about the effects of hypocrisy on behaviors in a more large scale marketing context. Behavioral consequences of hypocrisy seem to be difficult to assess with requests that are not directly presented to the participants. Contrary to answers to an explicit direct request, consumer behaviors are not simple responses and a variety factors influence consumer choices when people are walking between the shelves. The challenge for the future would be to develop efficient measurement methods in order to quantify the effect size of IH on consumer choices.

Recommendations for practitioners who aim at using induced hypocrisy in order to promote proenvironmental practices

The present data provide mixed results. At some occasions, the effects of IH on pro-ecological behaviors are positive. In other studies, the behavioral effect of IH is negative. Finally, several studies did not reveal any behavioral effect. According to the present research program and in addition with previous literature on IH reported in introduction, we propose two recommendations in order to improve the positive effects of IH. Practitioners have to be aware that IH can backfire if these recommendations are not taken into account.

1. The request must be the most available and the easiest route to decrease the feeling of hypocrisy

When people experience a feeling of hypocrisy, they are motivated to reduce this unpleasant state, using the means which is most available to them in that situation. It is important to offer people the possibility to engage in a behavior that is directly related to the targeted attitudinal object. As Stone et al. (1997) mentioned, people may use self-affirmation (i.e., the expression of positive attitude towards another desirable object) to decrease hypocrisy and reaffirm their positive self-perception (we examined this question also in Study 1A, further research needed). Moreover, as suggested in Studies 1B and 1C, it is important to prevent participants from overestimating the prevalence of the negative behaviors they report in the mindfulness stage. Our data suggest that overestimating the prevalence of bad practices ("*I am dirty as anyone else...* ") is actually a route to decrease unpleasant hypocrisy feelings. Practitioners can expect a larger impact of IH on a target behavior when this behavior is directly related to the attitudinal object instead of behaviors that are only indirectly or not explicitly related to the attitudinal object one tries to promote (see behavior measured in Study 2B versus Studies 1A, 1B, and 1C).

2. The target behavior should never bear the risk of adding to the feeling of hypocrisy

According to suggestions explaining the absence of behavioral effect in Study 1A and 1B, the target behavior has to be perceived as a real opportunity to reaffirm the desirable positive attitude threatened by the mindfulness. If participants do not see any opportunity to decrease hypocrisy or if they even perceive the proposed behavior as risking to confirm their inconsistent and negative self-perception, people are not likely to engage in this behavior. The request or the target behavior has to be explicitly and unambiguously seen as a relevant route to reduce hypocrisy.

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Doc 1.4.

**Adding exchange to charity:
A reference price explanation**

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Introduction

Economists and social psychologists have often attempted to understand charitable giving from the supply side of donations: “Why should people make sacrifices for others?” Recently, however, researchers have recognized the importance of considering also the demand for donations, that is, the fund-raising side of the market. Fund-raising has developed into a huge, sophisticated and competitive business (Andreoni, 2005). Although there is not much literature or data collection on fund-raising strategies, there is a great deal of ‘common’ knowledge about the best fund-raising practices. Intuition and some research (Holmes, Miller, & Lerner, 2002) suggest that adding some return utility to a donation may make donating more attractive, even if the resulting utility is minimal or even illusionary. For example, charities and nongovernmental organizations are known to bundle donation requests with an often near-worthless exchange, like a plastic key chain, a pencil, or a set of postcards that you may never use. In doing so, they present the donation request as an exchange, or an economic transaction.

In this paper, we examine whether and why consumers react positively to donation requests that are framed as the sale of a product. We think that one of the reasons why a priced exchange may increase compliance is that it signals an anchor or a reference price to which potential donors can compare candidate contributions. As long as this price is appropriate and fair, it gives potential donors an indication of an expected donation amount that is comfortable. In a simple donation setting, on the other hand, we think that people lack an anchor that informs them on an acceptable donation amount, and therefore they often decide not to donate at all.

Exchange as an alibi

To our knowledge, Holmes et al. (2002) were the first to test why adding exchange to charity can trigger more donors than simply asking people to donate. They argue that a powerful societal norm of self-interest precludes people from behaving altruistically. In fact, even individuals who experience strong feelings of compassion may be hesitant to act on those feelings because of this norm. People think that most other people are mainly driven by self-interest (Miller & Ratner, 1998), but in fact they are more driven by altruism and compassion. As people expect other people to behave selfishly, they are quite surprised to see acts of altruism in others (Ratner & Miller, 2001). As a consequence, people prefer self-interested behavior to avoid being exploited by self-interested others, or to avoid social disapproval for being ‘irrational’ (Miller & Ratner, 1998; Miller, 1999). Even in a completely anonymous setting people might still want to obey the norm of self-interest because they have internalized the belief that it is the appropriate and rational thing to do (Tyler, Huo, & Lind, 1999).

Framing the donation as a commercial exchange may therefore provide potential donors a ‘psychological cover’ that enables them to act altruistically (i.e. an excuse for not complying with the norm of self-interest). It gives them the opportunity to show their genuine compassion, while avoiding the negative feelings associated with violating the norm of self-interest.

Construing a donation as a transaction has the additional advantage that it can limit the implications for the self of what Lerner (1986) calls ‘justice motive’. By responding to appeals for unconditional help, one creates a psychological duty to be helpful to all other persons or groups worthy of help in the future: “If I help now, I’ll always have to help!” Engaging in a commercial transaction does not generate the same moral commitment.

Exchange as an anchor

When confronted with a donation request, the potential donor needs not only to decide whether or not to give, but also how much to give. Fraser, Hite, and Sauer (1988) suggested that potential contributors form an impression of some minimally socially acceptable anchor point to which potential contribution amounts are compared. Amounts greater than the minimum anchor are regarded as generous; Amounts smaller than the minimum are regarded as socially unacceptable. However, just like consumers may have difficulties in estimating the price of a service due to a lack of a salient cost of goods sold (Bolton, Warlop, & Alba, 2003), in a simple donation setting potential donors may also experience difficulties determining what would be an appropriate donation amount. For economic reasons they may want to avoid too large a contribution, while too small a contribution may be perceived as inappropriate. Decision difficulty often leads to choice deferral (Dhar, 1996). Similarly, potential donors may make no contribution at all if determining the appropriate donation appears too difficult.

The option to ‘buy something’ instead of just donating may make it easier for potential donors to assess the minimally socially acceptable donation amount (cf. Fraser, Hite, & Sauer, 1988). Indeed, the reference price of the token product may serve as an anchor that is used to determine the expected donation amount and thus may influence the decision to donate. This would be similar to the finding that first offers serve as anchors and strongly predict final settlement prices in a negotiation situation (Galinsky & Mussweiler, 2001). So, the donation price one asks in exchange for a token may provide potential donors with an anchor against which contributions can be compared.

Of course, providing people with a donation anchor does not necessarily imply that they will feel compelled to donate. Indeed, justice motive theory (Lerner, 1986; Miller, 1977) states that helping someone in need should not lower one’s outcomes below a deserved level. Clearly, if the token that is offered signals too high a donation amount, people will not donate, not even in exchange for a token. In particular, donation requests coupled with ‘overpriced’ exchanges may not help or may even decrease compliance rates compared to simple donation settings, as people might fear that their own outcomes are at stake. In fact, asking a lot of money in exchange for a worthless token might be perceived as unfair.

On the other hand, tokens that are sold in a donation request may signal a donation amount that people consider being ‘fair’. First, a low priced token may signal a donation price that is lower than the perceived donation price in simple donation settings. Moreover, low priced exchanges may legitimize small contributions and, therefore, render most excuses for noncompliance (e.g. “We can’t afford to help.”) inappropriate and make refusal socially embarrassing. This assumption is supported by Cialdini and Schroeder’s (1976) finding that, in a door-to-door charity drive, a reminder to potential donors that ‘even a penny will help’, significantly increased the number of donations without affecting their average size. They argued that people are more likely to donate in this case because of self-presentation concerns (see also Brockner, Guzzi, Kane, Levine, & Shaplen, 1984; Reeves, Macolini, & Martin, 1987; Reingen, 1978).

Finally, if the presence of an anchor or reference price is an important factor in triggering donations, the association of simple donations and fixed prices should cause similar effects. That is, compliance rates in a simple donation setting should also be elevated when giving potential donors the opportunity to donate a *specified* small amount. Requesting specific large donation amounts, on the other hand, should decrease the probability of compliance. In that context, Schwarzwald, Bizman and Raz (1983) already showed that in combination with the foot-in-the-door paradigm donation sizes can be elevated by requesting

specified amounts. Still, the foot-in-the-door technique is a *gradual* persuasion technique in which an initial, modest request is followed by a subsequent, larger request. In our research, however, we want to test whether compliance rates can be enlarged by requesting specified amounts, *without* the aid of a preceding modest request.

Empirical research

The main goal of this research was to test an anchoring mechanism for the role of adding exchange to charity. We expected more people to donate in exchange for a product compared to a simple donation condition. However, we expected this effect of exchange to be moderated by its price. Indeed, a *low token price* may urge people to donate as it provides them with a comfortable indication of the expected amount; that is the signal of a ‘fair’ price. On the other hand, *an overpriced token* or too high an anchor may not help or may even inhibit people from donating. Further, if an exchange can ‘help or hurt’ depending on its price, we hypothesize that specifying contribution amounts in the context of simple donations should bring about compliance rates that are comparable to those in exchange settings.

STUDY 1

In the first study, we explored the effect of an exchange on the incidence and amount of donations. We controlled for the frivolous or functional nature of the token exchange, because this has been found to make a difference in the context of bundling charity donations to the purchase of a product (e.g. for every package of its coffee sold during the Christmas Holidays, Douwe Egberts® recently donated one serving of coffee to the homeless in Belgium). In this context Strahilevitz and Myers (1998) found that charity incentives were more effective in promoting frivolous products than practical products. They suggested that donations complement or neutralize the negative feelings associated with indulging in frivolous consumer behavior (see also Kivetz & Simonson, 2002). By means of a pre-test we obtained two products that differ significantly in frivolity, but score equally on a functionality-scale: regular and colored staples (both €0.50 real shop value).

To explore our prediction that an exchange might signal an anchor or reference price that may induce people to donate, we asked participants to estimate the value of the offered products either before or after the donation decision. If people are more likely to donate when their attention is first drawn to the product value, this would yield further support for our assumption that the value of the product in the exchange serves as an anchor that guides people in their donation decision.

Method

Participants.

A total of 144 volunteer undergraduate economics students participated in this scenario study which was part of a written questionnaire, conducted in groups of about 20 people.

Materials and procedure.

The participants were randomly assigned to one of three experimental conditions. They were asked to donate to a charity without a product being offered (simple donation),

donate in exchange for the ‘functional’ staples (practical exchange), or donate in exchange for the ‘frivolous’ staples (frivolous exchange). The charity used in the scenario was described as follows: “An organization that delivers basic medicine for the treatment of diseases as malaria, tuberculosis, and African trypanosomiasis (sleeping sickness) in parts of Africa, Asia, & Latin-America”. In the exchange conditions, a picture of the staples accompanied the appeal. Participants had to indicate whether or not they would be willing to donate and how much.

In the exchange conditions, we also asked participants to estimate the shop value of the product either before or after the donation request. As the shop value of a product may somehow differ from the value participants think its worth to them on that moment in time, we added a third exchange condition in which we asked participants before the donation request how much they would pay for the product if they would have the chance to buy it ‘here and now, under these circumstances’. The donation request and the value estimation were always presented on different sheets of paper.

In all, then, our design consisted of 1 simple donation condition and 6 exchange conditions. The latter represented a 2 (type of product: functional vs. frivolous) by 3 (combination of questions: (1) donation request before shop value, (2) shop value before donation request, and (3) ‘here&now-value’ before donation request) design.

Results

The frivolous versus functional nature of the token did not significantly affect our results. We therefore collapse over this factor in our analysis. This leaves three different conditions in which participants were offered an exchange: donation request before shop value (Exchange 1), shop value before donation request (Exchange 2), and ‘here&now-value’ before donation request (Exchange 3). Together with the simple donation condition (Donation), this leads to four different experimental conditions (see Table 1 for the different cells).

Compliance probability

A logistic regression with donation (yes versus no) as the criterion, and experimental condition as the categorical predictor (with 4 levels), revealed that compliance varied across the experimental conditions, LR $\chi^2(3) = 14.81$, $p = .002$ (see Table 1). In line with our hypothesis, planned contrasts revealed that the compliance rate was significantly higher in the conditions where participants had to estimate the value first (Exchange 2 & Exchange 3) than in the conditions where participants had to decide whether or not to donate first (Donation & Exchange 1), LR $\chi^2(1) = 12.65$, $p = .0004$. Moreover, the compliance rate was not significantly higher in the exchange condition in which the donation question was asked first (Exchange 1) than in the simple donation condition (Donation), LR $\chi^2(1) < 1$, *ns*. The compliance rate was significantly higher in the exchange conditions in which a value question was asked first (Exchange 2 & Exchange 3) than in the exchange condition in which the donation question was asked first (Exchange 1), LR $\chi^2(1) = 5.58$, $p = .02$.

Table 1. Donation Rate and Median Amount Donated as a Function of Experimental Condition

	Simple Donation		Exchange	
		1	2	3
First question				
	Donation ^a (n = 48)	Donation before shop price valuation (n = 32)	Donation after shop price valuation (n = 35)	Donation after 'Here & Now' valuation (n = 29)
Donation rate	46%	56%	80%	80%
Non zero mean amount	€ 12.2	€ 4.9	€ 5.1	€ 4.1
Total revenue given n = 100	€561.2	€274.4	€408	€328

Note. ^aThe donation question was the only question in this condition.

In an additional analysis of the exchange conditions we also included the value that participants estimated. This analysis revealed a marginally significant interaction between the estimated value and when the value questions were asked, LR $\chi^2(1) = 3.27$; $p = .071$: When participants had to estimate the value first (Exchange 2 & Exchange 3), the donation intention decreased as the estimated value increased; when participants received the donation question first (Exchange 1), the estimated value had no effect on the compliance rate.

Contribution revenues

Since within-condition donations were not normally distributed, we analyzed the donation amounts of the participants who made contributions non-parametrically ($N = 89$; two outliers were excluded from analysis using ± 3 SD). We conducted a Kruskal-Wallis Test with amount as the dependent variable and experimental condition (4 levels) as the independent variable. A main effect of experimental condition was obtained, $\chi^2(3) = 12.82$; $p = .005$. Subjects in the simple donation condition donated significantly more, $\chi^2(1) = 11.27$; $p = .001$, than those in the exchange conditions.

In an additional analysis of the contributions in the exchange conditions ($N = 67$ contributors), we again included the estimated value (i.e. shop value or 'here & now' value dependent on the condition; logarithmic transformed) as a covariate. This ANCOVA revealed a significant positive effect of the estimated value on the contribution size, $F(1, 63) = 31.50$, $p < .0001$: The higher contributors estimated the product value, the more they contributed.

Discussion

Overall, participants were more likely to donate when offered an exchange than when no exchange was presented. Intriguingly, within the exchange conditions, participants appeared more likely to donate when they first had to estimate the value of the exchange than when they first had to indicate whether they would donate or not. In addition, in the exchange conditions where participants had to estimate the value first, the likelihood of donation decreased as the estimated value went up. In the exchange condition where participants first had to decide whether or not to donate, the estimated value was not related to the outcome of the donation decision.

Possibly, in a donation situation, people try to construct some minimally socially acceptable anchor point against which candidate contribution amounts are compared. As the magnitude of that lower anchor increases, the magnitude of the contribution will increase, but the probability of compliance will decrease (cf. Fraser et al. 1988). Indeed, the higher our participants estimated the value, the less likely they were to comply with the donation request, but the more money they were planning to donate if they did decide to donate.

Asking participants to estimate the value of the product *before* they decided to donate may have cued a ‘donation anchor’. The product value (shop value or the value participants think it is worth to them on that very moment), probably functioned as a reference price and gave people an indication of the expected donation amount. In addition, as the product was rather inexpensive, the donation anchor was for most participants sufficiently low to persuade them to donate. In the simple donation condition, participants may not only have had more difficulty to construct a donation anchor, they also may have constructed a more elevated donation anchor. Two pieces of evidence support this assumption. First, the variance of the donation amount (logarithmic transformed) was much higher in the simple donation condition ($SD = .34$) than in the exchange conditions ($SD = .22$): $F(1, 87) = 7.21, p = .009$ (Levene’s Test for Equality of Variances). Second, for the donating participants, donation amount was significantly higher in the simple donation condition than in the exchange conditions. In fact, the mean amount donated in the simple donation condition was rather elevated ($M = €12.2$). Many participants in the simple donation condition presumably overestimated the ‘cost’ of donating, and hence decided not to donate. This is consistent with the assumption that participants in the simple donation condition lack an anchor that informs them about an acceptable donation amount. In the exchange condition, such an anchor is provided by the shop value or ‘here&now’ value (whichever is measured) of the product that is offered in exchange for the donation.

One potential alternative explanation for the findings in Study 1 deserves mention. The fact that people donate more easily when they first have to estimate the product value, may be similar to a foot-in-the-door effect. The foot-in-the-door paradigm suggests that compliance breeds compliance. Having agreed to an initial request, individuals infer that they are helpful and cooperative. When subsequently confronted with a second and larger request, people are more likely to comply so as to maintain a consistent self-image. In our experiment, the value estimation question might have functioned as the first modest request, which was then followed by the second and larger donation request. Although we doubt the validity of this alternative explanation because answering a value question is hardly comparable to a compliance request, we try to rule it out by collecting additional data in Study 2.

STUDY 2

Study 2 provides a more critical test of our hypothesis that people donate more easily when their attention is drawn to a low product value. In addition, we also test whether an exchange can be ‘overpriced’ and consequently, can inhibit people from donating compared to a simple donation baseline condition. Finally, in the current study, participants have to make a real donation decision, rather than a decision in a scenario. That is, if they decide to donate, they actually have to give some money.

As the type of product did not matter in Study 1, we use only one product (colored paperclips; € 0.50 real shop value) in the exchange condition. To test our hypothesis, we manipulate the value of the paperclips (€3 vs. €0.50) in the donation request. We hypothesize that the €0.50 paperclips will signal a ‘fair’ donation price, a socially acceptable anchor which will persuade people to donate. The €3 paperclips, on the other and, can represent too large an

anchor that does not induce but rather inhibits people to donate compared to the simple donation context.

Method

Participants

Participants were 184 undergraduates (from several majors), who were paid €7 for their participation in a number of unrelated experiments, ending with the current study.

Material and procedure

Participants were invited to the lab in groups of at most eight people. In a brief introduction they were told that they would participate in a series of unrelated experiments. At the end of the session when participants had been paid €7, registered and thanked for their participation, they received an envelope with the invitation to donate. They were asked to have a look at it in their cubicle before leaving the room. The letter explained that the Marketing Department had organized its annual donation drive, and that all marketing students and experimental participants were being given the chance to make a donation as well. The money would go to ‘an organization that delivers basic medicine for Africa, Asia, & Latin-America’, as in Study 1.

Participants were randomly assigned to one of four experimental conditions: They were invited (1) to just donate (simple donation condition), (2) to donate in exchange for paperclips without a shop value mentioned (no value exchange condition), (3) to donate in exchange for paperclips with a mentioned shop value of €3 (€3-exchange condition), (4) or to donate in exchange for paperclips with a mentioned shop value of €0.50 (€0.50-exchange condition). This shop value was mentioned between brackets after the description of the offered product. In the exchange conditions, the product (colored paperclips) was included in the envelope. Participants were told that they could take the product home when donating some money; any amount was said to be appreciated. To make any donation between €0.50 and 7 € possible, the €7-endowment was paid in coins of €0.50, €1, and €2. Finally, all participants were asked to close the envelope and leave it in the donation box at the entrance of the laboratory. This donation box was used to increase the feeling of anonymity. Donations were actually contributed to “Médecins Sans Frontières” (Doctors Without Borders).

Results

Compliance probability

A logistic regression with donation (yes versus no) as the criterion, and experimental condition as the categorical predictor (with 4 levels), confirmed our hypotheses. Compliance varied significantly across the experimental conditions, LR $\chi^2(3) = 12.23, p = .007$ (see Table 2). The compliance rate was significantly higher in the €0.50-exchange condition than in the simple donation condition, LR $\chi^2(1) = 5.63, p < .02$. In contrast, the compliance rate was slightly lower in the €3-exchange condition than in the simple donation condition, although the difference did not reach significance, LR $\chi^2(1) < 2, ns$. In summary, we found evidence for the moderating role of the price of an exchange in triggering potential donors. Price does matter; the compliance rate was significantly higher in the €0.50-exchange condition than in the €3-exchange condition, LR $\chi^2(1) = 11.05, p = .0009$.

Although the compliance rate was slightly more elevated in the no-value exchange condition than in the simple donation condition, this difference was not significant, LR $\chi^2(1) < 2$, *ns*.

Table 2. Donation Rate and Mean Amount Donated as a Function of Experimental Condition

	Simple Donation		Exchange	
	N/A (n = 52)	No Value (n = 46)	€3 (n = 44)	€0.5 (n = 42)
Value of exchange product				
Donation rate	50%	61%	39%	74%
Non zero mean amount	€ 1.46	€ 1.93	€ 3.00	€ 1.53
Total revenue given n = 100	€73	€117.7	€117	€113.2

Contribution revenues

Again, since donations were not normally distributed, a non-parametric analysis was applied. We conducted a Kruskal-Wallis Test on the data of the donating participants ($N = 102$) with donation amount as the dependent variable and experimental condition (4 levels) as the independent variable. The amount donated was affected by the experimental condition, $\chi^2(3) = 16.8$, $p = .001$. Not surprisingly, the participants in the €3-condition donated on average more than those in the other conditions. The other conditions did not significantly differ.

Discussion

In this study, the ‘exchange’ effect appears to be dominated by the price of the token. In line with Study 1, the €0.50-token signaled a comfortable reference price, leading to an elevated compliance rate. However, as the price of the token increased to €3, the compliance rate plummeted. For larger donation requests to be effective, they have to be perceived as lying within a plausible range for donation (Doob & McLaughlin, 1989). Whereas €3 is often used as a real donation price for products offered by NGO’s, many students in this context (they had just worked for an hour to receive €7) may not have perceived the €3 as lying within a plausible range of acceptance. In line with this assumption, the justice motive theory (Lerner, 1986) would suggest that participants thought of €3 as being a threat to their own outcomes.

Finally, when looking at the results of Study 2, the alternative foot-in-the-door explanation of Study 1 seems to be no longer valid. In Study 2, there was no initial value estimation that could have functioned as a first modest request. In that sense, the estimated value in Study 1 has the same anchoring function as the mentioned shop value in Study 2: Whether participants first have to estimate the product value (Study 1) or whether the value is already mentioned, people donate more easily when they are presented with a low product value, as opposed to an exchange setting in which no price indication is present.

STUDY 3

In Study 1, some participants in the exchange conditions were asked to estimate the value of the product before deciding to donate. This apparently gave them a comfortable reference price, a rather low ‘donation anchor’. In the simple donation condition, on the other hand, participants lacked a donation anchor; they had problems in estimating a ‘fair’ price, and seemed to construct a more elevated donation anchor. In Study 2, we found that the compliance rate in exchange conditions critically depends on the price of the token. If the token price is sufficiently low, compliance with a donation request increases relative to a simple donation situation. If the token price is rather high, compliance with a donation request does not significantly change relative to a simple donation situation.

To the extent that the sale of a token simply signals an expected donation amount, one might wonder whether influencing compliance rates requires an exchange at all. In fact, providing people with an explicit low reference price in a simple donation setting might be enough to cause comparable results to the low priced token exchange in Study 1 and 2. By the same reasoning, similarly low compliance rates as in high-priced exchange conditions may be obtained when donation requests are accompanied by an explicit high reference price. These issues are addressed in our third study.

Method

Participants and design

A total of 196 undergraduates participated in this between-participants computerized questionnaire study. The questionnaire was part of one hour session of unrelated experiments in the lab. Participants were paid €6 for completing the entire questionnaire packet.

Procedure

We told participants we were investigating their donation behavior. The general instruction read as follows: ‘To be able to adjust the annual donation drive of the Marketing Department, we want some feedback concerning your donation preferences. You will be presented with ten different hypothetical situations. Please try to indicate for each situation whether you would donate or not.’ All scenarios explained that the Marketing Department each year organized a donation drive and that all marketing students and experimental participants were given the chance to make a donation as well; after an experimental session participants were supposedly approached to make a donation.

Participants were randomly assigned to one of five experimental scenarios. In the simple donation scenarios, they were asked to indicate whether or not they would donate and if so, how much. In the low and high priced donation condition they were asked whether or not they would donate €0.50 or €3. In the low and high priced token condition they were asked whether or not they would donate in exchange for a € 0.50 or €3 token, respectively. All scenarios were repeated ten times, using ten different charities in all conditions and ten different products in the exchange conditions. The pairing of charities and products was randomized for each participant in the exchange conditions separately.

Results

Compliance probability

We conducted a logistic regression with the proportion of ‘yes’-responses as the criterion, and experimental condition (5 levels) as the predictor. A significant main effect of experimental condition was obtained, LR $\chi^2(4) = 107.72$, $p < .0001$ (see Table 3). As expected, participants in the low priced conditions (donation & exchange) were more likely to comply than people in the high priced conditions, LR $\chi^2(1) = 67.96$, $p < .0001$, and than people in the simple donation baseline condition, LR $\chi^2(1) = 65.83$, $p < .0001$, respectively. As in Study 2, however, the frequency of compliance in the high priced conditions did not significantly differ from the simple donation baseline condition, LR $\chi^2(1) < 2$, *ns*.

Unexpectedly, the proportion of participants agreeing to offer money was greater in the priced donation conditions (low & high) than in the priced exchange conditions (low & high), LR $\chi^2(1) = 14.71$, $p = .0001$. Moreover, the compliance rate was significantly higher in the high priced donation condition than in the simple donation condition, LR $\chi^2(1) = 7.59$, $p = .0059$. The compliance rate did not significantly differ between the high priced exchange condition and the simple donation condition, LR $\chi^2(1) < 1$, *ns*. Finally, the difference between exchange and priced donations was comparable for a high (3.00 €) and low price (0.50€), LR $\chi^2(1) < 1$, *ns*.

Table 3. Proportion of ‘Yes’-Responses as a Function of Experimental Condition

	Simple Donation	Priced Donation		Priced Exchange	
	Baseline ($M = €8.8$) ($n = 41$)	Low (€0.50) ($n = 37$)	High (€3.00) ($n = 40$)	Low (€0.50) ($n = 38$)	High (€3.00) ($n = 40$)
Donation rate	47%	75%	57%	67%	45%
Total revenue given $n = 100$	€413.6	€37.5	€171	€33.5	€135

Contribution revenues

In the current study, only in the simple donation condition, participants could decide on the amount they were willing to donate. As in Study 1, the large variance ($SD = 11$) of the donation amount in the simple donation condition is consistent with our assumption that potential donors, in the absence of an anchor (i.e. an exchange), experience problems in determining a socially acceptable donation amount. Many participants presumably overestimate the ‘cost’ of donating ($M = €8.8$) and hence decide not to donate at all. The other four conditions exhibit fixed prices and participants could not alter this amount. Contrary to the first two studies, participants received no instruction that any amount would be appreciated. In that sense, analyzing the contribution revenues in the current study yields no additional insight.

Discussion

The data support our hypothesis that bundling simple donations with fixed prices would generate similar results as bundling donation requests with priced tokens. The presence

of a small or large reference price in a simple donation setting can apparently fulfill the same ‘anchoring’ function as the sale of a token. Moreover, our data show that ‘priced’ donation requests are met with an even higher compliance than the corresponding exchange conditions. Most counter-intuitive is the fact that the high priced donation request yields significantly greater probability of compliance than the simple donation condition. As for the high priced exchange request, we notice a small but insignificant drop in compliance compared to the simple donation setting. We assume therefore that it is not the high price in itself which seems to be responsible for the low compliance rate in the high priced exchange condition, but a high price in exchange for a near-worthless token. Rather than pure economic reasons, feelings of exploitation (Ratner & Miller, 1998) or the norm of self-interest may be part of the excuse for not donating in exchange for high priced tokens: ‘The postcard presumably is less expensive in the supermarket’. Bundles of simple donations and fixed prices possibly entail a smaller risk that potential donors feel exploited.

GENERAL DISCUSSION

Three studies support the idea that adding exchange to charity can provide potential donors with an anchor or expected donation amount. People react positively to donation requests that are framed as the sale of tokens, if the tokens signal a low anchor amount, a ‘fair’ price. In a simple donation setting, people lack a reference price. In their attempt to estimate a socially acceptable donation amount, many overestimate the cost of giving and thus decide not to donate. Therefore, the offer of a token can signal a reference price or an anchor to which other donation amounts may be compared (Fraser et al., 1988). A ‘low’ socially acceptable anchor will urge people to donate as it signals a ‘fair’ price and leaves people feeling ‘trapped’ in a good deal. A ‘high’ socially unacceptable or too large an anchor, on the contrary, may inhibit people from donating.

In our studies, we did not seek to investigate if and why tokens in general (with or without a reference price) would affect donation decisions. In that context, it should be noted that our studies were not designed to *rule out* the exchange fiction theory of Holmes et al. (2002), which states that adding exchange to charity provides potential donors with a ‘psychological cover’ that enables them to act altruistically while still complying with the norm of self-interest. In fact, our first two studies are still in line with the theory of the norm of self-interest (Miller, 1999). Still, our anchoring explanation gives an additional account for why people react positively to the sale of tokens in a donation request. Moreover, Study 3 shows that, as expected by our anchoring explanation, a donation request that explicitly asks for a low amount generates more compliance than a simple donation request. Just as an exchange can ‘help or hurt’ depending on its price, a combined use of simple donations and specified contribution amounts can similarly influence compliance rates. This finding cannot be accommodated by Holmes et al.’s exchange fiction theory. Nevertheless, our anchoring explanation is not incompatible with the Justice Motive Model of human motivation (Lerner, 1986) that underlies the exchange fiction theory. The justice motive predicts that if people are given the opportunity to help innocent victims and if doing so will not threaten their own deserving, then people will be highly responsive. In other words, once people are reassured (for example by a low reference price) that their personal outcomes are not in jeopardy, it seems easy to induce them to donate.

The reverse effects of reference price on compliance probability and contribution per contributor indicate that a lot of thought should be given to the reference price that is signaled in order to optimize total revenue. For instance, in exchange situations, if the token is perceived as being ‘overpriced’, people may be inhibited from donating, possibly due to

feelings of exploitation or the norm of self-interest. A participant's post experimental reaction demonstrates this: "This is very odd, I would rather just donate €3 than to buy a useless postcard!" This is consistent with the observation that offering a product in exchange for a donation may activate self-serving motivations and 'economic' thoughts about the usefulness of the product; whereas simply asking for a donation could set in motion more social equity concerns (Van Dijk, 2003). From practical point of view, in that sense, bundles of simple donations and fixed prices are perhaps the safest option. In those settings, people know that their money in its entirety would be given to the described charity whereas in the exchange setting the actual cost of the product remains somewhat ambiguous. The transparency in donation settings with specified prices may be the reason why priced donations work even better than the offer of an exchange (see Table 3). Moreover, in donation settings with specified prices there is also no product cost that needs to be subtracted from overall revenue. In all, then, donation settings with specified prices may generate higher revenues than the sale of small products.

Finally, we like to rule out that people donate more easily in exchange for a product compared to a simple donation setting out of reciprocity concerns. When there is reciprocity (Cialdini, 2001) you receive something first and then you feel obliged to donate something in return. For example, Falk (2004) found strong and systematic effects from including gifts in donation letters: The relative frequency of donations increased by 17 % when a small gift was included and by 75 % for a large gift. In our experiments, however, you're openly asked to donate in exchange of a product. The transaction is immediately proposed. This implies that a reciprocity explanation cannot account for our findings. Moreover, if reciprocity would be part of the process, we would at least have to find a significant difference between the simple donation condition and the no-value exchange condition, and this was never the case in our experiments.

Caveats and future research

The first limitation of our research is that two of our three studies were scenario studies and did not measure real behavior. Nevertheless, the compliance rate (our main dependent variable) is quite comparable across the three experiments. On the other hand, the mean amount donated in the simple donation condition was substantially higher in our scenario studies (Studies 1 & 3), than in our study that entailed real behavior (Study 2). This finding is consistent with the notion that people do not always have a perfect insight in how they would behave in certain situations (e.g., Nisbett & Wilson, 1977) and important to keep in mind when comparing the total revenues of the three experiments.

A second limitation is that our participants were all college students. It is important to assess the validity of our findings across other populations. In any event, our results appear to be stable across sexes. Integrating the findings of Brockner et al. (1984), Cialdini and Schroeder (1976), and Fraser et al. (1988), we note that the size of the anchor points may change over time due to inflation and are probably population dependent (e.g. dependent on income: students vs. business men). Accordingly, we suggest the €3-token condition might result in different compliance rates in another population and/or several years from now. In that sense, it would be worthwhile for charities to "know" their different donor types to be able to segment the donor database according to the size of the anchor points influencing donors' decisions. Additionally, the charity might even decide to cut or raise donation prices depending on the organization's marketing strategy, for example reaching a critical mass of 'small' donors or only a select group of 'large' donors.

Third, it is possible that the application of charity related tokens, which the donor can use to ‘signal’ his social reliability (e.g. an HIV ribbon or an Amnesty candle), would generate different results. In this case reputation concerns might be involved in the donation decision (Milinski, Semmann & Krambeck, 2002).

An interesting avenue for future research would be to test whether priced donation requests, compared to simple donation requests, can also improve response rates in a direct mail context. For example, although legitimizing small contributions significantly increased the number of donations in a door-to-door charity drive (Cialdini & Schroeder, 1976), this technique failed to boost compliance rates in a direct mail fund-raising (DeJong & Oopik, 1992). There is evidence that donations in a direct mail campaign can be strongly influenced by choosing appropriate quantities in the request (Desmet & Feinberg, 2002), but so far these appeal scales have not been tested against a simple donation setting.

In this research, the charities we used were rather major and well-known in the country. It would be interesting to investigate whether Sinha and Batra’s finding (1999) that consumers are more price conscious when they perceive price unfairness by national brands (which results in private label purchases), also holds for charities. If consumers are also more price conscious when they perceive price unfairness by national charities, well-known national charities would have to pay extra attention when determining their token prices. Moreover, local charities (e.g. local basketball team) then may even have a competitor’s advantage of using ‘higher’ prices before being perceived as ‘unfair’.

Finally, in our studies, participants’ donation decisions were influenced by an informative anchor and participants were probed to consider the anchor as a possible donation value. Future research should also explore whether similar results can be obtained by means of ‘basic anchoring’. Basic anchoring is the situation in which people’s judgements of a target are influenced by a numerical anchor that is completely uninformative (e.g. a number generated by a wheel of fortune) and where people are not asked to consider the anchor as a possible target value (cf. Wilson, Houston, Etling & Brekke, 1996). Suppose, for example, that students before answering the donation request had just written down the price of a beer, which happens to be €1.50. Would this unrelated and uninformative small numerical anchor induce them to donate? Feinberg (1986), for example, found more people donating a larger amount when a credit card donation option (i.e. a ‘spending’ cue) was present. Feinberg’s finding may be explained by the fact that a credit card signals a large but unspecified amount, that is, a vague indication of an expected contribution that could not be perceived as lying ‘outside’ the plausible range of acceptance.

Epilogue

Each day people perform acts of altruism. To economists this phenomenon is difficult to explain: If people are all selfish utility maximizers, why should they make sacrifices for others? Several explanations have been proposed to address this question. These include the desire to experience a ‘warm glow’ (e.g. Isen & Levin, 1972), a need to view oneself as good and kind (Walster, Berschied & Walster, 1973), an aspiration to ‘do the right thing’ (Dawes & Thaler, 1988), a quest for moral satisfaction (Kahneman & Knetsch, 1992), or a signal of social reliability to gain indirect reciprocity or political reputation (Milinski et al., 2002). What these explanations all have in common is the underlying assumption that helping other people gives you something in return. This suggests that one way of thinking about charitable giving is to view potential donors as consumers seeking some return utility from donating money. However, because they are already buying something ‘immaterial’ (e.g. a warm glow), perhaps we do not need to offer them an additional material good (e.g. a candle).

Crucial in the marketing of donations is to make the transaction as smooth as possible. We should offer them an indication of a comfortable expected donation amount. In other words, we should just *'name them a price'* as long as this is appropriate and fair.

Acknowledgements

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Part 2 Persistence of sustainable behaviour

Doc 2.1.

Whatever people say I am, that's what I am (not). How to apply the social labeling technique successfully when a self-attribution is not plausible.

Doc 2.2.

Promoting Sustainable Consumer Behaviour by Cueing Common Ecological Behaviours

Doc 2.1.

Whatever people say I am, that's what I am (not).

How to apply the social labeling technique successfully when a self-attribution is not plausible.

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Social labeling is a persuasion technique, which consists of providing a person with a statement about his or hers personality (the social label) and results in behaviour that is consistent with the label. For example, a primary school teacher may tell her class that it is the tidiest group in school. Labeling each child as being a member of the tidiest class, has been shown to enhance tidiness to a larger degree than an explicit plea for tidiness (Miller, Brickman, & Bolen, 1975). The label typically follows a behaviour that was provoked subtly and (mis)attributes it to the personality of the actor.

Social labeling as a persuasion technique is believed to rely on a self-perception process and people's tendency to behave in a consistent way (Burger & Caldwell, 2003). Demonstrations of the labeling technique often feature situations in which the self-attribution of an action is quite plausible. This boundary condition is a serious hurdle for the technique to be widely applicable. In this research, we introduce a method that obviates this hurdle and test its applicability for the field of environmental behaviour. Stimulating environmental behaviour often requires an external motivator (e.g. a price promotion on environmentally friendly detergent). That is, people often engage in environmental behaviour for reasons which render the self-attribution *not* plausible. The salience of the actual reason for the purchase may hinder the acceptance of a label, describing the actor as an environmentally conscious person, and the internal re-attribution of the purchase behaviour. The method we introduce enhances the probability of accepting the internal (mis)attribution by means of an induced distraction during the labeling phase.

The label is a statement about a personality dimension of a target person which he or she either accepts or not. The Spinozan model of mental representations of ideas suggests that initially all ideas are accepted (represented as true), and that, only after subsequent reflection, can be *unaccepted* (Gilbert, Krull, & Malone, 1990). In case the processing of information is constrained because people are under cognitive load, under time pressure, or distracted, it is harder for them to engage in reflection and correction of automatic judgments. This suggests that if cognitive resources are limited or directed elsewhere at the moment that the label is communicated, the probability of accepting it as true would increase, and hence would the impact of this information on subsequent decisions.

With two experiments we show that our adaptation of social labeling can be applied successfully to stimulate environmental behaviour. In a first study ($N = 101$) we used a 3 (communication) by 2 (cognitive load) design. We provoked all participants to make an environmentally friendly choice by asking them which of seven TV-sets they would buy if they were to purchase one now. The TV's were rated on seven dimensions and the TV which scored best in general was evaluated best on 'ecological aspects' as well.

Next, participants were assigned to one of three conditions. Those in the 'labeling' group received feedback on the personality traits of the typical consumer choosing the TV-set they preferred. They were described as 'very concerned with the environment, and ecologically conscious'. A second group read an explicit plea for ecologically conscious consumer behaviour. Both groups read this information either when submitted to a mental load manipulation or not. A third (control) group merely received the mental load manipulation.

Then participants were presented with 10 product pairs, five critical pairs and five fillers. The critical pairs consisted of a product and an environmentally friendly, but more expensive alternative of this product. Participants indicated which of the two alternatives they would prefer to purchase. The number of environmental choices constituted our dependent variable.

The ANOVA revealed the expected interaction effect, see figure 1. The group which received the label while under mental load, made a larger number of environmental choices than all and each of the other groups, whereas the group which received the label without mental load, did not differ from any or all of the control groups.

In a second experiment ($N = 155$) we tested our explanation of the effect as a reduced capacity to reflect on the acceptability of the label as the explanation for the TV-choice. We asked half of the participants, right after an identical manipulation as above (except for the explicit plea condition, which we dropped), to indicate the importance of each of the seven dimensions on which the TV was rated, in their TV-choice (the reflection condition). This way the participants, who received the label under load, were led to reflect on the actual reason of their TV-choice as well. The groups did not differ with respect to the importance attributed to the ecological dimension. The dependent measure was identical to the one of Study 1. This manipulation resulted in a three-way interaction, see figure 2. As expected, the *labeling under load* effect disappeared in the reflection condition, whereas we did replicate Study 1 in the other group. Participants, who did not reflect on their TV-choice before the dependent measure, were asked to do so afterwards. Interestingly, those who were labeled under load rated the ecology dimension as more important in their TV-choice than all of the other groups. These participants also indicated to perceive themselves more as green consumers than the other groups.

Figure 1. Results of Study 1: Number of environmental choices as a function of communication and mental load manipulations

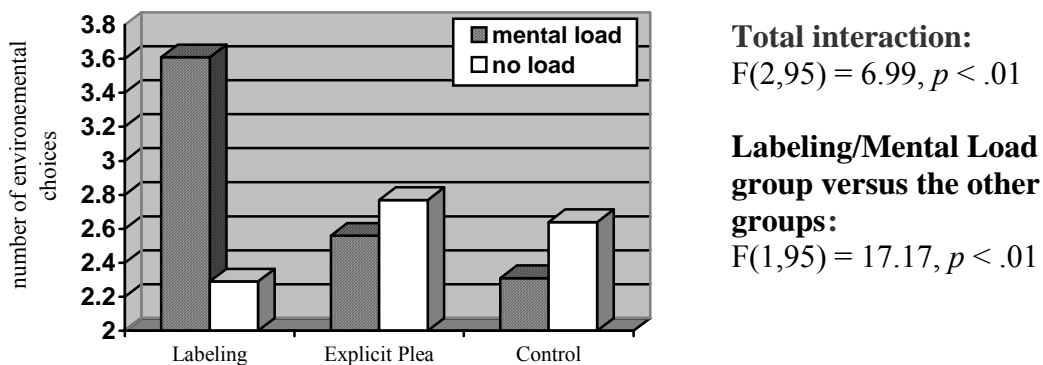
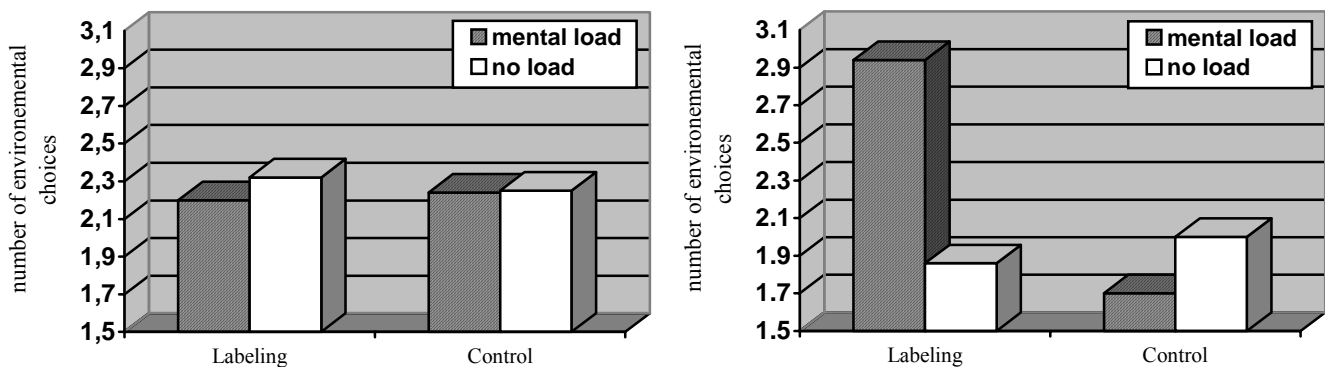


Figure 2. Results of Study 2 (three-way interaction: $F(1,146) = 5.16, p < .03$). When participants are asked to reflect on their initial choice the label under load effect disappears (left), whereas without reflection the effect of Study 1 is replicated (right, $F(1,146) = 8.84, p < .01$).



Doc 2.2.

Promoting Sustainable Consumer Behaviour by Cueing Common Ecological Behaviours

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The call for social marketing research to address sustainable consumption issues has been put forward repeatedly since the early 70's (Andreasen, 1995; Crane & Desmond, 2002; Kotler & Zaltman, 1971). In this paper we describe and test a (social) marketing tool for the promotion of environmental - and, by extension, sustainable - behaviour.

The promotion of sustainable consumption behaviour has shown to be an arduous task. Despite an increased interest of the general public in sustainable development (European Commission 2005; DEFRA 2002), many individuals do not translate this interest in altered consumption decisions (Grunert, 1993; Pieters, Bijmolt, van Raaij, & de Kruijk, 1998). An often cited reason for this phenomenon is that people associate sustainable behaviours with behavioural costs like money, time, effort and inconvenience (Follows & Jobber, 2000; Pieters, 1989; Pieters et al., 1998; Thøgersen, 1994). This suggests that people's attitudes towards specific *ecological behaviours* have an important impact on their decisions, over and above their attitudes towards *the environment* (Ajzen, 1996; McCarthy & Shrum, 1994; Thøgersen & Grunert-Beckmann, 1997). It also suggests that improving the more specific attitudes would be a necessary step towards promoting ecological behaviour.

Attitudes

Changing people's attitudes towards environmental conduct requires an understanding of how people construe these attitudes. In the current research we focus on self-perception as a route to persuasion. Self-perception theory (Bem, 1972) suggests that people derive their attitudes from their own behaviour. This will be especially likely when attitudes are to be constructed on the spot, or when existing attitudes are ambiguous or weak (Holland, Verplanken, & Van Knippenberg, 2002). Relevant for the present research, people may derive their attitudes towards ecological behaviours from the frequency with which they engaged in them in the past (Buss & Craik, 1983). Blair and Burton (1987) and Burton and Blair (1991) showed that individuals do not try to recall all possible episodic instances to arrive at a frequency judgment; they rather rely on an estimation or a general impression. To estimate frequencies, people often use an *availability heuristic* (Tversky & Kahneman, 1973). This implies that people estimate the frequency of an event by the ease with which instances of the event come to mind. Subsequently, they use this *experienced* ease of retrieval when making a judgment about themselves (Schwarz et al., 1991)

Menon and Raghurir (2003) proposed a 'mere-accessibility' framework to explain this effect. They stated that perceived ease-of-retrieval serves as both a source of information regarding the decision at hand, and as a proxy for the diagnosticity of that information. This implies that increasing ease of retrieval of a judgmental input will affect both the availability and the perceived diagnosticity of this information, increasing the probability of using it in the subsequent judgment. Tybout et al. (2005) showed that perceived ease of retrieval is most likely to be deemed diagnostic at moderate levels of accessibility, as opposed to high or very low accessibility. As individuals are usually not totally ignorant about their previous ecological actions, nor have an exhaustive list of them on top of their mind, we assume the right conditions are met for an ease-of-retrieval effect.

In short, to estimate how often one engages in ecological behaviour, one may rely on the perceived ease with which instances of ecological behaviour one engages in come to mind. From this experienced ease of retrieving, people may infer their attitude towards ecological behaviours in general.

Overlap

To visualize this idea we introduce an overlap metaphor (see figure 1). The pool of behaviours people draw from when trying to retrieve instances of previous ecological conduct can be conceived as the intersection area between two sets of behaviours. One set contains all possible behaviours a given person usually displays, and the other set contains all possible ecological behaviours. It is important to keep in mind that assigning a certain behaviour to one of these areas is done by each individual, in a subjective manner. The resulting sets are not necessarily a reflection of the objective reality.

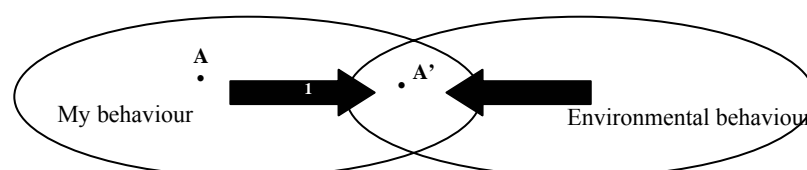


Figure 1. The overlap metaphor

The intersection of the two sets comprises all ecological behaviours a particular individual engages in. We hypothesize that the experienced ease of retrieving items from this overlap area influences the perceived size of this overlap area. An individual's self-perception as a green consumer is directly proportional to this perceived size of the overlap. Hence, when people derive their attitudes from the ease of retrieving their ecological behaviours, their self-perception will be consistent with the perceived overlap.

Increasing Perceived Overlap

We hypothesize that cueing the ecological behaviours that people usually perform increases the perceived ease-of-retrieval of instances of previous environmental conduct. Cueing may increase the perceived ease-of-retrieval through two routes. The first route via which cueing may have an influence on the accessibility of retrieving examples is direct: if one was cued with 'cycling to work' one retrieves instances of 'cycling to work' more easily than if one is not cued.

Second, cueing may increase the perceived ease-of-retrieval because it increases the number of instances located in the overlap area. People may not label several of the ecological behaviours which they engage in as ecological. Such behaviours objectively belong to the overlap area, but are not always perceived as such, and may therefore be wrongly assigned to the set of usual behaviours (see behaviour A in figure 1). Cueing behaviours that are not typically considered as ecological may change the interpretation of these behaviours as ecological, which may cause them to be relocated to the overlap area. The resulting increase of the overlap area increases the ease-of-retrieval of ecological behaviour.

There are two reasons why people may disregard some ecological behaviours. People may not count the environmental behaviours which everybody engages in, like 'turning off electrical equipment' and 'avoiding to litter'. Also, people may not count ecological behaviours they attribute to other reasons than their green ethics. For instance, people may not take into account 'saving energy' because they do it for economic reasons or 'selecting garbage' because it is obligatory.

From a logic of conversation-perspective (Grice, 1975; Schwarz, 1994), cueing these behaviours as *ecological behaviours* may render them relevant again. In order to be accessible as evidence for past environmental conduct, the status of this type of acts needs to change from merely ‘something I usually do’ (behaviour A in figure 1) to ‘something *environmental* I usually do’ (behaviour A’ in figure 1). Relocating some of these items will increase the *perceived ease* with which ecological behaviours come to mind. This further implies that cueing behaviours, in which people do *not* engage, will not influence perceived ease-of-retrieval and as a result, neither people’s attitudes. We can conclude that cueing commonly performed environmental behaviours does two things. First, it changes the status of those instances, which were not regarded as environmental behaviours before, and thus increases the number of items in the overlap area. Second, it increases the accessibility of the items of the overlap area.

A Positive Approach

The persuasion method we propose differs in an obvious way from classical social marketing techniques. Governments as behaviour managers use pricing strategies, communication campaigns providing arguments or sanctioning systems to promote socially desirable behaviour. These methods focus directly on arrow 2 (figure 1) because they aim to convince people to adopt a certain new behaviour, which was not part of their behavioural repertoire before. It has been recognized both a while ago (Miller, Brickman, & Bolen, 1975) and very recently (Hounsham, 2006), that focusing on people’s flaws may be perceived as threatening by the target audience. Campaigns doing this, might elicit a state of cognitive dissonance (Festinger, 1957), as people experience a contradiction between what they think they should be doing and their actual behaviour. The induced hypocrisy technique (Aronson, Fried, & Stone, 1991) uses this cognitive dissonance as a persuasion method by provoking individuals initially to make a commitment to the goal of behaving environmentally. People might then reduce dissonance by acting upon the goal. However, cognitive dissonance may be resolved via two other routes that do not entail the desired behavioural change. The least effortful way to reduce dissonance in this case is not to change behaviour, but to assimilate one’s behavioural and moral goals regarding environmentalism to their (less pro-environmental) behaviour. Because in usual circumstances, an explicit commitment to the goal is not made, changing attitudes is more likely than changing behaviour. Alternatively, avoiding dissonance may even be achieved by simply ignoring the request.

Focusing on arrow 1 (figure 1) will probably be perceived as less threatening by the target audience, as people are approached positively, emphasizing the beneficial things they are already doing. Furthermore, influencing people’s self-perceptions may produce an internal motivation to choose the ecological alternative, which has been proven to result in improved performance and persistence when trying to reach a goal (Ryan & Deci, 2000).

The Current Studies

We tested our conjectures in a series of four studies. In Study 1 we verified our assumption that a certain environmental behaviour tends to be regarded as less diagnostic on the actor’s green attitudes, when that behaviour is performed by a larger number of people (i.e. when it is regarded as a social norm), or when the behaviour can be attributed to alternative causes. These instances may be conceived of as a class of behaviours which might be transferred to the overlap area by cueing them as environmental behaviours. In Study 2 we tested the hypothesized relation between the perceived size of the overlap area and people’s

attitudes towards environmental behaviours. In Study 3 we manipulated the size of the overlap area by cueing common environmental behaviours and measured its effects on participants' self-perception and attitudes. In the final study we put our proposed technique to the real test and observed its potential for actually influencing people's environmental choices.

STUDY 1

We assume that people engage in several ecological behaviours that they do not spontaneously label as ecological. Some behaviours, which belong in the overlap area, are wrongly assigned to the set of behaviours which are not related to ecology. As a result, people have a smaller pool of *ecological behaviours that they usually perform* to draw from, when making an inference about their green attitudes. We hypothesized that this tendency to disregard some common behaviours as ecological, when deriving someone's position on the trait environmental consciousness, has two reasons. First, these behaviours might be attributed to other reasons than to the goal to behave environmentally. Second, they might be the type of behaviours most people engage in (it is a social norm), and therefore are not considered to be informative for inferring green attitudes. In this first study we want to verify our assumption about the perceived information value of any given environmental behaviour about one's own or someone else's green attitudes. We claim that this perceived information value is smaller if more people conduct the behaviour and if it can be attributed to other reasons than purely ecological ones.

Method

Participants and procedure

Thirty-two students participated in this study in exchange for partial course credit. Upon arrival in the lab, they were seated individually in front of a computer screen. They were randomly assigned to one of three groups. Everyone was asked to rate forty environmentally-friendly behaviours on a 100-point visual analog scale. Each group rated the behaviours on a different dimension. A first group rated the 'degree to which [each behaviour] is informative to infer someone's environmental consciousness' (*Informativeness*), with 'not at all' and 'perfectly' being the extremes of the scale. A second group rated 'the percentage of people usually performing [each behaviour]' (*Social Norm*), the scale ranging from 0% to 100%. A third group rated 'the degree to which people may have other reasons than environmentally friendliness to perform [each behaviour]' (*Other Reasons*), on a scale ranging from 'none at all' to 'many'.

For every group, we calculated the mean of the ratings given by the participants (the alphas were .66, .88, and .86 for the three groups, respectively). This way we obtained a score for all forty behaviours on each of the three dimensions (*Informativeness*, *Social Norm* and *Other Reasons*).

Results

The correlations between all three dimensions are shown in table 1. Consistent with our assumptions, the judgments of *Other Reasons* and *Social Norm* correlate negatively with the *Informativeness* of the behaviours. In addition, regressing *Other Reasons* and *Social Norm* onto *Informativeness* showed that both *Other reasons* and *Social Norm* contributed independently to the prediction of *Informativeness* ($t(37) = -3.20; p < .01$ and $t(37) = -3.41; p < .01$, respectively).

Table 1. Correlations between Three Dimensions on which Forty Environmental Behaviours were Rated

	Social Norm	Other Reasons
Informativeness	-0.43*	-0.45*
Social Norm		0.03

* p < .01

Discussion

This first study confirms our assumption that certain ecological behaviours are deemed less relevant to infer (some)one's green attitudes. An instance is judged to be less informative when it is considered to be normative or when alternative reasons exist to attribute the behaviour to. Possibly, ecological behaviours that are deemed less relevant to infer (some)one's degree of environmentalism may be assigned to the set of *usually performed behaviours that are not related to ecology*. The result would be a smaller pool of examples to draw from, when trying to retrieve evidence of past environmental behaviour, and correspondingly, a less favorable attitude towards environmental behaviour. Of course, this reasoning relies on the assumption that the retrieval of own prior environmental behaviours is related to one's self-perception as an environmentally conscious person. This assumption is tested in Study 2.4

STUDY 2

We measured the *perceived size* of the overlap area in two ways. First, we did so by asking our participants to list as many ecological behaviours that they engage in, as possible, and second, we measured perceived size by asking them to indicate how difficult it was to come up with these examples. We adapted Schwarz et al. (1991)'s measure in that the experimenter did not ask participants to generate a certain number of examples, but asked to generate *as many as possible*. Attitude towards ecological behaviours was measured with three 7-point items (see table 2). As an alternative and more implicit measure of attitude, we asked people to associate freely with respect to the concept 'ecological behaviour'.

Relying on our overlap metaphor, we expected to find a correlation between the Attitude towards ecological behaviours and both the ease of retrieval and the number of retrieved ecological behaviours one engages in (i.e. perceived overlap size). On the other hand, we did not expect a correlation between Attitude and the retrieval of items concerning ecological behaviours that one does not engage in. To test this hypothesis, we asked participants to generate as many ecological behaviours as possible in which they do not engage and to rate how difficult this task was.

Table 2. Means and Standard Deviations of the Items of the Attitude Scale in Study 2 and 3

	Study 2		Study 3					
	Mean	SD	High Overlap		Low Overlap		Control	
			Mean	SD	Mean	SD	Mean	SD
How do you feel about environmental behaviours ? (1= very negative, 7= very positive)	5.22	1.04	5.19	1.01	4.92	.81	4.78	.94
How do you feel about performing environmental behaviours? (1= very negative, 7= very positive)	5.10	1.04	5.35	1.05	5.00	1.04	4.62	1.05
How important is it that you perform environmental behaviours? (1= not important at all, 7 = very important)	4.20	1.21	5.08	.93	4.43	.91	4.36	1.04

Method

Participants and procedure.

Forty-two participants took part in this study in exchange for partial course credit. The number of participants per session ranged from six to eight. Upon arrival in the lab, they were seated individually in front of a computer screen in semi-closed cubicles. Participants first filled in a questionnaire containing, amongst some filler items, a three-item scale measuring their attitude towards ecological behaviours. Following some filler tasks, they had to generate as many ecological behaviours as they could come up with. In particular, they had to write down activities they usually engage in as well as activities they usually do not engage in. Afterwards, we asked them to indicate on a seven-point scale how difficult it was to come up with both types of activities. Further, participants had to write down as many positive and as many negative associations as possible with the concept of ecological behaviour.

Measures.

The implicit measure of Attitude was defined as the difference between the number of positive associations and the number of negative associations generated. Higher values indicate a more positive Attitude. This is a simplification of an attitude-measure according to the expectancy-value model (Fishbein, 1963), in which the strength of all associations is considered equal.

As explained before, we used two measures of the perceived size of the overlap area. The first was defined as the number of generated past performed ecological behaviours (Number measure of *Perceived Overlap*). Higher values indicate higher perceived behavioural overlap. The reported difficulty of generating performed ecological behaviours constituted the second measure of the perceived size of the overlap (Ease measure of *Perceived Overlap*). Higher values indicate a lower perceived overlap. The measures for the perceived size of the area containing *environmental behaviours which I do not perform* were constructed in a similar way, using the number of such instances generated and the reported ease with which these were generated.

Results

As expected, the three attitude items loaded on one factor which explained 76.61 % of total variance. The responses to the three items were factor analyzed to obtain a measure of the participants' Attitude towards ecological behaviour.

The correlation between the two measures of Overlap Size was high, $r = -.59$, $p < .01$. Our two measures of Attitude, the explicit and the implicit one, correlated only modestly, $r = .28$, $p = .09$, which is a commonly found result (e.g., Greenwald & Farnham, 2000; Greenwald, McGhee, & Schwartz, 1998). We analyzed the relationship with overlap size separately for both measures.

Table 3 shows all the correlations of both Attitude measures (implicit and explicit) with the two measures for Perceived Size of the overlap area (Number measure and Ease measure) and with the two measures on generating nonperformed ecological behaviours (Number measure and Ease Measure). As predicted, the four correlations between Attitude and Perceived overlap Size measures were significant. Additionally, neither the correlations between Attitude and Number of nonperformed ecological behaviours generated nor between

Attitude and Ease of generation of nonperformed ecological behaviours reached significance.

Table 3. Correlations of Environmental Attitudes with Measures of the Perceived Size of the Overlap Area, and with the Measures of Ease of Generating Nonperformed Ecological Behaviours

	<i>Performed Ecological behaviours (Perceived Size)</i>		<i>Nonperformed ecological behaviours</i>	
	Number measure	Ease Measure	Number measure	Ease Measure
Implicit Attitude	.44**	-.38*	-.21	.06
Explicit Attitude	.42**	-.50**	-.12	-.10

* $p < .03$. ** $p < .01$

Discussion

This study confirms the hypothesized relationship between perceived behavioural overlap and people's attitudes towards ecological behaviours. Although the implicit and the explicit attitude-measures were only modestly correlated, both types of attitudes were predicted in a highly similar way by the four measures of perceived overlap. The fact that we find a similar association between the Number and the Ease measure of Overlap Size with the Attitude towards environmental acts implies that it is a sufficient condition to provoke an *impression* of a large overlap area to influence people's environmental self-perceptions and attitudes. We will attempt to do so in the next study.

Further, we only found a relation between attitude and performed environmental behaviours, but not with not-performed environmental behaviours. This indicates that only the perceived size of the overlap area affects the derived attitude, while the size of the area containing the non-performed ecological behaviours (see figure 1) is irrelevant in this respect. These results are consistent with the hypothesis that people's attitudes towards ecological behaviours improve if previously performed ecological behaviours are made more accessible. In the next study we will test whether cueing commonly performed environmental behaviours does indeed result in altered self-descriptions and attitudes.

STUDY 3

We assumed that a more favorable attitude towards ecological behaviours will result in more environmentally friendly behaviour (Gill, Crosby, & Taylor, 1986; Minton & Rose, 1997). We further identified 'perceived overlap' as a factor associated with this attitude. Consequently we suggest that perceived overlap may be exploited by a technique to promote environmental conduct. We propose that cueing individuals with common environmental behaviours, increases this perceived overlap and, as a result, improves their self-perception as a green consumer, and hence their attitudes and their behavioural intentions.

Method

Materials

We constructed two different sets of behaviours: the High Overlap set contained eight *environmental behaviours which people usually perform*. These were the eight most often mentioned behaviours of this type in the behaviour generation task by participants in Study 2.

These were ‘selectively disposing of household garbage’, ‘using the bike instead of the car when possible’, ‘avoid littering’, ‘turn off electrical appliances (to save energy)’, ‘using both sides of scratch paper’, ‘disposing cans and milk cartons in a separate garbage bag’, ‘leaving a clean spot after a picnic’ and ‘buying a less polluting product if there is a choice in the shop’.

The Low Overlap set was constructed to contain eight *environmental behaviours which people usually do not perform*. These were ‘using saving lamps in my house’, ‘always using public transportation instead of my own car’, ‘reduce shower time’, ‘buy glass instead of plastic bottles’, ‘being a member of environmental organizations’, ‘actively looking for the most environmentally friendly products’, ‘using a reusable shopping bag’ and ‘buying bio-products’.

A pretest showed that both sets of behaviours do not differ with respect to the average *environmentally friendliness* of the behaviours ($N = 19$, $t(18) = -0.30$, $p = .77$).

Participants and procedure

In this experiment 160 undergraduate students took part in exchange for partial course credit. They came to the lab in groups of five to eight and were seated individually in front of a computer screen in semi-closed cubicles. Participants were randomly assigned to one of three conditions: the High Overlap, the Low Overlap, or the control condition.

In the High and Low Overlap condition, participants were asked to indicate whether or not they usually displayed each of the eight behaviours included in their list, on a seven point scale (ranging from ‘I do not agree at all’ to ‘I fully agree’). Participants in the control condition had to indicate whether or not they engaged in eight behaviours that were not related to ecology (e.g., ‘reading a newspaper every day’, ‘often eating French fries’).

In the second phase of the experiment, after 20 minutes of filler tasks, all participants completed a questionnaire which probed their attitudes towards ecological behaviours (same scale as in Study 2, see table 2). These were accompanied by filler items. Additionally, we measured participant’s self-perception as an ecological consumer (2 items). One additional item measured the degree to which participants feel morally obliged to protect the environment. All questions had to be answered on a 7-point scale, ranging from ‘I do not agree at all’ to ‘I fully agree’.

Results

Manipulation check. As intended, participants who received the High Overlap set indicated they engaged more in the behaviours included ($M = 5.53$, $SD = .79$) than participants who received a Low Overlap set ($M = 3.05$, $SD = .97$; $F(1, 103) = 204.88$, $p < .01$).

Attitudes towards ecological behaviours. The three items loaded on one factor which explained 75.69 % of the variance ($\alpha = .84$). We calculated the factor score of the three items, which constituted our attitude measure. The ANOVA revealed that the overlap manipulation significantly affected participant’s attitudes towards ecological behaviours, $F(2, 157) = 7.15$, $p < .01$. Simple contrasts revealed that the attitudes in the High Overlap condition ($M = .39$, $SD = 1.05$) were more favorable than in the control group ($M = -.30$, $SD = 1.00$; $F(1, 157) = 13.84$, $p < .01$), whereas the attitudes in the Low Overlap ($M = -.07$, $SD = .82$) condition did not significantly differ from that in the control group ($F(1, 157) = 1.84$, $p = .23$). The difference between the High and Low Overlap groups was significant as well ($F(1, 157) = 6.18$, $p < .01$).

Self-perception and moral obligation. Two items probing self perception as a ‘green consumer’ (‘I think I behave ecologically’ and ‘I take ecological aspects into account when I buy a product’) load on one factor which explains 77.51% of the variance and they constitute a reliable scale ($r = .71$). The ANOVA on the factor scores shows that our manipulation influences the self-perception of the participants, $F(2, 157) = 10.33, p < .01$. Simple contrasts reveal that participants in the High Overlap condition perceive themselves as more ecological ($M = .47, SD = .84$) than participants in the control group ($M = -.11, SD = 1.00; F(1, 157) = 9.95, p < .01$) or in the Low Overlap group ($M = -.35, SD = .98; F(1, 157) = 19.59, p < .01$), but participants in the Low Overlap condition do not perceive themselves different from those of the control group ($F(1, 157) = 1.48, p = .19$). The ANOVA on the item measuring participants’ feeling of moral obligation to protect the environment, using standardized scores, also revealed a significant effect of our manipulation ($F(2, 157) = 4.20, p < .02$). The High Overlap group scored marginally higher ($M = .30, SD = 1.03$) than the control group ($M = -.04, SD = .85, F(1, 157) = 3.35, p < .07$) and higher than the Low Overlap group ($M = -.24, SD = 1.06, F(1, 157) = 8.21, p < .01$), but again the Low Overlap group did not differ from the control group ($F(1, 157) = 1.14, p = .29$).

Discussion

These results support our claim that using a positive approach in green behaviour promotion, emphasizing the efforts people already do, is an efficient way to support the cause at hand. We have shown that people’s attitudes towards ecological behaviours are related to the perceived overlap between their set of actual behaviour and the set of ecological behaviours. Moreover, we demonstrated we can manipulate this perceived overlap, and render attitudes towards ecological behaviours more favorable. An approach which emphasizes previous failures to behave environmentally friendly might trigger induced hypocrisy effects (Aronson et al., 1991), but seems not to be effective in this case.

Cueing common environmental behaviours did not merely improve attitudes. We also observed a change in participants’ self-perception as a green consumer and their sense of moral obligation to protect the environment, mediated by the attitude change.

Assuming that a more favorable attitude facilitates the performance of ecological behaviour, we intend to use this cueing technique to promote green or sustainable *behaviour* in the next study.

STUDY 4

In this study, we tested the potential of the cueing technique for influencing actual ecological behaviour. We designed several dependent measures, carefully concealing the true purpose of the tasks, to avoid demand effects or hypothesis guessing. This precluded the measurement of attitudes towards ecological behaviour. We added unrelated filler tasks for the same purpose. After applying the same cueing manipulation of Study 3, participants were presented with a product choice task in a simulated shop and another, real product choice. In both instances, one choice alternative was a more ecologically sound, but more expensive alternative than the other. In addition, we observed how efficiently they used available scratch paper in a task where participants were asked to make notes.

Method

Participants and procedure

Sixty-six undergraduates were paid 6 € for participation in this study. Participants came to the lab in groups of five to eight. At the start of the session, before introducing our manipulation, we asked them to complete an environmental concern questionnaire. We used 13 of the 16 items of the environmental concern scale of Minton and Rose (1997), dropping three repetitive items, to keep the questionnaire as short as possible. Then participants were subjected to a manipulation, which was identical with the one in the previous study and resulted in a High Overlap, a Low Overlap, and a control group. The remaining part of the session consisted of several tasks, measuring ecological behaviour. After completing a filler task, participants were presented with ten product pairs: five filler pairs and five critical pairs. In each critical pair, one product was a more environmentally friendly but more expensive alternative than the other. We asked the participants to indicate which product they would pick if they were to purchase them now. The critical product categories were cookies (differing in the amount of plastic used for wrapping), kitchen paper, deodorants, (energy-efficient) lamps, and detergents. For eight product categories, the more expensive product cost 1.05 € whereas the less expensive product cost 0.95 €. For the lamps, the prices were 1.50 € and 1.30 €, respectively, and for detergents, they were 1.40 € and 1.30 €, respectively. These prices were pre-tested in a different sample of the same student population ($N = 34$) by informing participants about the shop value of a certain object and asking them which (higher) price they would be willing to pay for a more ecological variant of that product. We used the median price mentioned for the ecological products in the choice task.

After the choice task, we asked participants to write down a short summary of each of eleven elaborated product claims shown on the screen, under the pretext of investigating which pieces of information are judged as essential by consumers. We actually examined how economically participants used the available paper, counting the number of sheets used and measuring the percentage of the surface actually used to write on. After working 10 more minutes on filler tasks, participants learned that the experimental session was finished; they were asked to proceed to the exit of the lab, where the experimenter would pay them for their cooperation. The experimenter thanked them individually for their participation and paid the promised 6 €, casually mentioning the fact that, since summer holidays were coming up, some leftover material from previous experiments was to be given away. They could take a notepad from a nearby table. The notepads were piled up in two stacks. One stack contained notepads made from brownish, recycled paper; these notepads had a large “recycled” logo on the cover. The other stack contained notepads made from white, regular paper. The shop value of these notepads is 1.39 € and 1.30 €, respectively. The experimenter inconspicuously observed which notepad the participant chose.

Results

Manipulation check. Like in our previous study, we compared the indicated frequencies with which the two experimental groups perform their set of activities as a manipulation check (we failed to record this frequency for 4 participants, because of a computer malfunction). Participants who received the High Overlap set indicated they engaged more in the behaviours included ($M = 5.96$, $SD = .77$) than participants who received the Low Overlap set ($M = 3.34$, $SD = .87$, $F(1, 39) = 104.61$; $p < .01$).

Product choice task. We performed an ANCOVA on the number of ecological choices

made in the product choice task, using environmental concern as a covariate. The scree plot resulting from the factor analysis on these 13 environmental concern items suggested a unidimensional solution. One factor explained 48.47% of the total variance ($\alpha = .90$). Our technique proved efficient in increasing the number of ecological products chosen ($F(2, 62) = 8.22; p < .01$). Simple contrasts show that, on average, the High Overlap group chose more ecological products ($M = 3.12, SD = .79$) than the control group ($M = 2.34, SD = 1.14, F(1, 62) = 7.07; p < .01$) and than the Low Overlap group ($M = 1.96, SD = 1.13, F(1, 62) = 15.89; p < .01$). The Low Overlap and the control group did not differ from each other ($F(1, 62) = 1.69; p = .20$). The covariate, ecological concern, had a significant impact as well ($F(1, 62) = 7.28; p < .01$), indicating that our dependent measure is indeed sensitive to the willingness to make the environmentally friendly choice.

Notepad choice task. Participants assumed the experiment was over when offered to take a notepad home. Two participants turned down the offer so we ended up with 64 observations. A chi-square test revealed a significant effect of our manipulation ($\chi^2(2) = 14.59; p < .01$). The ecological notepad was chosen more often in the High Overlap condition (81%) than in the control group (52%), $\chi^2(1) = 3.86, p < .05$, and than in the Low Overlap condition (23%), $\chi^2(1) = 14.58, p < .01$. Moreover, choosing the ecological notepad was also significantly more likely in the control condition than in the Low Overlap condition, $\chi^2(1) = 4.04, p < .04$.

Use of scratch paper. Participants were free to use as many sheets of paper as needed to summarize eleven elaborated product claims presented on the computer screen. The sheets were 3.82 in. (9.7 cm) by 3.94 in. (10 cm). As a measure of paper usage efficiency, we determined how much of the total surface of used sheets was actually written on, using scanner software. We squared this number to approximate a normal distribution. Higher numbers correspond with more efficient, and therefore more ecological, paper usage²². The ANCOVA, controlling for the number of words participants wrote, revealed a significant effect of our manipulation, $F(2, 58) = 3.89, p < .03$. The High Overlap group ($M = .30, SD = .26$) used the paper more efficiently than the control group ($M = .12, SD = .10; F(1,58) = 7.62; p < .01$). The difference between the High- and the Low Overlap group ($M = .20, SD = .22$) was marginally significant, $F(1, 58) = 2.92, p < .09$, but we did not find a difference between the Low Overlap group and the control group ($F(1, 58) = 1.34; p = .25$). Additionally, we measured the size of participants' handwriting. In order to do so we chose a word which was written down by all participants - because participants wrote down summaries, not everybody used the same words - and which appeared more or less in the middle of the sequence of claims, since the size of the handwriting was often very variable within each participant for the first claims. The word 'glycerine' met both criteria. We measured the length of this word in centimeters for each participant. We found a significant effect ($F(2, 59) = 3.81, p < .03$) showing that participants in the High Overlap condition wrote smaller ($M = 2.46, SD = .44$) than participants in the control group ($M = 3.04, SD = .91; F(1, 59) = 7.10, p < .01$) and the Low Overlap group ($M = 2.88, SD = .65; F(1,59) = 3.92, p < .05$). There was no significant difference between the Low Overlap group and the control group, $F(1,59) < 1$.

Discussion

Increasing perceived overlap by cueing with performed ecological behaviours

²² The data of four participants were excluded from this analysis, for not following the instructions. They indicated whether they thought the statement was true or false, rather than writing down a summary.

successfully increased the level of participant's environmental behaviour. Participants in the High Overlap condition indicated a larger preference for buying a (more expensive) environmentally friendly variant of a common product in the simulated shop environment, and chose the less attractive but recycled notepad, which they could take home with them, more often. We even found that our manipulation resulted in more efficient and therefore more environmentally friendly use of scratch paper. These results prove the value of our technique, even in a situation where the environmental implication of the task was concealed. Again, emphasizing the green behaviours that people generally do not engage in, a technique used by classical social marketing campaigns (i.e. the induced hypocrisy effect), did not result in more environmental choices. To the contrary, in the notepad choice task it actually led to less environmental choices than in the control condition.

GENERAL DISCUSSION

The current paper starts from the idea that in some situations, attitudes are derived from prior behaviour (Bem, 1972) or rather, the perception of that behaviour (Salancik & Conway, 1975). To conceptualize this process, we introduced an overlap metaphor. Behaviours one deems relevant to infer one's own attitude from with respect to an issue, are located at the intersection (the overlap) of the sets of behaviours one engages in and the set of behaviours that are informative about any given person's attitude towards the issue at hand.

Study 2 shows that the perceived overlap between the self and ecology is indeed predictive of one's attitudes towards ecological behaviour. Techniques aimed at increasing the perceived overlap may therefore render one's attitude towards ecological behaviour more favorable.

The results of Study 1 suggest one such technique, namely cueing common ecological behaviours to increase the perceived overlap. Indeed, Study 1 supports the assumption that not all ecological behaviours are equally relevant to infer an attitude. Given that people may refrain from drawing inferences from behaviours that are easily explainable by other factors including its mere commonness, it suggests that common ecological behaviours may not be perceived as part of the intersection area. Cueing people with commonly performed ecological behaviours may result in the relocation of these omitted behaviours to the overlap area.

The results of Study 3 show that the overlap-technique renders people's attitudes towards environmentally friendly behaviours more favorable. It favors perceiving one-self as an environmental person and increases people's feeling of moral obligation to do something for the environment. In addition, Study 4 demonstrated that it is actually effective in promoting environmental behaviour. Considering that one task was consequential (the notepad task) and that another one hardly could be recognized as an environmental task (the summary task), the behavioural effects were probably not due to a demand effect.

These results allow us to propose some guidelines for designing effective social marketing campaigns, in all areas of sustainable behaviour (and beyond). Traditional social marketing campaigns often emphasize how poorly the target audience is doing with regard to a certain topic. If it was not for drawing attention to a flaw in their course of action, there would be no need to campaign in the first place. However, these types of campaigns induce an aversive feeling towards the request, making people feel guilty and paternalistically telling them what to do. Implicitly they also tell the audience that they are just doing what every next person does (i.e. failing to make environmental choices), which has been shown to reinforce their (undesirable) behaviour (Cialdini, 2003). Our results indicate that this may result in an ineffective social marketing effort. The Low Overlap condition simulated this type of

campaign communication, as it emphasized how little a target person is doing for the environment. For all but one of our measures, the Low Overlap group did not differ from the control group. And if it did so, it resulted in less environmentally-friendly behaviour. We propose an alternative approach, which emphasizes that people have, in fact, already adopted several changes for the better. Our data suggest that drawing attention to the ecological behaviour people already engage in, increases the behavioural overlap and improves people's attitudes towards ecological behaviours, with a similar effect on their behaviour.

Second, traditional campaigns usually call upon people's sense of morality when asking them to do the 'right thing'. Because of the behavioural costs related to sustainable behaviours (Follows & Jobber, 2000; Pieters, 1989; Pieters et al., 1998; Thøgersen, 1994), these requests are only effective on the short term, until the costs regain salience. The technique we presented in this paper influences consumers' self-perception. People are led to see themselves as "someone who is willing to do an effort for the environment", or any other promoted cause, and act upon that self-perception (Osbaldiston & Sheldon, 2003). Someone who perceives himself as an environmentally friendly consumer is internally motivated to act upon this perception. It is a well-documented fact that internal motivation results in increased performance and persistence of a behaviour (Ryan & Deci, 2000; Sheldon & Elliot, 1999). Therefore we expect a persuasion method based on a self-perception change to have a longer term effect.

The technique we presented in this paper is related to a class of persuasion methods, which use consistency and self-perception as drivers for the effect. Compared to foot-in-the-door related strategies (Cialdini, 2001; Freedman & Fraser, 1966), the self-prophecy phenomenon (Spangenberg & Greenwald, 1999), the labeling technique (Burger & Caldwell, 2003; Kraut, 1973; Miller et al., 1975), and induced hypocrisy (Aronson et al., 1991), the advantage of the overlap technique is that it involves a less intrusive procedure. Unlike the mentioned strategies, the overlap technique does not require a first request (foot-in-the-door), an enquiry into future intentions (self-prophecy), the provocation of a certain behaviour (labeling) or a communication emphasizing people's personal norms and reminding them of past failure to comply with these norms (induced hypocrisy). It merely consists of cueing instances of past engaging in the target behaviour. Therefore the technique may be more appropriate for application in mass communication campaigns.

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