



Making Green Stuff? Effects of Corporate Greenwashing on Consumers

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Abstract

The marketing success of green products has spawned the phenomenon of greenwashing, but studies on the effects of greenwashing on consumers are still limited. Using a 4×2 randomized experimental design, this study examines such effects by determining whether consumers respond differently to greenwashing, silent brown, vocal green, and silent green organizations selling hedonic products (perfume) or utilitarian products (detergent). The results show that consumers recognized the green claims in the greenwashing condition, which led to an environmental performance impression in between green and brown organizations but also to more negative judgments about the integrity of communication. Regarding purchase interest, greenwashing organizations performed similarly as silent brown organizations, with significantly lower scores than those of vocal green and silent green organizations. No significant effects of product type and no interaction effects were found. Overall, greenwashing has only

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limited benefits (perceived environmental performance), poses a major threat (perceived integrity), and has no true competitive advantage (purchase interest).

Keywords

green marketing, greenwashing, corporate social responsibility (CSR), sustainability, environmental communication

In an age of corporate social responsibility (CSR), organizations realize that they cannot concentrate only on profit, investment return, and shareholder value. A good social and environmental performance—often referred to as the “triple-bottom line” or “people/planet/profit” performance evaluation (Cronin, Smith, Gleim, Ramirez, & Martinez, 2011; Elkington, 1997)—has become a necessity for organizations. Organizations are expected to limit negative aspects of their business as much as possible and to make positive societal contributions. Carroll (1991) summarized these expectations in a four-layered “pyramid of social responsibilities.” The pyramid base represents economic responsibilities, which directly affect an organization’s viability. The next layer up represents legal responsibilities: Organizations are expected to comply with laws and regulations. Another layer represents ethical responsibilities—behaviors that are seen as right and just but are not codified into laws and regulations. The pyramid’s highest layer represents philanthropic responsibilities, which involve making additional contributions to society or humankind.

Organizations might have three basic motives for CSR policy and activities: to contribute to society, to generate financial or other benefits, or to meet social expectations and alleviate stakeholder pressures (cf. Becker-Olsen, Cudmore, & Hill, 2006; Graafland & Mazereeuw-Van der Duijn Schouten, 2012; Groza, Pronschinske, & Walker, 2011; Hemingway & Maclagan, 2004; Morsing & Schultz, 2006). In practice, organizations often have a combination of these motives (Berglund & Nakata, 2005). CSR research has focused strongly on the potential benefits for the organization, empirically demonstrating various benefits such as providing a better image or reputation and increasing consumer purchase intentions and loyalty (Aguinis & Glavas, 2012; Du, Bhattacharya, & Sen, 2010; Smith & Langford, 2009; Torres, Bijmolt, Tribó, & Verhoef, 2012), reducing equity costs (El Ghouli, Guedhami, Kwok, & Mishra, 2011), and serving as a buffer in times of crisis (Choi & La, 2013; Kim, 2014; Klein & Dawar, 2004; Lin,

Chen, Chiu, & Lee, 2011). Research thus suggests that actively working on a CSR portfolio can be beneficial for organizations and that neglecting the issue of CSR might be risky.

Because being green carries potential benefits for corporations, greenwashing has emerged as CSR's evil twin. Defined as "the act of misleading consumers regarding the environmental practices of organizations (firm-level greenwashing) or the environmental benefits of a product or service (product-level greenwashing)" (Delmas & Burbano, 2011, p. 66), greenwashing involves suggesting a better environmental performance than the actual environmental behavior justifies. Other labels for the same phenomenon are green spin (Alves, 2009), the disclosure–performance gap (Font, Walmsley, Cogotti, McCombes, & Häusler, 2012), and symbolic (vs. substantive) actions (Perez-Batres & Doh, 2014; Walker & Wan, 2012).

Various authors have drawn attention to the prevalence of greenwashing in the communication of organizations (e.g., Atkinson & Kim, 2014; Baum, 2012; Fernando, Sivakumaran, & Suganthi, 2014; Font et al., 2012; TerraChoice, 2007, 2009, 2010). Delmas and Burbano (2011) even talked about a "skyrocketing incidence" (p. 64). Because greenwashing is cited as an important reason for consumer skepticism toward CSR and environmentally friendly claims (e.g., Jahdi & Acikdilli, 2009; Nyilasy, Gangadharbatla, & Paladino, 2014; Skarmeas & Leonidou, 2013), its prevalence threatens the effectiveness of organizations' bona fide CSR policies (Elving & Van Vuuren, 2011) and the global development of more sustainable societies (Alves, 2009). Thus, academic attention to the phenomenon of greenwashing is rapidly increasing (Lyon & Montgomery, 2015).

Considering the prevalence and potential seriousness of greenwashing, the empirical research into its effects is surprisingly limited. To help fill this gap, we conducted an experimental study into the effects of greenwashing in the context of consumer products. By comparing greenwashing organizations to the other three categories in Delmas and Burbano's (2011) classification—silent brown, vocal green, and silent green organizations—we aimed at reaching meaningful, nuanced conclusions about the effects of corporate greenwashing on consumers.

Literature Review

After first exploring the concept of greenwashing, we discuss earlier research into consumers' reactions to greenwashed communication, provide a theoretical perspective on the effects of greenwashing, and present our hypotheses for this study.

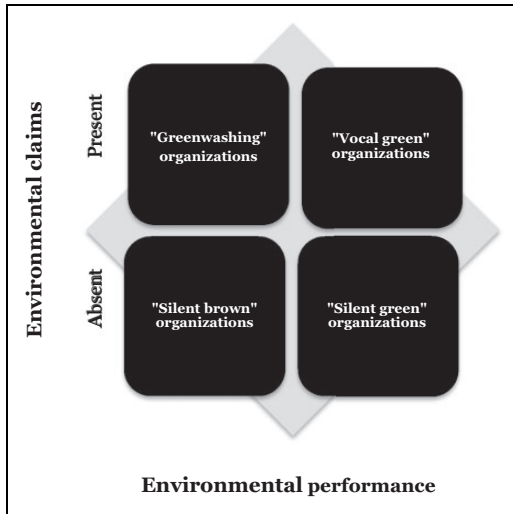


Figure 1. Typology of environmental strategies (Delmas & Burbano, 2011).

Greenwashing

To characterize greenwashing, Delmas and Burbano (2011) proposed a typology of organizations based on two dimensions: (a) environmental performance (distinguishing between “green” and “brown” organizations) and (b) communication about environmental performance (distinguishing between “vocal” and “silent” organizations). These two dimensions form a typology with four cells (see Figure 1). Organizations that combine good environmental performance with positive communication about their environmental performance are called *vocal green* organizations. Organizations that do not communicate about their good environmental performance are called *silent green* organizations. And organizations that combine bad environmental performance with positive communication about their environmental performance are *greenwashing* organizations. The last category is *silent brown* organizations, which have bad environmental performance and no communication about environmental performance.

Although this typology illuminates the basic choices that organizations have, it is a simplification of reality. In practice, an organization’s environmental performance might not be clearly good or bad. Environmental performance often involves many aspects, and organizations might be placed

in different cells for different aspects. Likewise, it is a simplification to see communication about environmental performance as a dichotomy—there are many different ways of communicating, with varying degrees of emphasis, valence, and framing. For our study, however, the typology forms a useful starting point for its experimental conditions.

The broadness of the concept of greenwashing—an umbrella term, according to Lyon and Montgomery (2015)—becomes clear when we take a closer look at the way it has been used so far. Based on several publications characterizing different aspects of it (Elving & Van Vuuren, 2011; Fernando et al., 2014; Lyon & Montgomery, 2015; Parguel, Benoît-Moreau, & Russell, 2015; TerraChoice, 2010), greenwashing can be described using two features: (a) an intrinsic feature (distance from truthfulness) and (b) a communicative feature (techniques used to mislead or confuse people). Regarding intrinsic features, TerraChoice (2010) hinted at various “sins” between half-truths and lies. Examples of half-truths are the “sin of hidden trade-off” (when only one or some of the behaviors are really green), the “sin of irrelevance” (when the green behaviors actually make no significant improvements), and the “sin of lesser of two evils” (when the green behaviors merely reflect a comparison with truly bad earlier behaviors); the “sin of fibbing” refers to lies. Regarding communicative features, TerraChoice mentioned the “sin of no proof” (when claims are unsubstantiated), the “sin of vagueness” (when claims cannot be verified), and the “sin of worshipping false labels” (when fake or questionable certification icons are used). Mason and Mason (2012) drew attention to the persuasive nature of corporate environmental reports, highlighting in particular macrostructural and microstructural features.

Parguel, Benoît-Moreau, and Russell (2015) would characterize all of the above as examples of “claim greenwashing,” drawing attention to another strategy called “executional greenwashing,” in which greenness is not explicitly claimed but suggested by peripheral cues such as imagery. Elving and Van Vuuren (2011) added the use of buzzwords such as “eco-friendly” and “recyclable” as examples of executional greenwashing. And Harris (2015) drew attention to yet another possible facet of greenwashing: Communication about positive contributions can be used to distract people’s attention from negative aspects. Finally, Hahn and Lülfs (2014) mentioned the way organizations handle negative events as a potential source of greenwashing, highlighting strategies such as marginalization and rationalization. In all, the gamut of possible greenwashing activities seems broad. Lyon and Montgomery (2015) provided an overview of

misleading communicative behaviors, arguing that any of them could be a variety of greenwashing.

Effects of Greenwashing

The empirical research into the effects of greenwashing is still limited. A distinction can be made between macrolevel studies that focus on the relationship between organizations' greenwashing practices and their overall (financial) performance and microlevel studies that focus on the effects of greenwashed messages on consumers.

Macrolevel research suggests that greenwashing does not have positive effects on organizations' overall performance indicators. Du (2015) described an analysis of the Chinese stock market, showing that greenwashing has a negative relationship with companies' cumulative abnormal returns (CAR) whereas corporate environmental performance has a significantly positive relationship with CAR. Walker and Wan (2012) investigated the financial implications of greenwashing and substantive actions for Canadian firms in polluting industries. They found that greenwashing is negatively related to financial performance and that substantive action has neither positive nor negative financial implications. And in a study of banks in 22 countries, Wu and Shen (2013) found a positive relation between CSR and financial performance, but not for banks that practiced greenwashing. Together, these macrolevel studies suggest that greenwashing does not pay for organizations; however, it is hard to draw causal inferences from such data. After all, a good financial position could also affect environmental performance, or a third variable—for instance, vision and leadership—could affect both financial and environmental performance.

On the microlevel, some studies have focused on the effects of unsubstantiated green claims or green cues, without making participants aware of their greenwashed nature. Spack, Board, Crighton, Kostka, and Ivory (2012) showed that consumers are susceptible to unfunded green cues, finding that the mere presence of green cues affects consumers' buying intention, irrespective of the format, modality, or quality of the arguments. Parguel et al.'s (2015) study on the effects of nature-evoking elements in advertisements confirmed that this form of "executional greenwashing" positively affects consumers' brand-image perceptions.

In two nonexperimental, survey-based studies, Chen and colleagues investigated the relationship between perceived greenwashing and several outcome variables. Chen and Chang (2013) focused on the effects of greenwashing on green consumer confusion, green perceived risk, and green trust

whereas Chen, Lin, and Chang (2014) investigated the effects of greenwashing on green perceived quality, green satisfaction, and green word of mouth. Respondents were asked to answer questions while thinking of a self-selected specific “information and electronics product” of a Taiwanese firm. Chen and Chang (2013) showed that perceived greenwashing is negatively related to green trust, both directly and via green consumer confusion and green perceived risk. And Chen et al. (2014) showed that perceived greenwashing is negatively related to green word of mouth, both directly and via green perceived quality and green satisfaction. Together these studies suggest that greenwashing might have negative effects on consumers. But the dependent variables in these two studies stay close to consumers’ perceptions of environmental friendliness (green trust and green word of mouth, respectively), and the design of both studies does not justify causal inferences.

Lim, Ting, Bonaventure, Sendiawan, and Tanusina (2013) described a qualitative study using in-depth interviews exploring consumers’ reactions to green claims and the effects when they realize the claims involve greenwashing. Lim et al. showed that consumers are often uncertain about green claims and that discovering greenwashing may lead them to be distrustful—of both the product and green products in general—and cautious and to want to spread the word about the greenwashing practices. But Atkinson and Kim’s (2014) qualitative study showed consumers’ reactions to greenwashed communication as much less straightforward. In focus groups, participants appeared to use various rationalization techniques to balance their skepticism with their acceptance of green claims, and their green intentions with their nongreen behaviors.

Newell, Goldsmith, and Banzhaf (1998) reported on a study with an experimental design but a predominantly correlational analysis. They used two versions of an advertisement, with and without misleading environmental claims, to investigate the effects of greenwashing on several dependent variables. Comparing the two conditions, they found significant differences between the two advertisements in terms of perceived deception and advertiser credibility (as expected, a misleading claim led to a higher score on deception and a lower score on credibility) but no differences between the two advertisements regarding attitude toward the ad, attitude toward the brand, and purchase intention. In a subsequent structural equation analysis, they found significant negative relationships between perceived deception (regardless of the two experimental conditions) and advertiser credibility, attitude toward the ad, attitude toward the brand, and purchase intention. But the independent variable was perceived deception

(a mental state that presumes recognition of deception) and not the contradictory information from which participants might infer deception. This finding suggests, then, that consumers who feel misled by advertisements tend to develop negative views of the advertisers and their brand and unfavorable purchase intentions. But the actual advertisement with misleading information did not have such effects.

Causal inferences about the effects of greenwashing can be made only by using experimental research. So far, only two studies (Nyilasy et al., 2014; Parguel, Benoît-Moreau, & Larceneux, 2011) have used an experimental design to investigate the effects of greenwashing. But neither satisfactorily compares the effects of greenwashing to the other three positions of organizations (i.e., vocal green, silent green, and silent brown), and both studies have methodological issues.

Parguel, Benoît-Moreau, and Larceneux's (2011) study investigates the effects of third-party sustainability ratings on the interpretation of sustainability information on a corporate Web site. They had three experimental conditions: good, poor, and no rating. The sustainability information provided on the corporate Web site was the same in all conditions. The procedure had a clear phasing. First, participants were exposed to the home page of a fictitious furniture and home improvement retailer in order to introduce the company and its products. After that, they were exposed to a manipulated newspaper article containing the company's sustainability rating (this step was skipped in the no-rating condition). Finally, they were presented with the retailer's Web page containing sustainability information. The condition with the poor rating can be seen as a greenwashing position whereas the condition with the good rating can be seen as a vocal green position. The results indicate that the greenwashing condition led to considerably lower scores on perceived CSR efforts, perceived intrinsic motives, and corporate brand evaluation. As such, the research uncovers possible negative effects of greenwashing that appear to be mediated by a negative effect on the perceived intrinsic motivation of the retailer for its sustainability-related activities.

The research design, however, was not geared toward investigating the effects of greenwashing but focused on the effects of sustainability ratings on the interpretation of self-provided sustainability information. Thus, as a study on the effects of greenwashing, the research design falls short because it does not compare the greenwashing condition to a silent brown condition. Furthermore, the participants read the sustainability ratings before they knew anything about the company's self-reported sustainability activities. As a result, they were primed on the topic of sustainability from the start, so

the retailer's self-reported sustainability information was framed by its sustainability ratings, which might have led to unrealistic effects on corporate brand evaluation. What we can conclude from this study is that a vocal green organization has more positive effects on consumers than does a greenwashing organization and that attribution of motives might play a role in the negative effects of greenwashing.

Nyilasy, Gangadharbatla, and Paladino's (2014) study describes a 3×3 experiment in which the environmental performance (high, low, and no information) and green advertising messaging (green, general, and no advertisement) of a fictitious chemical company were manipulated, with brand attitude and purchase intentions as dependent variables. Participants were first exposed to an advertisement (either a general corporate or a green advertisement) and after that to independent information on environmental performance. Although Nyilasy et al. claimed to have found that greenwashing strengthens the negative attitudinal effects of a low environmental performance, their data do not seem to support this claim. Their results show that corporate environmental performance has positive effects on consumers' attitudes and intentions whereas green advertising has no significant effects. They did find an interaction effect between environmental performance and green advertising, but this effect appeared to be caused solely by the highly unrealistic "no advertisement" condition, in which participants received no other cues than the contrived information about the company's environmental performance. In addition, differences with the no-advertisement condition appeared to mainly involve the high environmental performance condition: No advertising strengthened the positive effect of high environmental performance but did not significantly affect the negative effect of low environmental performance. The only significant difference found with respect to brand attitude was between the corporate advertisement and no advertisement. The authors' conclusion that greenwashing has a negative effect on consumers, then, is far from substantiated. The results do suggest, however, that high environmental performance has a positive effect; that in the absence of environmental performance indicators, corporate and environmental advertisements have similar effects; and that greenwashing (i.e., the combination of a low performance and green advertising) has no effect on consumer evaluations.

Furthermore, the study appears to be methodologically flawed in two respects. First, the environmental performance was described in extreme terms (award winning vs. catastrophe causing) and presented as indisputable fact whereas real-life situations typically have more ambiguity. Second, in their evaluation, the participants were explicitly urged to consider

contrived environmental performance information (e.g., “Now imagine that you learned that PWXL Chemicals was responsible for a major environmental catastrophe recently . . .”), which does not represent a normal situation in which consumers have to juggle different types of information, among which the environmental information might not be the most salient.

Thus, these two experimental studies do not provide a solid indication of the effects of greenwashing on consumers. Further, Nyilasy et al. (2014) drew conclusions and recommendations that seem misleading. From their results, green advertising does not appear to “backfire” (p. 702), so their advice to companies of “not advertising ‘their green’ at all” (p. 704) seems unfounded and unrealistic. A systematic examination of the effects of the four types of organizations—vocal green, silent green, greenwashing, and silent brown (Delmas & Burbano, 2011)—could shed more light on the actual effects of greenwashing.

Theoretical Framework

An important drawback of these previous studies is that their theoretical perspectives on the effects of greenwashing were underdeveloped. Before presenting the hypotheses for our study, we will reflect on a useful theoretical framework for this type of research that helped us to formulate our hypotheses.

The literature on the effects of CSR on consumers suggests that perceived sincerity is a key variable (De Jong & Van der Meer, 2017). Some studies explicitly address the role of credibility (e.g., Hillenbrand, Money, & Ghobadian, 2013; Hur, Kim, & Woo, 2014; Rifon, Choi, Trimble, & Li, 2004; Walker & Kent, 2013). Others focus on variables that are clearly related to credibility, such as the perceived motives behind the CSR activity (Barone, Miyazaki, & Taylor, 2000; Folse, Niedrich, & Grau, 2010; Forehand & Grier, 2003; Gao & Matilla, 2014; Myers, Kwon, & Forsythe, 2012; Skarmelas & Leonidou, 2013; Skarmelas, Leonidou, & Saridakis, 2014) and the overall CSR positioning and reputation of an organization (Du, Bhattacharya, & Sen, 2007; Folse et al., 2010; Green & Peloza, 2014; Servaes & Tamayo, 2013; Tao & Ferguson, 2015). Discussions about the role of CSR fit (the congruence between an organization’s core business and CSR activities) and perceived CSR motives (intrinsic or extrinsic) eventually go back to the extent to which consumers believe that an organization is sincere in its environmentally friendly behaviors. Even contradictory findings regarding the effects of CSR fit—with most studies reporting a positive effect of a high fit but some reporting a

positive effect of a low fit—can be explained using the perceived sincerity of the organization. In CSR literature, the focus is on the one-directional question of whether CSR activities have positive effects on consumers' attitudes and behaviors. The range of possible effects of greenwashing is larger because greenwashing could have negative effects on consumers' evaluations, neutralize organizations' environmental claims, or merely lower the positive effects of such environmental claims.

Parguel et al. (2011) and Nyilasy et al. (2014) proposed attribution theory as a framework for understanding effects of greenwashing. They argued that greenwashing affects the way consumers attribute intrinsic or extrinsic motives to an organization's environmentally friendly activities. According to Parguel et al. (2011), the main issue is whether consumers recognize an organization's intrinsic motives for its green initiatives. We argue that such attribution processes are only part of the puzzle. Attribution theory assumes that consumers believe that a greenwashing organization actually behaves in an environmentally friendly way and only assign different motives to this behavior. This assumption, to us, seems unlikely.

In our view, a theoretical framework must include the option that consumers question the truthfulness of an organization's assertions about its green behavior. The concept of cognitive dissonance (Festinger, 1957) seems useful in this context: Whenever people are presented with two conflicting claims, they will try to reduce the resulting dissonance. For example, they might decide to believe one of the two. In regard to claims about an organization, our knowledge about source credibility predicts that people will generally value third-party information higher than information provided by the organization itself (cf. Du et al., 2010). The decision not to believe an organization's environmental claims, however, implies that the organization is lying about its environmental performance. The literature about lying suggests that an intention to deceive is a necessary condition for people to recognize something as a lie (Turri & Turri, 2015). But such intentions are notoriously ambiguous. Another, more likely, way that people might try to reduce the dissonance between two conflicting claims is to use ambiguities in both claims to explore ways to reconcile them—for instance, by believing that the greenwashing organization acts in good faith, that the third-party information is too rigid, that the unsubstantiated green claims are only part of the organization's green initiatives, or that the green communication at the very least expresses basic concerns for environmental issues. The latter is closely connected to the concept of CSR as aspirational talk (Christensen, Morsing, & Thyssen, 2013) and connects to the findings

of Atkinson and Kim (2014), who observed participants using rationalization techniques to solve dissonance.

Thus, we derived a two-directional theory about the effects of greenwashing. In unambiguous situations—including a highly trustworthy third party, a disreputable organization, or a clear demonstration of intentions to deceive—greenwashing is likely to have negative effects on consumers' attitudes and behaviors toward the organization. This corresponds to the correlation Newell et al. (1998) found between perceived deception and attitudinal and behavioral outcomes. In more ambiguous situations—including a less trustworthy third party, an organization with a positive or neutral reputation, or greenwashing accusations that leave room for nuanced interpretations—consumers are likely to have a more favorable view of a greenwashing organization, one that is not as positive as their view of truly green organizations but that is not as negative as their view of brown organizations.

Our Hypotheses for This Study

We conducted an experimental study into the effects of greenwashing. Compared to Parguel et al.'s (2011) and Nyilasy et al.'s (2014) experiments, we tried to place the participants in a more realistic situation, in which they primarily focused on judging the product and the company, they were not primed to use the environmental performance information, and they could question the truthfulness of the environmental performance information. Furthermore, we included a wider range of dependent variables in our study: perceived use of environmental claims, perceived integrity of the communication, perceived environmental performance, and purchase interest.

Based on our theoretical framework and earlier research findings, we formulated four hypotheses. Regarding perceived use of environmental claims, we expected that the two vocal conditions (vocal green and greenwashing) would receive higher scores than would the two silent conditions (silent green and silent brown). This dependent variable also serves as a manipulation check for our experimental conditions because it directly reflects the presence or absence of environmental claims in the stimulus materials. Our first hypothesis, then, is as follows:

Hypothesis 1: Vocal green and greenwashing organizations generate a higher score on perceived use of environmental claims than do silent green and silent brown organizations.

Regarding perceived integrity of the communication, we expected that in the greenwashing condition, the organization's self-serving decision about its green communication would negatively affect perceived integrity. This variable, too, may be seen as a manipulation check for our experimental conditions. Thus, we formulated our second hypothesis:

Hypothesis 2: Greenwashing organizations generate a lower score on perceived integrity of the communication than do vocal green, silent green, and silent brown organizations.

With respect to perceived environmental performance, we knew that the scores of the two truly green conditions (vocal green and silent green) would be higher than those of the silent brown condition. For the greenwashing condition, however, we hypothesize an intermediate position based on our theoretical framework, which posits that consumers would be more likely to try to reconcile the contradictory information than to univocally blame the greenwashing organization:

Hypothesis 3a: Greenwashing organizations generate a less positive score on perceived environmental performance than do vocal green and silent green organizations.

Hypothesis 3b: Greenwashing organizations generate a more positive score on perceived environmental performance than do silent brown organizations.

Finally, regarding purchase interest, several studies have clearly pointed out that only true environmental friendliness pays off, both on the macro-level (Du, 2015; Wu & Shen, 2013) and on the microlevel (Nyilasy et al., 2014). We therefore hypothesize that a moderately positive effect of greenwashing on perceived environmental performance would not lead to more favorable purchase interests:

Hypothesis 4: Greenwashing and silent brown organizations generate a less positive score on purchase interest than do vocal green and silent green organizations.

Method

To investigate our hypotheses, we designed a randomized experimental study by starting with Delmas and Burbano's (2011) typology of environmental strategies of organizations. We thus distinguished between vocal green, silent

green, greenwashing, and silent brown conditions. In addition, we made a distinction between utilitarian and hedonic products. Utilitarian consumption refers to goal-oriented behaviors, with a strong emphasis on usefulness, functionality, and practicality whereas *hedonic consumption* refers to pleasure-oriented behaviors, with a strong emphasis on enjoyment and fun (Kim & Kim, 2016). The utilitarian product in our study was a detergent; the hedonic product was a (unisex) perfume. We made this distinction to be able to check whether our findings would apply to different product types. This resulted in a 4×2 , between-subjects experimental design. The four environmental strategies reflected different combinations of environmental performance (positive vs. negative) and environmental claims (present vs. absent).

Research Materials

To avoid the influence of prior knowledge, experiences, or preferences, we used two fictitious products—Proper detergent and DewDrops perfume—that we introduced to the participants as new products manufactured by new companies. As such, we framed our study as a marketing study rather than a study into environmental performance. The research materials were in Dutch.

For all conditions, participants were presented with three types of product information. First, they were exposed to a product advertisement. After that, they were presented with the home page of the corporate Web site. Finally, they received a test report of three competing products (one of which was the product under study). The test report, resembling those in consumer magazines, contained price information, an overall score, and a brief review of each product. It was issued by the *Kopersbond* (Buyers Association), a fictitious organization modeled after the Dutch *Consumentenbond* (Consumers Association). Examples of all three types of information are in the Appendix.

In the vocal green and greenwashing conditions, the advertisement and the home page explicitly made environmental claims. We only manipulated the claims, not the imagery, in the information. All texts of advertisements and home pages were of comparable size. For the detergent, environmental claims included 100% biodegradable, effective at low temperatures, no aggressive chemicals, and 100% recyclable packaging. For the perfume, environmental claims included 100% natural and botanical ingredients, no aggressive chemicals, and 100% recyclable packaging.

The environmental performance of the products and organizations was addressed in the test report of the Buyers Association (48–56 words). In addition to evaluating the products, the test report paid attention to the

products' environmental friendliness (21–30 words). Here are examples of information that was given for the perfume in the various conditions:

- This perfume does not contain aggressive chemicals that are detrimental for skin and environment. The packaging materials are 100% recyclable, and the bottles are environmentally friendly (vocal green and silent green).
- Pretends to be environmentally friendly but has a low score on environmental friendliness. The perfume contains aggressive chemicals. Besides, the bottles are not environmentally friendly (greenwashing).
- The perfume contains aggressive chemicals. The bottles are not environmentally friendly. This perfume is not environmentally friendly but also does not pretend to be (silent brown).

The price, overall score, rank of the product, and all information about the two competing products were the same in all conditions.

Instrument

We measured the four dependent variables using multi-items scales (in Dutch), which appeared to be statistically distinguishable constructs in an exploratory factor analysis (see Table 1) and had satisfactory Cronbach's alphas. Participants responded to all items using a 7-point Likert-type scale.

Perceived use of environmental claims was measured using 4 items ($\alpha = .82$). Because no scale existed for this construct, we developed a set of items (e.g., "This company does not communicate about its environmental friendliness," "Environmental friendliness is leading in this company's communication toward the consumer").

Perceived integrity of the communication was measured using 4 items ($\alpha = .75$). Because we wanted to connect integrity to the specific topic of environmental friendliness, we could not use existing scales. We therefore created a new scale, consisting of two general integrity questions (e.g., "This company's communication is not honest") and two questions about integrity regarding environmental friendliness (e.g., "This company's communication about its environmental friendliness is misleading").

Perceived environmental performance was measured using 7 items (Cronbach's $\alpha = .96$), inspired by existing scales (Chen, 2010; Gershoff & Frels, 2015; Parguel et al., 2011). Two of these items were "This company prioritizes environmental friendliness over profit" and "This company prevents damage to the environment."

Table 1. Factor Analysis of the Dependent Variables and Background Constructs.

Scale Items	Factors					
	1	2	3	4	5	6
This company produces with the least possible harm to the environment.	.87					
This company follows high ethical standards.	.87					
This company prevents damage to the environment.	.86					
This company contributes to the well-being of society.	.85					
This company takes the environment into account in its operational management.	.84					
This company prioritizes environmental friendliness over profit.	.80					
This company shows by its operational management that the future generation is important.	.78					
I prefer environmentally friendly products.		.90				
I prefer companies that produce in an environmentally friendly manner.		.88				
I see myself as an environmentally friendly person.		.87				
I try to be as environmentally friendly as possible.		.84				
I consider the environment an important topic to think about.		.82				
I think there is too much fuss about the environment (R).		.66				
I am curious about this product.			.83			
I would like to buy a test package of the product at a reduced price.			.82			
I would maybe buy the product when I see it in the shop.			.80			
I would like to receive a tester/sample of this product.			.79			
I would like to get more information about this product.			.74			

(continued)

Table 1. (continued)

Scale Items	Factors					
	1	2	3	4	5	6
I don't expect to ever buy this product (R).			.60			
Environmental friendliness does not play a prominent role in this company's communication toward the consumer.				.82		
This company does not communicate about its environmental friendliness (R).				.78		
Environmental friendliness is leading in this company's communication toward the consumer.				.71		
This company communicates positively about its environmental friendliness.	.47			.63		
This company's communication is not honest (R).					.78	
This company's communication about its environmentally friendliness is misleading (R).					.74	
This company is unprofessional in its communication (R).					.72	
The term environmental friendliness is only used by this company to make a positive impression (R).				-.53	.59	
I am interested in various brands of perfume/detergent.						.78
I never buy perfume/detergent myself (R).						.70
I know much about perfumes/detergents.						.66
I am open to new brands of perfumes/detergents.						.66
I am not interested in perfumes/detergents.						.61
Eigenvalue	9.14	4.34	2.91	2.52	1.91	1.42
Percent of variance	28.6	13.5	9.1	7.9	6.0	4.5
Cumulative percentage	28.6	42.1	51.0	59.1	65.1	69.5

Note. The items are translated from Dutch. (R) = reverse coded.

Purchase interest was measured using 6 items (Cronbach's $\alpha = .90$). Although we considered using existing scales (e.g., Bone & Ellen, 1992; Dodds, Monroe, & Grewal, 1991), we decided that they were not sufficiently geared toward participants' judging a new product for the first time. We therefore included from these scales several items concerning the pre-stages of buying (being curious, wanting to receive a sample, wanting to try at a reduced price, wanting more information) and formulated new questions on considering whether or not to buy (maybe buying, probably not buying). Two of these items were "I am curious about this product" and "I would maybe buy the product when I see it in the shop."

In addition to these dependent variables, we gathered demographic information about the participants (age, gender, and educational level). We measured two intrinsic background variables: interest in environmental issues (6 items, $\alpha = .90$), partly based on Bohlen, Schlegelmilch, and Diamantopoulos's (1993) study, and interest in the specific product type used in the experiment (5 items, $\alpha = .75$).

Procedure

We collected our data using an online questionnaire edited in Qualtrics. Participants were randomly assigned to one of the eight conditions. They were instructed to read the three texts carefully and then answer the questions. The system did not allow them to move to the next screen with questions unless they had answered all previous questions or to browse back to earlier screens. It recorded the time taken.

Participants viewed the three texts in a fixed order (advertisement, corporate home page, and product reviews) on separate screens. After the three texts, the questionnaire started with questions about purchase interest, followed by questions about perceived environmental performance, perceived integrity of the communication, and perceived use of environmental claims, respectively. These questions were followed by the questions about the participants' interest in environmental issues and the specific product type. Finally, the general background questions were asked. Given this order of questions, the participants' purchase interest scores were not biased by a priming on environmental issues.

Participants

We used a convenience sample for our study. Links to the online questionnaire were published on Facebook and LinkedIn and distributed

via students' networks using snowball sampling. Although participants received no compensation for participating, they could win a "responsible chocolate" bar. They were given an opportunity to receive a summary of the results of the study. The study was approved by our institutional review board.

Of the original 261 participants, 11 were excluded from the study: 1 because of nonserious answering behavior, 3 because they took too long to complete the questionnaire (more than 8 hours), and 7 because they spent an unrealistically short time reading the messages (less than 10 seconds). Consequently, we used 250 questionnaires for our analyses.

In total, then, 146 (58%) females and 104 (42%) males participated in the study. The average age of the participants was 37 years (range = 17–76, $SD = 13.1$). Participants' educational levels varied, with highly educated participants being somewhat overrepresented (58%). The average score for interest in environmental issues was somewhat high (5 on a 7-point scale; $SD = 1.1$) whereas the average score for interest in the specific product type was neutral (4.4 on a 7-point scale; $SD = 1.2$).

Due to our randomization procedure (and the elimination of 11 participants), the number of participants per group varied from 25 to 36. We tested whether participants' background characteristics were evenly spread over the experimental conditions. χ^2 tests showed that there were no significant differences between the eight groups in the distribution of gender ($\chi^2 = 4.250, p = .75$) and educational level ($\chi^2 = 3.651, p = .82$). Analyses of variance showed no significant differences between the eight groups in age, $F(7, 242) = .245, p = .97$; interest in environmental issues, $F(7, 242) = .601, p = .76$; and interest in product type, $F(7, 242) = 1.267, p = .27$. Based on these analyses, we conclude that the groups were comparable.

Results

We analyzed the data using multiple analysis of variance (MANOVA), with environmental strategy (vocal green, silent green, greenwashing, and silent brown) and product type (utilitarian and hedonic) as independent variables and perceived use of environmental claims, perceived integrity of the communication, perceived environmental performance, and purchase interest as dependent variables. We analyzed differences between the four environmental strategies using Tukey's *B* post hoc test.

Before conducting the MANOVA, we checked whether our data conformed to the assumptions of this test and found no problems regarding

Table 2. Correlations Between the Dependent Variables.

	Perceived Integrity of the Communication	Perceived Environmental Performance	Purchase Interest
Perceived use of environmental claims	-.11	.46*	.27*
Perceived integrity of the communication		.38*	.29*
Perceived environmental performance			.57*

*Significant at $p < .01$.

Table 3. Multivariate Test Results.

	Pillai's Trace	F	df	Significance	Partial η^2
Environmental strategy	.717	18.918	12,723	$p < .001$.24
Product type	.015	0.921	4,239	$p = .45$	
Interaction between environmental strategy and product type	.044	0.890	12,723	$p = .56$	

univariate and multivariate outliers and linearity. To check for multicollinearity, we analyzed the correlations between the dependent variables, which appeared to be within the acceptable range (-.11 to .57; see Table 2). The Box's M test of equality of covariance matrices appeared to have a significance level below .001; we therefore used the more robust Pillai's trace statistic in the multivariate test. The Levene's test of equality of error variances was significant for three of the four dependent variables (perceived environmental performance, perceived integrity of the communication, and purchase interest). We therefore used a significance level of .01 in the tests.

The multivariate test results showed a significant difference regarding environmental strategy (see Table 3), with the partial η^2 score indicating a large overall effect. No significant difference was found for product type, and no significant interaction effect was found between environmental strategy and product type. Thus, utilitarian and hedonic products yielded similar results regarding the influence of environmental strategy on consumer attitudes and purchase interests.

Table 4. Effects of Environmental Strategy on Dependent Variables.

Dependent Variable	F	df	Significance	Partial η^2
Perceived use of environmental claims	40.114	3,242	$p < .05$.33
Perceived integrity of the communication	20.063	3,242	$p < .05$.20
Perceived environmental performance	43.769	3,242	$p < .05$.35
Purchase interest	11.177	3,242	$p < .05$.12

Table 5. Results of the Post Hoc Analysis of the Differences Between the Effects of the Environmental Strategies on Dependent Variables.

Dependent Variable	Vocal Green	Silent Green	Greenwashing	Silent Brown
Perceived use of environmental claims	5.4 ^a	4.6 ^b	5.2 ^a	3.5 ^c
Perceived integrity of the communication	4.5 ^a	4.7 ^a	3.3 ^b	4.5 ^a
Perceived environmental performance	5.0 ^a	4.7 ^a	3.4 ^b	2.8 ^c
Purchase interest	4.5 ^a	4.8 ^a	3.9 ^b	3.6 ^b

Note. Scores measured on 7-point scales (1 = negative; 7 = positive). Significance determined using Tukey's B post hoc test ($p < .05$). Significant differences indicated by different letters in superscript.

Table 4 presents an overview of the effects of environmental strategy found on each of the four dependent variables. For all variables, significant differences were found between the four conditions. In all cases, the partial eta² scores corresponded with large, practically meaningful effect sizes.

Using Tukey's B post hoc test, we further explored the differences between the effects of the four environmental strategies on the dependent variables (with a significance level of .05). The results are summarized in Table 5. With regard to environmental claims, participants recognized that the vocal green and greenwashing organizations made stronger environmental claims than did the silent green and silent brown organizations. Further, they differentiated between silent brown and silent green organizations, recognizing more green claims by the silent green organizations than by the silent brown ones even though these claims were not made in the advertisement or on the corporate home page. These results confirm Hypothesis 1 (that vocal green and greenwashing organizations generate a higher score on perceived use of environmental claims than do silent green and silent brown organizations).

But the greenwashing organizations, compared to the other organizations, received a relatively low score for perceived integrity of the communication. This finding confirms Hypothesis 2 (that greenwashing organizations generate a lower score on perceived integrity of the communication than do vocal green, silent green, and silent brown organizations).

The green claims corresponded to a relatively good score on perceived environmental performance for the greenwashing organizations, higher than that of silent brown organizations but lower than those of silent and vocal green organizations. Participants acknowledged that the greenwashing organizations were more involved with the environment than were the silent brown organizations but clearly less involved than were the truly green organizations. These findings confirm Hypotheses 3a (that greenwashing organizations generate a less positive score on perceived environmental performance than do vocal green and silent green organizations) and 3b (that greenwashing organizations generate a more positive score on perceived environmental performance than do silent brown organizations).

Regarding purchase interest, the results indicate that the participants differentiated between the green organizations and the greenwashing and silent brown organizations, giving significantly lower scores to both the greenwashing and silent brown ones. This result confirms Hypothesis 4 (that greenwashing and silent brown organizations generate a less positive score on purchase interest than do vocal green and silent green organizations).

Discussion

In this study, we experimentally assessed the effects of greenwashing on consumers' attitudes and purchase interests. Compared to the two earlier experiments (Parguel et al., 2011; Nyilasy et al., 2014), we used a more realistic research design that was less focused on priming participants on the organizations' environmental strategy. Based on the literature and our theoretical framework, we formulated several hypotheses; our results confirmed all of our hypotheses.

Main Findings

First, our results showed that participants recognized that greenwashing and vocal green organizations used environmental claims more than did

silent green and silent brown organizations (Hypothesis 1) and that greenwashing indeed has the potential to positively affect consumers' impressions of organizations' environmental claims and performance. Compared to the silent brown organizations, participants rated greenwashing organizations more highly regarding environmental performance (Hypothesis 3b). But participants' impression was significantly less positive than their impression of silent green and vocal green organizations (Hypothesis 3a). Apparently, even when consumers know that green information is not (entirely) true, organizations that explicitly communicate an interest in environmental issues create a more favorable image than do those that entirely neglect the environment as an issue of interest. Although this finding is in line with several studies on the effects of green cues (Atkinson & Kim, 2014; Parguel et al., 2015; Spack, Board, Crighton, Kostka, & Ivory, 2012), it is an important amendment to most of the research on greenwashing, which seems to suggest that greenwashing only has negative consequences (Chen & Chang, 2013; Chen et al., 2014; Lim et al., Nyilasi et al., 2014; Parguel et al., 2011). As such, this finding explains the widespread use of greenwashing by organizations because it suggests that they can use greenwashing to manage consumers' impressions of their environmental performance.

Second, our results showed that greenwashing has a detrimental effect on consumers' views of the communicative integrity of an organization (Hypothesis 2). The greenwashing condition was the only condition with a relatively low score on integrity. Apparently, consumers have a similar appreciation of organizations that communicate about their positive environmental behavior, those that are silent about their positive environmental behavior, and those that consistently neither care nor communicate about the environment. Two underlying variables seem to dominate: the virtue of contributing to the environment and the virtue of being consistent in words and deeds. Inconsistency does not appear to be an issue for the silent green condition: Participants' impressions of such organizations' communicative integrity seem to be unaffected by the lack of communication about their positive behavior. Our finding that greenwashing has a negative effect on perceived communicative integrity is in line with earlier research by Lim et al. (2013) and Chen and Chang (2013) and confirms the relationship that is often assumed between organizations' greenwashing practices and consumer skepticism toward CSR communication.

Third, our results showed that greenwashing does not affect consumers' purchase interests (Hypothesis 4). That is, our results suggest that

greenwashing does not contribute to the success of organizations. Only a true commitment to environmental issues that is backed by environmentally friendly behavior will have the desired positive effects on consumers. Environmental communication without a firm basis in actual behavior will eventually not contribute to consumers' intentions to purchase. This finding corroborates and explains the results of macrolevel studies, which also show that greenwashing does not have the same positive relationship with financial performance that a true environmental commitment has (Du, 2015; Walker & Wan, 2012; Wu & Shen, 2013). It also confirms Nyilasy et al.'s (2014) earlier experimental findings (but without the contested backfiring effects of greenwashing) in a more realistic scenario.

In all, our results show a mixed set of effects of greenwashing. On the one hand, greenwashing contributes to the perceived environmental performance of an organization, but this benefit appears to be short term and does not seem to result in consumers' increased purchase interest. On the other hand, greenwashing threatens consumers' perceptions of the communicative integrity of an organization. This is a potentially serious threat, both for specific organizations and for the entire system of CSR and environmental initiatives (Alves, 2009; Elving & Van Vuuren, 2011). In summary, greenwashing does not seem to contribute to consumers' buying interests, so it is a useless, myopic strategy.

Theoretical Implications

Our research suggests that the theoretical perspective of cognitive dissonance theory (Festinger, 1957) can be a useful framework for research into the effects of greenwashing. The assumption that people may resolve cognitive dissonance in various directions leads to a more nuanced, less straightforward view on the effects that corporate greenwashing has on consumers. Our findings support this nuanced view.

Furthermore, our research raises two interesting theoretical issues. The first involves the discrepancy between the apparent effect that greenwashing has on the perceived environmental performance of organizations and its lack of effect on consumers' purchase interest. Our research suggests that two mechanisms might account for the lack of effects of corporate greenwashing on purchase interest. One mechanism is that the relatively low perceived integrity had a negative effect on the perceived environmental performance score (which indeed was lower than in the truly green conditions) so that the small positive effect that greenwashing had on perceived

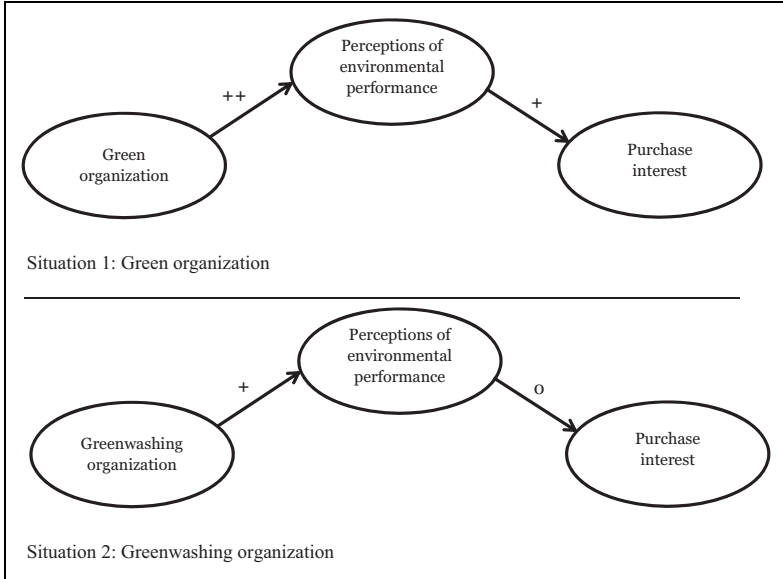


Figure 2. Possible mechanism for the lack of effect of greenwashed communication on consumer purchase interest: weaker effects on perceptions of environmental performance.

environmental performance was simply not strong enough to positively affect purchase interest (see Figure 2).

A second mechanism is that greenwashing combined a positive effect on perceived environmental performance with a negative effect on organizational credibility (as indicated by the relatively low score on perceived integrity of communication). Thus, credibility might have moderated the relationship between perceived environmental performance and purchase interest (see Figure 3).

Unfortunately, the studies by Chen and Chang (2013) and Chen et al. (2014) do not focus on such possible trade-offs in the effects of greenwashing. They focus on either the detrimental effects (green confusion and green perceived risk) that greenwashing has on green trust (Chen & Chang, 2013) or the detrimental effects that the lack of positive effects of greenwashing (on green perceived quality and green satisfaction) has on green word of mouth (Chen et al., 2014). Our research, however, shows that greenwashing at least might have positive intermediate effects on consumers. Understanding the potentially positive intermediate effects of

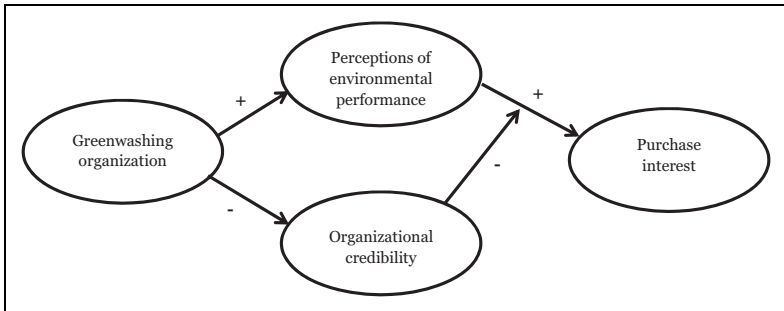


Figure 3. Possible mechanism for the lack of effect of greenwashed communication on consumer purchase interest: moderating role of organizational credibility.

greenwashing is key to a more detailed and nuanced knowledge of why greenwashing apparently does not increase consumers' purchase interest. Our findings and two proposed mechanisms provide a foundation for further exploration.

Another theoretical implication involves our paradoxical finding that consumers seemed to be influenced by environmental claims that they could not trust. Admittedly, this influence only affected perceived environmental performance. This finding corroborates research by Atkinson and Kim (2014), Parguel et al. (2015), and Spack et al. (2012), which showed that consumers are affected by green cues irrespective of their quality or substantiation. But our findings go one step further: They show that green claims might have effects even when consumers have good reasons to doubt their truthfulness.

In all, our findings call for a more nuanced view on consumers' processing of environmental communication that reaches beyond simply seeing what happens when people are explicitly confronted with the undoubtable fact that an organization is guilty of greenwashing (e.g., Lim et al., 2013) and honors the ambiguous nature of consumers' decision making. Perhaps the mechanism of CSR as aspirational talk (Christensen et al., 2013)—which takes a more liberal approach toward the relationship between CSR deeds and CSR communication, acknowledging that discrepancies might be a necessary step toward CSR development—is also reflected in the mind-set of consumers. Perhaps the positive intermediate effects of greenwashed communication result from consumers' perception that organizations that communicate about the environment at least have environmental issues on

their agenda, have the ambition to do better, and are willing to claim their environmental intentions to the public.

Limitations of Our Study

Although our study makes a clear contribution to research on the effects of greenwashing, it also has some limitations. A first limitation is that only two products were included in our research. We attempted to use diverse products by focusing on a utilitarian versus a hedonic product, but this distinction did not prove to be a relevant factor. Future research could focus on a broader range of products or companies, for instance, by using various branches of organizations with varying environmental reputations.

Second, our study focused on a specific situation in which an organization that is guilty of greenwashing might find itself, one in which its consumers are confronted with contradictory information about the organization. We can imagine other situations in practice, most notably one in which greenwashing goes undetected or one in which an organization is openly accused of or stigmatized for greenwashing. Our findings do not apply to situations of undetected greenwashing or situations of stigmatized greenwash organizations. All previous greenwashing research also focuses on specific situations. The studies by Nyilasy et al. (2014) and Parguel et al. (2011) seem to focus more on the latter situation (with more univocally negative results).

Third, we used only three messages to convey the environmental strategies of the organizations. In reality, the information consumers are confronted with is less structured, more complex, and can differ in valence, emphasis, repetition over time, and tone, which might lead to either less or more ambiguous situations than the one used in our experiment.

Fourth, our study involves an artificial situation, with fictitious companies and explicit tasks of reading through information. In real life, consumers' images of organizations and products will be based on richer experiences, and their exposure to certain information about organizations and their products will not be enforced. This artificial situation leads to a research design in which the features and products of organizations are relatively superficial, and the messages about these organizations receive more attention than they would in real-life situations, excluding otherwise plausible influences of selective exposure, selective perception, and selective retention. This limitation too applies to previous greenwashing research.

Conclusions

We have described our experimental study into the effects of greenwashing on consumers. Our findings indicate that greenwashing is not a beneficial strategy for organizations because it does not affect consumer purchase intentions. For consumers, greenwashing companies are in the same league as silent brown companies. Only genuine environmental interest seems to potentially result in increased consumer purchases. But we also found that greenwashing has a positive effect on the perceived environmental performance of the organization and a negative effect on the perceived integrity of its communication. These differential findings call for more detailed research on consumers' processing of environmental messages.

Appendix

Stimuli (Perfume)

Product advertisement (vocal green and greenwashing conditions)

*Puur
&
Plantaardig*

100% PURE EN PLANTAARDIG INGREDIËNTEN • EEN
SENSATIONELE GEURCOMPOSITIE, VOOR HEM EN HAAR •
FOUGÈREPARFUM: EEN MIX VAN LAVENDEL, IRONING, HOUT,
ERKENMOS, VANILLE EN COUMARINE • VEILIG VOOR HUID EN
MILIEU, BEVAT GEEN AGRESSIEVE CHEMICALIËN • VERPAKKING-
MATERIAAL IS 100% RECYCLEBAAR • MELDVERRENDLIJKE
FLESJES, DOOR DE AFSCHROEBBARE VERSTUVER • DE GEUR
BLIJFT GEDURENDE TIEN TOT TWAALF UUR AANZEGIG

www.drewdrops.com • info@drewdrops.com

Translation:

Pure and Botanical

100% pure and botanical ingredients • A sensational perfume composition, for him and her • Fougère perfume: A mixture of lavender, honey, wood, lichen, vanilla, and coumarin • Safe for skin and environment, does not contain aggressive chemicals • Packaging is 100% recyclable • Environment-friendly bottles, with removable spray • The perfume stays on for 10–12 hours

Corporate home page (vocal green and greenwashing conditions)



Translation:

Pure and Botanical

Welcome to DewDrops

DewDrops is the new perfume for him and her. Researchers at DewDrops have developed a perfume composition that is sensational and stays on for 10–12 hours. DewDrops belongs to the so-called *fougère* perfumes. *Fougère*, the French word for fern, is used to describe fantasy perfumes.

Researchers at DewDrops started fantasizing about the scent of DewDrops and ended up with a combination of lavender, honey, wood, lichen, vanilla, and coumarin. DewDrops has vanilla and coumarin as top notes. These aromas are released in the first minutes after applying. DewDrop’s heart notes are lavender and lichen; these aromas come up after the top notes have largely disappeared. The base notes of DewDrops are honey and wood, and will last for many hours.

One of the core values of DewDrops is to prevent damage to the environment as much as possible. DewDrops does not contain aggressive chemicals that may cause skin irritations and are bad for the environment. The ingredients that are used are 100% pure and botanical. The packaging is 100% recyclable, and the bottles are environment friendly thanks to the removable spray. After use, the glass and the spray can be discarded separately.

Test report of the Buyers Association (greenwashing condition)

PARFUM TEST JANUARI 2014.

De Kopersbond heeft in totaal drie verschillende parfums beoordeeld. Beoordelingscriteria waren: geurcompositie, hoe lang het parfum blijft zitten, gebruiksgemak en milieuvriendelijkheid. Hieronder volgt een samenvatting van de belangrijkste uitkomsten.

1. DKNY

Kenmerkt zich als een levendkrachtige geur, met als topnoten groene appel en rode

bessen. De geur blijft tien tot twaalf uur aanwezig. De informatie op de verpakking is compleet en goed leesbaar. Dit parfum is gemaakt op basis van plantaardige ingrediënten en bevat weinig agressieve chemicaliën. Huidirritatie wordt hierdoor voorkomen.



Prijs: €30.50 (30 ml)

8,4

2. DAVIDOFF

Kenmerkt zich als een klassieke geur, met als topnoten citrus en zwarte bes. De geur

blijft acht tot tien uur aanwezig. De informatie op de verpakking is compleet, maar lastig te lezen. Dit parfum bevat weinig agressieve chemicaliën die slecht zijn voor huid en milieu.



Prijs: €30.99 (30 ml)

8,3

3. DEWDROPS

Interessante nieuwkomer. Kenmerkt zich als een moderne geur, met als topnoten vanille en

courainne. De geur blijft tien tot twaalf uur aanwezig. De informatie op de verpakking is incompleet, wel goed leesbaar. Pretendeert milieuvriendelijk te zijn, maar



scoort laag op milieuvriendelijkheid. Het parfum bevat wel agressieve chemicaliën. Daarnaast zijn de flesjes niet milieuvriendelijk.

Prijs: €30.95 (30 ml)

Bron: www.kopersbond.nl

Translation:

Perfume Test January 2014

The Buyers Association evaluated in total three different perfumes. Evaluation criteria were perfume composition, how long the perfume stays on, user friendliness, and environmental friendliness. Below you will find a summary of the main results.

3. DewDrops

Interesting newcomer. Characterizes itself as a modern perfume, with vanilla and coumarin as top notes. The perfume lasts for 10–12 hours. The information on the packaging is incomplete but legible. Pretends to be environmentally friendly but gets a low score on environmental friendliness. The perfume contains aggressive chemicals. Besides, the bottles are not environmentally friendly.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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