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The power of ‘executorial greenwashing’. Evidence from the automotive sector

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Abstract Using classical models of information processing and persuasion, this study examines two interdependent issues regarding 'executional greenwashing'. First, it questions the efficiency of executional elements evoking nature to artificially enhance the brand's ecological image. Second, it studies the potential efficiency of environmental performance labels to help consumers form an accurate evaluation of the brand's ecological image and counterbalance this specific type of greenwashing. An experiment conducted with a representative sample of French consumers reveals the efficiency of greenwashing to mislead consumers in their evaluation of brand ecological image, whatever their degree of environmental expertise. Furthermore, the display of environmental performance labels is not enough to help consumers to revise their judgment, even expert ones. Precisely, environmental performance labels are efficient to guide brands' perceptions but only among expert consumers, and only in neutral advertising setting: they are not sufficient to counterbalance greenwashing. The authors discuss theoretical and regulatory implications.

Keywords: Greenwashing, Advertising execution, Environmental labeling, Environmental policy

The term ‘greenwashing’ is a neologism introduced in 1986¹ to designate “the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service” (Terrachoice, 2010). Greenwashing emerged as a side effect of green advertising (Delmas & Burbano, 2011), which has increased almost tenfold in the last 20 years (Terrachoice, 2009) as a means to meet a growing public consciousness about ecological issues.

Early in 1991, Kangun, Carlson, and Grove (1991) distinguished three categories of greenwashed advertising: 1/ those employing false claims, 2/ those forgetting to mention important information that could help to evaluate environmental claim sincerity and 3/ those employing vague or ambiguous term, which could be summed up as lying, lying by omission or lying through lack of clarity. As more recent ones (e.g., Laufer, 2003; Lyon & Maxwell, 2011; Terrachoice, 2010), this typology only relates to ‘*claim greenwashing*’, that is to say, to the misleading environmental verbal arguments of the ad themselves. It ignores ‘*executional greenwashing*’, a specific form of greenwashing that relies on executional elements evoking the nature (e.g., an advertising background showing a forest) and not on the display of false, unsubstantiated, exaggerated or biased environmental verbal arguments.

Advertising execution refers to “how advertising messages are presented” (Stanton & Burke, 1998, 7). It covers different elements such as color (Gorn, Goldberg, Chattopadhyay, & Litvack, 1997), visual type (Grossman & Till, 1998) as well as pictures quality (Miniard, Sirdeshmukh, & Innis, 1992). In the specific case of environmental communication, executional elements can be chosen to communicate the ecological character of the product through pictures (e.g., backgrounds representing natural landscapes, forests; presence of

¹ Introduced by Jay Westerveld to describe hotel chains hypocritical behavior, inviting clients to reuse towels to preserve the environment, whereas they just want to save money (Orange, 2010; Pearson, 2010). One of the first famous case dates back from 1985 in the United States where Chevron launched an advertising campaign showing its employees saving endangered species in order to “green” its image, campaign that was successful as market polls revealed Chevron was the oil company that consumers trust most to protect the environment (retrieved 2013 January 5, from <http://site.thegreenlifeonline.org/greenwash101>).

animals like frogs, dolphins² or endangered animals, association to renewable source of energy: waterfalls or rivers, wind) or other elements that can exert a more subtle influence, as they activate implicit references to nature through colors (e.g., green, blue) or sounds (e.g., sea, birds) to trigger ecological inferences.

The present research focuses on ‘executional greenwashing’ for at least three reasons. First, ‘claim greenwashing’ through “lying” or omitting tend to diminish (Terrachoice, 2010) with the diffusion of good advertising practices, marketers’ growing maturity regarding sustainable development and the opening of debates about its regulation. On the contrary, ‘executional greenwashing’ seems to develop in recent years. Second, research is very scarce about ‘executional greenwashing’, though its effects on consumers’ perception are probably more ambiguous and difficult to circumscribe as executional elements are numerous, varied, based on associations or cultural symbols, and difficult to list exhaustively. In the best case, it is considered as an item within greenwashing measure (e.g., Gillespie, 2008; Horiuchi & Schuchard, 2009). Third, from a more general point of view, greenwashing remains a matter of strategic importance for different movements issued by NGO’s or ecological activists that have emerged in the 2000’s to denunciate greenwashing³, but as well for institutional stakeholders involved in the question of its regulation (e.g., the European Community (EC) or the Federal Trade Commission (FTC) in the US). In the specific case of ‘executional greenwashing’, the question of a potential regulation is even more sensitive question as it deals with the core added value of advertisers, namely their creativity.

This article first aims to assess the potential misleading effect of executional elements evoking the nature for consumers, asking the following question: Are executional elements evoking the nature really likely to artificially green brands’ image? Second, this article raises

² Cited in the Australian Competition & Consumer Commission document « Green marketing and the Australian Consumer Law » - <http://www.accc.gov.au/content/index.phtml/itemId/815763> - last retrieved Jan 7th, 2013

³ CorpWatch, Friends of the Earth International and Groundwork organized the Greenwash Academy Awards during the 2002 Johannesburg World summit on Sustainable Development to “honor” companies for their greenwashed marketing campaigns.

the question of ‘executorial greenwashing’ potential regulation. More precisely, it explores how the display of environmental performances could enlighten consumers and counterbalance this potential misleading effect.

To answer these two interlinked research questions, we draw on the Elaboration Likelihood Model (see Petty & Cacioppo, 1981) to build a conceptual framework that we test through an experiment. This experiment provides evidence of the greenwashing effect of executorial elements evoking the nature on the brand’s ecological image, even among subjects displaying significant environmental expertise. Going further, it demonstrates that providing objective environmental performance information to the subjects does not counterbalance greenwashing. After a discussion of the results, we conclude with regulatory recommendations for public policy makers.

1. Literature review

1.1. From green advertising to greenwashing

At the end of the 80’s, many managerial articles published by journals like *Business*, *Business Week*, *Business Horizons*, *Fortune* or *Advertising Age* suggest that consumers would be ready to change their patterns of consumption and switch products and services towards more ecological alternatives (Carlson, Grove, & Kangun, 1993; Easterling, Kenworthy, & Nemzoff, 1996; Kangun et al., 1991). Answering rising consumers’ ecological consciousness, advertisers and agencies started to use environmental claims more regularly to promote their products (Easterling et al., 1996; Schuhwerk & Lefkoff-Hagius, 1995; Shrum, McCarty, & Lowrey, 1995): “Consumers want to be green. Ergo, advertisers want to be green as well” (Zinkhan & Carlson, 1995).

In 1995, the *Journal of Advertising* dedicated a special issue to green advertising, aiming at providing large frameworks of reflections on the topic in a non-critical way. Banerjee, Gulas, and Yyer (1995) propose a typology of green advertisements; Kilbourne (1995) writes

a theoretical essay about the compatibility between advertising and ecology. Two more articles describe advertising claims themselves, investigating the nature of the argument to promote (ecological vs. financial), its formulation in terms of ecological problem's gravity or perceived self-efficacy depending on consumers' environmental consciousness and type of ecological problem (Obermiller, 1995; Schuhwerk & Lefkoff-Hagius, 1995). Finally, Shrum and colleagues (1995) study buyer characteristics of the green consumer and their implications for advertising strategy. In particular, they note that green consumers are skeptical about advertising, and advise not to deceive consumers with misleading, inaccurate, or non-defensible claims, but do not mention greenwashing explicitly.

At the same period and as a side effect of the development of green advertising, the development of greenwashing triggered a short debate about which and how public policies could be settled to regulate the phenomenon (Carlson et al., 1993; Greenberg, 1991; Kangun et al., 1991; Scammon & Mayer, 1993, 1995). However, this debate only discusses greenwashing as a question of content. As an illustration, Carlson and colleagues (1993) suggest that green advertisements that promote the greenness of a full organization are the most common and also the most greenwashed because they rely on generic and ambiguous claims.

Surprisingly, greenwashing disappears from research agendas during a decade. In the 2000's, research works focus on CSR engagements and the way they are communicated within annual reports, more than on advertising practices. It shows that communicating about ecological engagements improves companies' brand image or brand equity, contributes to differentiate products and retain customers (Hoeffler & Keller, 2002; Keller, 2003; Mohr & Webb, 2005; Van de Ven, 2008) and at a corporate level, that it boosts trust into the firm, as well as company's reputation of legitimacy to operate (Schlegelmich & Pollach, 2005; Swaen & Chumpitaz, 2008; Van de Ven, 2008; Vanhamme & Grobben, 2009; Waeraas & Ihlen, 2009). When they deal with advertising practices, studies concentrate on an analysis of the commu-

nications themselves rather than on consumers' perception and comprehension of these ads (Bodger & Monks, 2010; Friedel, 2008; Holcomb, 2008; Self, Self, & Bell-Haynes, 2010).

Greenwashing only comes back in the literature in the late 2000's following a new surge in green advertising that was found to have almost tripled between 2006 and 2009 (Terrachoice, 2009), a concomitant amplifying denunciation movement (Delmas & Burbano, 2011; Horiuchi & Schuchard, 2009; Laufer, 2003; Lyon & Maxwell, 2011) and the opening of official debates about regulation (e.g., in 2010, the US FTC announces their task force to edit new guidelines; in 2011, the Australian parliament adopts the Consumer Law). Actually, greenwashing has recently been the focus of a multitude of academic articles (e.g., Bradford, 2007; Chen & Chang, 2012; Delmas & Burbano, 2011; Pomeroy & Johnson, 2009). However, and as noticed earlier, 'executorial greenwashing' linked to the manipulation of executorial elements like image, sounds, symbols evoking nature is not envisaged, though it can be as misleading as vague or exaggerated claims, as well as information omission (Elmore, 2009).

1.2. Regulation of greenwashing

Fighting against greenwashing seems of major importance regarding its embeddedness with sustainable consumption issues and its worldwide scope. Indeed, the problem behind greenwashing is not only misleading consumers *per se*, but also slowing the movement towards sustainable consumption 1/ by discouraging sincere companies to make further efforts when other ones just do window-dressing communication (Cherry & Sneirson, 2011) and 2/ guiding truly conscious consumers towards non-optimal choice (Chen & Chang, 2012; Gillespie, 2008; Polonsky, Grau, & Garma, 2010). Regulation is considered one of the key external drivers to set pressures on advertisers, or indirectly increase the availability and reliability of environmental information, by diffusing knowledge about greenwashing (Delmas & Burbano, 2011)

Though the current state of lax and uncertain regulation as key drivers of greenwashing, research is still scarce about the tools available to managers or policymakers seeking to mitigate greenwashing (Delmas & Burbano, 2011). Scammon and Mayer (1993, 1995) brought a first stone to this research agenda, by investigating regulations cases seen in the United States in the early 1990's. However, the research's scope is limited as it is limited to the American context, on a very short period, describing an only type of regulation—case-by-case resolution—and ignoring consumers' real (mis)comprehension of environmental claims.

Depending on countries cultural dimensions (e.g., degree of ecological consciousness or State interventions habits; for example regulation in the U.S. is limited and its application highly uncertain, Delmas & Burbano, 2011), greenwashing regulation plays on different types of policy instruments that we can classify along Wolff and Schönherr's (2011) typology:

1/ Enforceable regulation such as mandatory standards, prohibitions or bans (e.g., bans for Norway prohibiting the promotion of cars with green claims or for Australia, where misleading and deceptive conduct is prohibited and subject to penalties up to 1.1 million Australian dollars);

2/ Economic instruments such as subsidies, taxes, and tradable permits; Greenwashing regulation of this type is not applied yet, but several measures could be proposed: setting a 1% tax on advertising expenses to fund an independent organization in charge of the control of ad, or a tax to fund consumers education campaigns about greenwashing, or to help small companies with no advertising budget but with truly green innovations to communicate.

3/ Communicative instruments or information, including product labeling, consumer education and advisory campaign (e.g., European Directive 1999/94/EC requiring European carmakers to display their vehicles' carbon emissions prominently in all printed promotional material);

4/ Procedural instruments such as voluntary agreements and infrastructure provision. This last type of instrument appears through the US FTC, UK ASA or French ARPP recommendations (ARPP also playing an advisory role for companies willing to check their ad before broadcasting it).

Regulation principles principally address the problems of the environmental claims themselves: they ask to avoid vague, unsubstantiated, misleading, confusing, false or deceptive claims. Claims should be accurate, precise (mentioning in which conditions the performance is obtained, or which part of the product is concerned, which part of the product life cycle is impacted by the improvement), backed with scientific proofs, not overstating and clear enough for non-expert people. Rare recommendations deal with advertising execution elements (e.g., French ARPP recommendation about sustainable development issued in 2009 or the Australian Consumer Law promulgated in 2011), such the representation of products or service in association with a picture suggesting the idea of nature as mentioned earlier. For example, the French ARPP, based on a legal ban inscribed in the article L.362-4 of the Environment Code, requires advertisers not to represent motor vehicles within natural landscapes. This kind of greenwashing practices are more difficult to regulate than strict lies or misleading claims because executional elements are various, subtle and sometimes exert an influence in interaction with each other or in a specific context only.

To sum up, we can recognize, following Delmas and Burbano (2011) that “variation in regulation across countries and complexity regarding appropriate jurisdiction [...] contribute to a particularly uncertain regulatory environment of multinational corporations”, which in turn leaves room for opportunistic usage of greenwashing. In contradiction with the important regulation concern all over the world, research is still scarce and principles of regulation are mainly based on intuition or professional expertise. It seems crucial to provide theoretical foundations and empirical evidence about advertising practices supposedly misleading con-

sumers, as well as about the kind of regulations or recommendation to counterbalance these effects. The present research focuses on one type of regulation strategy: the display of environmental performance information. This type of strategy belongs to the category of communicative instruments, also termed “consumer knowledge” (Press & Arnould, 2009), which are the preferred option defended by the 1994 Oslo Symposium on Sustainable Consumption and reaffirmed by the 2002 U.N. World summit, recommending “to develop [...] effective, transparent, verifiable, non-misleading and discriminatory consumer information tools”. This type of regulation can be applied more easily than enforceable law, which supposes a strict definition of green behavior and of environmental claims (Delmas & Burbano, 2011). A previous work actually confirmed that the display of independent sustainability ratings on companies’ environmental performance is efficient to enlighten consumers’ evaluation of companies using misleading claims (authors, 2011). Extending this previous work, this article examines whether the display of poor environmental performance indicators on advertisement might deter ‘executional greenwashing’.

2. Conceptual Background and Hypotheses

To understand executional elements mechanism of persuasion, the ELM framework (Petty & Cacioppo, 1981) seems particularly suitable. This model identifies different routes to persuasion, depending on people’s motivation and ability to consider the information provided by a persuasive message. A motivated and competent consumer follows a central route and bases her or his judgment on the quality of the arguments; a less competent and motivated consumer follows a peripheral route and bases judgments on ad execution elements such as colors, character or music to form its attitude (Batra & Stayman, 1990; Grunert, 1996; Han, 1992; MacInnis & Jowerski, 1989). In the ecological domain, previous studies have already noted the role of competence or expertise, by revealing consumers’ difficulties

understanding subtle ecological claims (e.g., Morris, Hastak, & Mazis, 1995; Polonsky, Garma, & Landreth-Grau, 2011).

Furthermore, individuals treat available information according to a principle of “least effort” (Allport, 1954) and of “satisficing” (Simon, 1976), both depending on the treatment goals. Judgments therefore result from a compromise between the cognitive effort to be deployed and the perceived accuracy of the evaluation made. Individuals will therefore examine one cue after another, stopping the process when they think they have sufficient information to make their evaluation, unless they are motivated to invest more energy and cognitive effort in further information treatment. For individuals with low motivation, following a peripheral route, the recognition of elements easy to treat, at a low cognitive cost, and corresponding to heuristic rules available in memory will be sufficient to form a satisfying evaluation (Higgins, 1996). They will then stop their analysis of any other cue. Conversely, individuals with high motivation, following a central route, should have the motivation to go deeper in the analysis of the information, looking for other elements to treat. They will display a more systematic investigation of all elements provided.

In the specific case of environmental advertising, non-expert consumers will pay attention to executional elements and base their judgment according to the available heuristic, concluding that the presence of executional elements evoking nature supposes a more ecological brand. They may therefore stop their investigation. Conversely, expert people will be motivated to make a cognitive effort and enter into a more systematic and complete analysis of all information clues, paying attention to environmental performance information as well as executional elements evoking nature. This leads to H1.

H1. The presence of advertising executional elements evoking nature (a) reduces the attention dedicated to environmental performance indicator among non-expert consumers, but (b) has no influence among expert consumers.

Considering conditions where all consumers have noticed both executional elements evoking nature and environmental performance information, the application of the ELM model leads to suppose that consumers will not follow the same information treatment depending on their level of expertise. Consumers having significant knowledge about ecological issues should be more motivated and more able to treat the environmental information provided, namely the carbon emission rate, therefore following a central route of persuasion. They should form their brand evaluation from the objective environmental performance provided, and not from the executional elements manipulated in the ad. Conversely, according to the ELM framework, non-expert consumers should follow a peripheral route: being unable to treat the objective information provided, they will base their evaluation on the executional elements and not on the objective environmental performance information. When these elements evoke nature, non-expert consumers should improve their evaluation of the brand ecological image. This reasoning leads to H2 and H3.

H2. For non-expert consumers, the brand's ecological image is (a) enhanced in the presence of advertising executional elements evoking nature and (b) not influenced by the value of poor environmental performance indicators.

H3. For expert consumers, the brand's ecological image is (a) not influenced by the presence of advertising executional elements evoking nature and (b) damaged by the value of poor environmental performance indicators.

Previous advertising research also uses a mediation chain, from attitude toward the ad to the attitude toward the brand, through brand perceptions (Lutz, 1985; McKenzie, Lutz, & Belch, 1986), to explain advertising effectiveness. We predict this effect applies in our study context too, such that providing the presence of advertising executional elements evoking nature or of bad environmental performance information should influence brand attitude if they influence the brand ecological image. Considering the previous discussion about the

influence of consumers' expertise, experts and non-experts should not follow the same mediation route though. For non-expert consumers, the first causal factors are the executional elements evoking nature; they cannot interpret the value of environmental performance indicators by themselves. Therefore,

H4. Among non-expert consumers, the brand's ecological image (a) mediates the influence of the presence of advertising executional elements evoking nature but (b) does not mediate the influence of the value of poor environmental performance indicators on brand attitude.

H5. Among expert consumers, the brand's ecological image (a) does not mediate the influence of the presence of advertising executional elements evoking nature but (b) mediates the influence of the value of poor environmental performance indicators on brand attitude.

3. Methodology

3.1. Design and stimuli

The experimental design consists of a 2 (presence of advertising executional elements evoking nature *vs.* absence) by 2 (carbon emission rate slightly above the norm *vs.* very high carbon emission rate) by 2 (experts *vs.* non-experts), in which we manipulated the two first factors. We measured respondents' objective expertise, which is preferable when the research objective relates to the consumer's ability to encode new information (Selnes & Grønhaug, 1986), because it avoids several biases (e.g., social desirability, difference in self-confidence).

In all conditions, respondents reviewed a commercial website's home page, which presented a new vehicle (L3) constructed by the brand LUNA, a fictitious car manufacturer. This sector was chosen as one of the more concerned with greenwashing practices (Gillespie, 2008). We chose a fictitious brand, in line with previous studies (e.g., Brown & Dacin 1997; Swaen & Vanhamme, 2005), to avoid any effects of prior brand familiarity; the experiment

explicitly explained that the carmaker's real name could not be revealed. Testing the fictional brand's commercial website helped ensuring realism in the online survey.

The average carbon emission rate required for all new passenger cars by 2015 by the European Automobile Manufacturers Association agreement is 130 g/km; therefore, we consider 149 g/km a rate slightly above the norm and 209 g/km as a very high carbon emission rate. The manipulation check confirmed that respondents perceived the latter as higher than the former ($M_{149}=3.66$, $M_{209}=4.69$, $p<.01$). These higher rates represented the cases of interest for examining the efficacy of the European Directive and testing its potential efficiency in deterring greenwashing. We used the two above-norm values to identify any potential threshold effects; the slightly above the norm case offered potential ambiguity that might help specify the frontiers of efficiency of greenwashing and of the European Directive respectively. Furthermore, to test the heuristic effect of displaying environmental performance information on non-expert consumers, we had to confirm that the results remained the same, regardless of the rate, which would show that the respondents did not process the information *per se*.

The presence of executional elements evoking the nature was manipulated as in a real recent advertising campaign, through graphics and sound. Precisely, executional elements consist of the use of a picture evoking a forest, the green color in tint areas (see Figure 1), and the diffusion of a birdsong. Respondents were invited to answer several questions about the existence and identification of specific background and sound in the stimuli they were exposed to, to check the success of the manipulation.

3.2. Procedure

The data collection relied on a web survey, and the experiment consisted of two stages. First, the home page introduced LUNA. Second, respondents reviewed the rest of the

LUNA website, including the web page presenting the L3, one of its new vehicles. They completed the questionnaire without the opportunity to return to review the web pages.

To ensure a statistically generalizable sample, we recruited 235 respondents (57% women, mean age = 38 years) from the panel of a professional market research institute. The sample represented various regions in France and was heterogeneous in terms of socio-economic status. We randomly assigned the subjects to the four treatments.

Figure 1. Experimental Stimuli

	Absence of executional elements evoking nature	Presence of executional elements evoking nature
149 g/km		
209 g/km		

3.3. Measures

To assess brand ecological image, we developed a four-item ad hoc scale. The rest of the questionnaire contained adaptations of previously validated scales: attitudes toward the brand (Batra, Ramaswamy, Alden, Steenkamp, & Ramachander, 2000) and web page (Ng & Chyi, 2008), consumers' automobile involvement (Strazzieri, 1994), and environmental

consciousness (authors, 2011). To measure respondents' objective expertise, we assessed their knowledge of the average carbon emission required for all new passenger cars by 2015 by the European Automobile Manufacturers Association agreement. Respondents who gave the right answer represented the experts in our sample, whereas those who indicated they did not know or gave a wrong answer were the non-experts.

All the constructs used seven-point scales. We conducted unidimensionality and reliability checks for the multi-items scales and found satisfactory reliability. The mean item scores indicated the construct measures. In Appendix, we provide the scale items, means, and standard deviations for each experimental treatment.

4. Results

Of the 235 respondents surveyed, 70 respondents did not remember the exact carbon emission rate. Therefore, H1 was tested on the full sample of 235 people, whereas H2, H3, H4 and H5 were tested on the partial sample of 165 respondents. Non-experts represented 76% and 70% of these samples, respectively. For a comparison, when asked about carbon offsets, only 37% of the Australian consumers and 40% of the US consumers could be classified as high knowledge (Polonsky et al. 2011). Additional analyses showed that the four groups were homogenous in terms of their environmental consciousness ($F_{(3,234)}=1.55$, ns), and automobile involvement ($F_{(3,234)}=1.27$, ns).

To test H_{1a} and H_{1b}, we ran two logistic regressions. Controlling for consumers' environmental consciousness and automobile involvement, Wald tests showed that the presence of advertising executional elements evoking nature reduces the attention dedicated to environmental performance indicator among non-expert consumers ($z=-.575$, $p<.05$), but not among expert consumers ($z=-.492$, ns). Precisely, 61% of non-expert consumers remember the value of the environmental performance indicator in the presence of advertising

executional elements evoking nature compared with 73% of non-expert consumers in their absence. These results corroborate H_{1a} and H_{1b} .

To test H_2 and H_3 , we ran analyses of variance, controlling for respondents' attitudes toward the ad, automobile involvement, and environmental consciousness. We present the results in Table 1.

Among non-expert consumers who remembered the rate value, the presence of advertising executional elements evoking nature affects significantly the carmaker brand's ecological image ($F_{(1,115)}=7.46$, $p<.01$). Bonferroni post-hoc tests show that non-expert consumers perceive the carmaker brand as more ecological in the presence of advertising executional elements evoking nature than in their absence ($M_{\text{Presence}}=5.44$ vs. $M_{\text{Absence}}=4.80$, $p<.01$). Furthermore, the value of poor environmental performance indicators does not influence the carmaker brand ecological image ($F_{(1,115)}=.30$, ns). These results support H_{2a} and H_{2b} .

Among expert consumers who remembered the rate value, the carmaker brand's ecological image is significantly affected by the presence of advertising executional elements evoking nature ($F_{(1,48)}=16.24$, $p<.01$), the value of poor environmental performance indicators affects significantly ($F_{(1,48)}=23.15$, $p<.01$) and their interaction effect ($F_{(1,48)}=10.41$, $p<.01$). Bonferroni post-hoc tests confirm that the influence of the value of poor environmental performance indicators on the carmaker brand's ecological image depends on the presence of advertising executional elements evoking nature. Precisely, they show that expert consumers facing a 149 g/km emission rate perceive the carmaker brand as more ecological than those facing a 209 g/km emission rate, but only in the absence of advertising executional elements evoking nature ($M_{149}=4.91$ vs. $M_{209}=1.72$, $p<.01$). In the presence of advertising executional elements evoking nature, the value of poor environmental performance indicators does not influence how ecological the carmaker brand is perceived by expert consumers ($M_{149}=5.14$ vs. $M_{209}=4.49$, ns). These results support H_{3b} , but only partially H_{3a} .

Table 1. Perception of the brand's ecological image

	Among non-expert consumers	Among expert consumers
Presence vs. absence of advertising executional elements evoking nature	7.46***	16.24***
Value of a poor environmental performance indicator (149 g/km vs. 209 g/km)	.30	23.15***
Interaction effect	.01	10.41***
Attitude toward the ad	44.71***	1.90*
Automobile involvement	3.78**	9.83***
Environmental consciousness	.09	8.03***
Adjusted R ²	.36***	.50***

*** $p < .01$, ** $p < .05$, * $p < .10$.

Finally, to test the mediating influence of the brand's ecological image on the link between advertising exposure and consumers' attitudes toward the brand, this study used the procedure proposed by Zhao, Lynch, and Chen (2010) and Hayes's (2012) PROCESS macro (with model 7 using consumers' expertise as a moderator). We also applied a bootstrapping procedure with 5000 bootstrapped samples to counteract the assumption of normality for the sampling distribution of the indirect effect (ab), as required by the Sobel test (Hayes, 2009).

Table 2. Mediation Tests: Bootstrap Results for Indirect Effects

Indirect effect on brand attitude	Path from advertising exposure to mediator	Interaction effect	Path from mediator to brand attitude	Mean indirect effect (ab paths)	Bias-corrected 95% confidence interval
Brand ecological image mediating the effect of the presence of advertising executional elements evoking nature					
Among non-expert consumers	.8055	.1766	.3750	.3021	 [.1081 ; .5688]
Among expert consumers				.3683	 [.0557 ; .7988]
Brand ecological image mediating the effect of poor environmental performance indicators					
Among non-expert consumers	-.1679	-1.5621	.3750	-.0630	[-.2409 ; .0947]
Among expert consumers				-.6488	[-1.1354 ; -.2652]

Notes: Significant effects at a 95% confidence interval appear in bold.

Considering the influence of advertising executional elements (i.e., presence vs. absence) on brand attitude, the bootstrap analysis showed a significant and positive indirect effect among both non-expert and expert consumers ($ab=.3021$ and $.3683$) and the 95% confidence interval did not include 0 in both cases. In the indirect path, $a=.8055$ ($p<.05$), so using advertising executional elements evoking nature enhanced brand ecological image by $.8055$ units, and $b=.3750$ ($p<.05$), so even when holding the advertising executional elements constant, a unit increase in brand ecological image enhanced brand attitude by $.3750$. The direct effect c was not significant, so we can only establish indirect-only mediation.

Furthermore, considering the influence of the value of environmental performance indicators (i.e., 149 g/km vs. 209 g/km), the bootstrap analysis revealed a significant moderation effect of consumers' expertise on the indirect path. More precisely, the analysis showed a significant and negative indirect effect but only among expert consumers ($ab=-.6488$, $p<.05$), with a 95% confidence interval not including 0 (-1.1354 to -.2652). In the indirect path, the interaction effect is negative, so going from a 149 g/km to a 209 g/km emission rate damaged brand ecological image, and $b=.3750$ ($p<.05$), so even when holding the advertising executional elements constant, a unit increase in brand ecological image enhanced brand attitude by $.3750$. Again, the direct effect c was not significant, so we can only establish indirect-only mediation.

On the whole, these results support H_{4a} , H_{4b} and H_{5b} , but do not support H_{5a} .

5. General Discussion

At a theoretical level, this study contributes to a better understanding of greenwashing in two ways. First, it introduces the notion of 'executional greenwashing', and distinguishes it from 'claim greenwashing' based on the claim itself. This invites to revise, or at least precise the definitions of greenwashing. Definitions or approaches that only cover misleading claims, such as the U.S. FTC approach (their 2012 Green Guides is entitled "environmental claims")

are incomplete, and forget a subtle, complex and more difficult to regulate form of greenwashing, though powerful as demonstrated in this study.

This distinction between two types of greenwashing, one linked to the content of the message, the other linked to formal and aesthetic aspects of the ad, seems of major importance as they do not exert the same influence on consumers, and do not entail the same solutions in terms of regulation. For example, several researches underline the fact that greenwashing could increase skepticism or mistrust about green claims in general, thus fatally undermining CSR strategies, even sincere ones (Chen & Chang, 2012; Cherry & Sneirson, 2011; Lyon & Maxwell, 2011). Our study does not show any increase of skepticism or of a perception of manipulation, even among experts, in case of executional greenwashing. Playing with executional elements evoking nature is quite common and may not be perceived as manipulative, whereas verbal claims, confronted to environmental labels showing poor performance, would probably be perceived as more suspicious. Going further, both types of greenwashing do not entail the same regulation policies. Delmas and Burbano (2011) suggest more transparency and environmental information could be enough to deter greenwashing. This may be the case with 'claim greenwashing', but not for 'executional greenwashing' as demonstrated in the present paper, at least not under this form of environmental information.

Research could also go further and envisage a third type of greenwashing, based on the channel used to broadcast the ad (Du, Bhattacharya & Sen, 2010). Indeed, traditional communication models (Lasswell, 1948; Shannon et Weaver, 1949) insist on the importance of the channel used to communicate the message. Websites or journals, magazines specialized and credible in environmental matters could artificially induce an undue ecological image.

This paper also provides important learning about consumers' cognitive responses to executional greenwashing. For non-experts, results are in line with ELM predictions. Advertising executional elements evoking nature work in two ways. First, they distract non-expert

consumers from objective environmental information. As non-experts follow a peripheral route and principles of least effort and satisficing, they are sensitive to executional elements evoking nature, form their judgment and stop their mental processing as soon as they are satisfied with their evaluation. Second, non-experts who notice and remember the information label value cannot understand the label anyway, meaning that it cannot help diagnose a poor environmental performance, therefore not counterbalancing the effects of greenwashing.

For expert people, results are more complex and counterintuitive. As expected, they respond to the value of carbon emissions, but in contradiction with expectations, they are also influenced by executional elements evoking nature, even when they have environmental information at their disposal and remember its value. This shows that experts use both the central and peripheral route. Furthermore, this pleads for an additive combination model of data processing (Anderson, 1991; Bohner, Moskowitz, & Chaiken, 1995), where central and peripheral elements are analyzed independently, leaving aside their degree of contradiction or congruence (Bohner, Moskowitz, & Chaiken, 1995). Anderson (1991) suggests that if a parallel process between the heuristic or the systematic process can be envisaged, the most probable is that the heuristic process (the peripheral route) is engaged first, followed by the systematic one. This could explain the major influence of executional elements on the final ecological judgment. It seems to compensate the poor performance showed by the environmental label. Such a result does not show where environmental information is provided on a neutral background: the systematic treatment is only operating, thus degrading brand ecological perception. Finally, it is not because consumers are expert that there are necessarily skeptical about advertising, especially when confronted to non-verbal executional elements evoking nature. This shows how greenwashing is powerful.

The paper also leads to regulatory implications. Results show that executional greenwashing actually misleads consumers, whatever their level of expertise, and demonstrates

that, though it is a privileged option, environmental information is not enough to counterbalance the effects of greenwashing. The European Directive is not sufficient to deter executional greenwashing, even among experts. A high emission rate damages ecological image, but not significantly compared to a slightly above the norm one. Before abandoning the idea of a regulation through consumer information, other formats of label could be envisaged to draw consumers' attention and help them process it efficiently. Relative type of labels could be used such as ratings, or red-to-green type of labels like the energy star labels, or any other graphic label being more concrete. Further research must pursue a deeper theoretical understanding of labels' efficacy, perhaps based on psychometric theory (e.g., anchor points, number of anchors). Other studies also might consider multicriteria labels.

Other forms of regulation could also be envisaged, starting by the strict interdiction to use certain execution cues, following the French ban about the presentation of motor vehicles in natural backgrounds in advertisements. This would call additional work to identify which executional elements used by advertisers are the most misleading. A stronger approach like the one adopted by Norway, namely the interdiction of green advertising for sensitive product categories like automotive, could be envisaged, though they are probably excessive, deterring carmakers real effort to improve their cars' carbon footprint.

Finally, we note two main limitations of this study. The most important one is that it only envisages the case of a real mix of executional elements (i.e., picture of a forest, bird-song and green tint areas), therefore showing a global effect of executional greenwashing. Though important as a result, it cannot provide evidence of the efficacy of each element individually, therefore limiting regulatory recommendations. Studies should be replicated using independent executional elements, among those that are listed as the most commonly used by regulators. Besides, we used a French sample, which calls for a replication in countries that would differ in terms of their level of environmental consciousness.

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Appendix. Scales

Instrument	Brand Ecological Image	Brand Attitude	Automobile Involvement	Environmental Consciousness	Attitude toward the Brand's Webpage
• The carmaker Luna is concerned with respect for the environment.	.917				
• I have the impression that the carmaker Luna tries to respect the environment.	.908				
• Luna vehicles are environmentally friendly.	.893				
• I feel that the carmaker Luna is not only interested in profits, but also in the environmental impact of its vehicles.	.854				
• I like this carmaker.		.884			
• I think this brand is good.		.859			
• My opinion about this carmaker is positive.		.853			
• I particularly like speaking about automobiles.			.948		
• Just getting information about automobiles is a pleasure.			.938		
• Automobiles are products that really mean something to me.			.871		
• When possible, I systematically choose the product that has the lowest negative impact on the environment.				.908	
• I try not to buy from companies that strongly pollute.				.902	
• When I have the choice between two equivalent products, I always wonder which one pollutes less before buying.				.843	
• I do not like this webpage.					.868
• I do not enjoy reading this webpage.					.857
• This webpage is boring.					.748
Mean	4.9	4.6	4.4	4.5	3.3
SD	1.4	1.2	1.8	1.6	1.7
Reliability	.958	.947	.913	.874	.860