
THE EFFECTIVENESS OF GREEN ADVERTISING: INFLUENCES OF CLAIM SPECIFICITY, PRODUCT'S ENVIRONMENTAL RELEVANCE AND CONSUMERS' PRO-ENVIRONMENTAL ORIENTATION

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Abstract

This study investigates the influences of claim specificity, the product's environmental relevance, and the respondents' proenvironmental orientation on the effectiveness of green advertising among Turkish consumers. An experimental study is conducted using hypothetical print advertisements for two product categories (laundry machines as a high relevance product; DVD player as a low relevance product). Findings indicate that the specificity of the green claim does not exert a significant effect on consumer evaluations towards high relevance product advertisement, while specific green claims significantly improve the communication effectiveness of the low environmental relevance product advertisement. The theoretical and managerial implications of these findings are discussed.

Keywords: advertisement effectiveness, claim specificity, experimental design, green advertising, product environmental relevance

JEL Classification: M37, M31, Q56

Introduction

Environmental pollution and depletion of natural resources have long been recognized as vital problems. International organizations, governments, and several advocacy groups have been compelling business firms to discharge their responsibilities regarding these issues. Thanks to these pressures and changes in societal value systems, many business organizations have begun to approach the issue from a strategic perspective and to pay a great deal of attention to environmental issues (Banerjee, Gulas, Iyer, 1995; Miles and Covin, 2000; Grigore, 2011; Leonidou et al., 2011). Today, environmentally committed business organizations are "greening" their manufacturing processes, developing "green" or "environmentally safe" products and changing their way of doing business. In this respect,

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environmental marketing and green advertising have become prominent topics in the business world.

Increasing number of companies using environmental claims in their ads, yet some of them are simply greenwashing, have led consumers to be suspicious towards environmental advertising. The effectiveness and reliability of green advertising is an important issue for marketing managers, who tries to be environmentally responsible and anticipates a reward from consumers for their responsible behavior. Marketing managers and advertising professionals need to understand how to discourse environmental information and how to present this information in the ads. Although there is an extensive literature on green marketing and green advertising, limited research has investigated communication strategies for attaining more effective environmental advertisements (Davis, 1993; Obermiller, 1995; Schuhwerk and Lefkoff-Hagius, 1995; Manrai and Manrai et.al, 1997; Chan and Rau, 2004, Hartmann and Apaolaza-Ibanez, 2009; Leonidou et al., 2011). In order to respond to this gap in the literature, the authors probed how and to what extent environmental claim specificity affects advertising effectiveness, for different product categories. The study aims to contribute the green marketing literature by elucidating the effect of green claim specificity on communication effectiveness. Further, it is one of the very few experimental studies conducted in a developing country context. Findings may exhibit important insights regarding consumer reactions to green ads in a developing country context. Concordantly, in the next section theoretical bases of green marketing and advertising are examined and research hypothesis developed. After that, research methodology and data analyses provided. The last section covers the discussion and conclusions.

1. Literature review and hypothesis investigation

1.1 Green marketing and advertising

Marketing scholars, as well as practitioners have paid great attention to the issue of natural environment since early 1970's (Kassarjian, 1971; Fisk, 1973). Most generally, green marketing refers to the incorporation of environmental dimensions into marketing activities (Crane, 2000). According to Polonsky's (1994) widely cited definition, green or environmental marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs with minimal detrimental impact on the natural environment. Thus, it incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, and modifying the marketing communications. Research results show that, environmental impact of products and services may influence consumer behavior. Consumers are likely to choose one brand over another because of their impact to the natural environment. They are also more likely to pay a premium to products, which are environmentally safer (Kangun, Carlson, Grove, 1991; Chase and Smith, 1992; Davis, 1993; Carlson, Grove and Kangun, 1993; Menon and Menon, 1997; Ottman, 1997; Crane, 2000; Peattie, 2001; Anghel et al., 2011).

Increasing consumer sensitivity to environmental issues dramatically affected corporate world and forced them to change their way of doing business. Correspondingly, using

environmental claims in corporate communications become widespread. Green advertising is on the rise, as an ever-increasing number of manufacturers are informing their consumers about pro-environmental aspects of their products and services (Banerjee et al., 1995). Designing water and energy saving products, using recycled and biodegradable materials and supporting environmental causes are prominent environmental claims in the ads. Green advertising is defined as “any ad that explicitly or implicitly addresses the relationship between a product/service and the biophysical environment, promotes a green lifestyle with or without highlighting a products/service and presents a corporate image of environmental responsibility” (Banerjee et al., 1995, p: 22).

Environmental marketing and green advertising boomed in the late 1980’s (Easterling et al., 1996). While many companies have made sincere attempts to minimize the negative environmental impact of their products, others have simply exaggerated or even fabricated the environmental qualities of their offerings (Garfield, 1991). Hence, a negative attitude towards green advertising among consumers arose. Consumers do find environmental information in the ads neither believable nor reliable (Fisk, 1973; Kangun, et al., 1991; Iyer and Banerjee, 1993; Davis, 1993; Newell, Goldsmith and Banzhaf, 1998). It was reported that the least credible source of information regarding its environmental impact was an advertisement placed by the company itself (Iyer and Banerjee, 1993). Perhaps, weak credibility of green claims could have been among the potential barriers to translate good intentions into green buying actions. Indeed, plenty of research demonstrates that deceptive environmental claims are commonly used in the marketplace (Kangun et al., 1991; Carlson et al., 1993; Polonsky, Carlson and Kangun, 1997). Thus, designing and using environmental claims in the ads is a critical decision that may affect advertising effectiveness as well as the reputation of a firm. Some fine-tuning of the advertisements’ verbal copy may be all that is needed to make a claim completely intelligible and more valuable to both the source and the receivers of the communication (Carlson et al., 1993). Lack of this fine-tuning may also threaten the success of the communication. In this respect, claim specificity is an important issue for green advertising effectiveness.

1.2 Advertising claim specificity

Advertising claim specificity is an umbrella term describing the informativeness, objectivity, concreteness, quality and strength of the claim provided in an advertisement. Research results show that claim specificity affects consumer responses to advertising. Ogilvy (1983) argued that specific messages are more credible and more memorable than ad messages based on generalities. Consumers are less skeptical of objective than subjective advertising claims (Ford, Smith and Swasy, 1990). Objective and factually written claims about tangible product attributes produce more favorable perceptions of ad credibility, stronger brand beliefs, and more favorable purchase intentions; yet they are perceived to be significantly more credible than subjective claims (Darley and Smith, 1993).

Marketers do manipulate the specificity of the environmental claim in their advertisements (Leonidou et al., 2011). Some of them use specific environmental claims while others use vague or unspecific claims. A specific environmental claim contains rich information; it presents concrete and tangible environmental characteristics and benefits of the product supported by objective, factual information. A vague or unspecific advertising claim on the

other side contains abstract, vague, or ambiguous wording, without factual support, to describe the product's environmental characteristics or benefits (Davis, 1993). An unqualified statement that the product is "environmentally friendly", "eco-friendly", "better for the environment", "recyclable", "reusable", "less packaging", "less waste" etc. without any further explanation can be labelled as a vague claim. An ad claiming that the advertiser's packaging creates "less waste than any other brands" can also be classified as vague, even "deceptive", unless the advertiser could substantiate the claim with factual data. A good example for a specific environmental claim might be: "Our new laser printer toner cartridge contains 25% recycled raw materials and 40% reconditioned parts than the preceding version".

Although environmental advertising has been the focus of plenty of research, green advertising claim itself has rarely been probed. Amongst the very few research on green advertising claims, Iyer and Banerjee (1993) developed a green claim typology regarding ad target, ad objective and ad appeal. Carlson et al. (1993) developed another green claim typology regarding the ad orientation. Polonsky et al. (1997) probed green claim believability by using a modified scheme of Carlson et al. (1993) typology. To the authors' knowledge, there is a limited number of studies that are focused on the effect of green claim specificity on advertising effectiveness. Davis (1993) conducted an experimental study using fictitious ads of a shampoo and explored the effect of environmental claim specificity and the amount of emphasis given to the claim on advertising effectiveness. He reported the superiority of specific environmental claims over vague claims. Manrai and Manrai et al. (1997) conducted another experimental study using original brand names of three automobiles and they reported the superiority of green claims, which were moderate in strength over claims that are low or high in strength. Chan (2000) conducted another experimental study using fictitious ads of an anti-dandruff shampoo and explored the effect of claim specificity (substantive vs. associative) and the source country's green image on advertisement effectiveness. Chan reported the superiority of product and process oriented (substantive) claims over image oriented (associative) claims. In a similar study, Chan and Lau (2004) again reported that substantive environmental claims generate greater communication effectiveness than associative environmental claims. Hence, the authors propose that:

Environmental advertisements containing specific claims are superior to those containing vague claims in terms of advertising effectiveness (H1).

1.3 Product's environmental relevance

In this study's context, a product's environmental relevance expresses the perceived association of the product with environmental problems (i.e. consuming excessive resources, causing pollution, damaging the natural resources and/or habitats). Extant literature does not have any specific research probing the effects of product's environmental relevance on green advertisement effectiveness. To the authors' knowledge, this is the first study that incorporates the product's environmental relevance in addition to the claim specificity. Aforementioned researchers used products that are highly relevant to environmental issues in their research. These products can easily be associated with environmental problems (e.g., shampoos contain chemicals and automobiles consume fossil

fuel causing air pollution). Using environmental claims in the advertisements of such products can be taken by consumers as it is expected. For instance, using environmental claims (such as reducing material usage, energy and water consumption, using non-CFC gas etc.) in the ads of laundry machines, tumbler dryers, and refrigerators is very common. Indeed, marketers may use green advertising for the products whose environmental relevance is weaker, too. Nonetheless, using environmental claims in the ads of products with low environmental relevance may induce different consumer reactions. For high environmental relevance products, extant literature provides empirical evidence supporting the superiority of specific environmental claims (Davis, 1993; Manrai and Manrai et.al, 1997; Chan, 2000; Chan and Lau, 2004). Nevertheless, for low environmental relevance products, no such evidence is present. Yet, the authors propose that:

Environmental relevance of the product (high vs. low) affects the influence of environmental claim specificity (specific vs. vague) on advertising effectiveness (H2).

1.4 Consumers' pro-environmental orientation

Environmental orientation or concern can be defined as the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution (Dunlap et al., 2000; Dunlap and Jones, 2002). Consumers' degree of environmental concern may influence the communication effectiveness of green advertising (Chan and Lau, 2004). Their level of pro-environmental orientation may affect the degree of involvement with the advertising content. This inference can be based on the statement that consumers will be highly involved in a purchase decision if the product in question relates to an issue with which they are greatly concerned (Higie and Feick 1989). Thus, the influence of consumers' degree of environmental concern must be controlled when analyzing the influences of environmental claim specificity and product's environmental relevance on advertising effectiveness. Accordingly, authors incorporated consumer pro-environmental orientation into this research as a covariate.

In summary, the authors argue that advertising claim specificity, product's environmental relevance and consumers' level of proenvironmental orientation may have important implications for designing effective green advertisements. In order to test the influences of each variable, an experimental study is conducted. In the following section, research methods are presented.

2. Methodology

2.1 Research question

The main research problem here is; how and to what extent environmental claim specificity affects advertising effectiveness for different product categories regarding their environmental relevance, while controlling the influence of consumers' proenvironmental orientation.

2.2 Research design and sample

A 2x2 mixed experimental design with one covariate is used in this study. The experimental factors were environmental claim specificity (vague vs. specific) and product environmental relevance (high vs. low). Respondents' level of pro-environmental orientation is included in the research as a covariate. A pilot study was conducted in order to identify two product categories to be used in the main study. One hundred fifteen university students are asked to evaluate the environmental impact of a set of different product categories concerning the material usage, consumption of energy and other resources, waste production, and contribution to environmental pollution throughout their entire life cycle. Consequentially, laundry machine was chosen as a high environmental relevance product and DVD player as a low environmental relevance product. Hypothetical print advertisements are developed for the two products. Environmental claim specificity is manipulated in advertisement texts.

The participants of this research were a total of 180 graduate and undergraduate students from two Turkish universities located on the north-west part of the country. The sample is comprised of 86 females and 94 males, with a mean age of 23 (range 17-39, SD. = 3,8) studying in various departments of the two universities. Although the use of a student sample limits the generalizability of the results, past researchers have extensively relied on student subjects in experimental studies probing advertising effectiveness (Goldberg and Hartwick, 1990; Lafferty and Goldsmith, 2004). Besides, subjects were randomly assigned to treatment groups in order to attain a balanced design. A monetary incentive of \$10 in cash, which was granted by The Scientific and Technological Research Council of Turkey (TUBITAK), was paid to each participant after completion of the experiment.

2.3 Research instrument and procedure

The research instrument used for this study was a booklet comprised of A4 size full-color print advertisements and several questions to measure advertising effectiveness and to check the success of experimental manipulations. Two versions of the booklet were developed in order to manipulate the claim specificity in the ads. Each booklet contained two print ads, (one for laundry machine, one for DVD player) and various questions. The level of environmental claim specificity in each ad altered systematically. For example, in Booklet-1, the laundry machine ad contained a strong and specific environmental claim, while DVD player ad contained a vague and weak environmental claim; and in Booklet-2, it was the opposite. Thus, each respondent saw ads of two product categories comprising different levels of environmental claim specificity. Each ad contained a headline, a product picture and a body of text about product attributes. Only the body of text was varied among different versions of the ads. Vague environmental claim version contained abstract, non-specific and affect based environmental claims (e.g. "this laundry machine is environmentally sensitive; its water and energy consumption is reduced to save the environment and it is well aware of its responsibility for the future generations") in addition to functional product attributes. Specific environmental claim version contained detailed, concrete, and objectively comparable environmental claims (e.g. "this laundry machine is environmentally sensitive; its water and energy consumption is significantly reduced to save the environment, it only consumes 42 lt. of water and 1,26 kWh electricity to wash 7

kgs. of cotton laundry) in addition to functional product attributes. Fictitious brand names ("Clinox" for laundry machines and "Solaris" for DVD players) were used to control for the influence of brand familiarity and prior brand attitudes. Each ad was placed on the left page of the booklet and questions for advertisement effectiveness were listed on the opposite page. Respondents were instructed to look at each ad for a certain amount of time and answer the questions on the opposite page. After answering the questions, they are told to turn the page and do the same thing for the next ad. Once they turned the page, they were not allowed to go back and look at the previous ads again.

Subjects' pro-environmental orientation is assessed by six questions derived from "Revised New Environmental Paradigm-NEP" (Dunlap et al., 2000). At the very end of the booklet, manipulation check questions were listed. Experiments were conducted in groups of 10-20 students in a classroom reserved for the study. Participants were chosen among students who registered upon a call, placed one month before the experiments conducted. Respondents were randomly assigned to experimental conditions by randomized distribution of different versions of the booklets. They were not told about the real purpose of the study. Instead, they were told that the purpose of the study was to determine the best ads for three different products, which will be available in the local market soon. Respondents who properly completed the experiment were paid \$10 cash.

2.4 Measures

Advertising effectiveness was measured by using three sub scales. First subscale, attitude toward the ad, was measured by four semantic differential scales (bad-good; unfavorable-favorable; dislike-like; boring-interesting) derived from Madden, Allen, Twible (1988). Factor and reliability analyses were carried out to examine the dimensionality and reliability of the scales. Four items measuring attitude toward the laundry machine ad loaded on a single factor, which explained 79.8% of the variance. Same items measuring the attitude toward the DVD player ad loaded on a single factor, which explained 81.3% of the variance. The Cronbach alpha reliability of the composite measures was .91 for laundry machine ad, and .92 for DVD player ad. Thus, a composite measure of attitude toward the ad (Aad) was created by averaging the responses on the four items for each product.

Attitude toward the brand was measured by three semantic differential scales (negative-positive; unfavorable-favorable; bad-good) extracted from MacKenzie, Lutz, Belch (1986). Exploratory factor analyses revealed that the three items measuring attitude toward the brand loaded on a single factor for both products. This single factor explained 83.3%, and 85.9% of the variance for laundry machine and DVD player ads respectively. The Cronbach alpha reliability of the measures was .90 for laundry machine ad and .92 for DVD player ad. Thus, a composite measure of attitude toward the brand (Abr) was created by averaging the responses on the three items for each product.

Purchase intention was assessed by three semantic differential scales (unlikely-likely; improbable-probable; impossible-possible) taken from Zhang and Buda (1999). Three items measuring purchase intention loaded on a single factor for both products. This single factor explained 84.1%, and 87.6% of the variance for laundry machine and DVD player ads respectively. The Cronbach alpha reliability of the composite measures was .90 for laundry machine ad and .93 for DVD player ad. Therefore, a composite measure of

purchase intention (Ip) was created by averaging the responses on the three items for each product.

Respondents' level of pro-environmental orientation was measured by six Likert type scales (1= Completely Disagree, 5= Completely Agree) derived from "Revised New Environmental Paradigm-NEP" (Dunlap et al., 2000). Scale items are presented in the appendix. Exploratory factor analysis revealed that, six items loaded on a single factor explaining 37.9% of the variance. The Cronbach alpha reliability of the measure was calculated as .63 . Thus, a composite measure of pro-environmental orientation (EnvO) was created by averaging the responses.

Scales were translated into Turkish, and two referees examined face validity of the translations. Except the pro-environmental orientation scale, all of the scales were 9 point bi-polar scales and answers ranged from (-4) to (+4). They were coded in such a way that higher scale values indicated responses that are more positive. Table no. 1 presents means, standard deviations and correlations among these variables for each of the product categories separately. It is seen that there were moderate to strong correlations among all of the dependent variables. Correlations amongst the dependent variables are found to be significant at the 0.01 level. Additionally, the control variable is found to be sharing some significant correlations with the dependent variables. On the ground of these relationships among dependent and control variables, it is decided to use multivariate analysis of covariance (MANCOVA) for data analyses. Before performing the multivariate analysis of covariance, experimental manipulations are controlled.

Table no. 1: Correlation table for dependent and control variables

	Mean	St. D.	1	2	3
LAUNDRY MACHINE AD					
1. Attitude Toward The Ad (A _{ad})	1,023	1,662			
2. Attitude Toward The Brand (A _{br})	1,070	1,724	,587**		
3. Purchase Intention (I _p)	0,335	2,115	,516**	,736**	
4. Pro-environmental Orientation (ENVO)	4,098	0,612	,170*	,120	,163*
DVD PLAYER AD					
5. Attitude Toward The Ad (A _{ad})	1,4713	1,711			
6. Attitude Toward The Brand (A _{br})	1,3259	1,783	,780**		
7. Purchase Intention (I _p)	,7296	2,214	,741**	,799**	
8. Pro-environmental Orientation (ENVO)	4,098	0,612	,132	,146*	,180*

Note: ** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

3. Data analyses and results

3.1 Manipulation checks

In order to check the experimental manipulations, a number of questions asked to the participants at the very end of the booklet. Initially, a "yes-no" question (did you notice any environmental claim in the ad) was asked to participants for each product category. All of the respondents affirmed that they noticed environmental claims in the ad(s). In the next step, respondents are required to answer seven further questions about the specificity of environmental claim (amount, volume, detail, information, concreteness, strength, realism).

Answers are given by a Likert type 5 point scale (1=very few, 5=too much). A composite measure of perceived claim specificity was created by averaging the responses on the seven questions for each product category. For the laundry machine ads, perceived specificity of the environmental claim was lower in the vague claim version ($M=2,07$; $SD. =1,24$) than the specific claim version ($M=2,77$; $SD. =1,09$). The mean difference was significant ($t(178)=-4,06$, $p<0,001$). For the DVD player ads, perceived specificity of the environmental claim was lower in the vague claim version ($M=2,24$; $SD. =1,26$) than the specific claim version ($M=2,91$; $SD. =1,41$). The mean difference was significant ($t(178)=-3,331$, $p=0,001$). These results indicate that, respondents successfully realized the variation of environmental claim specificity amongst alternative ad versions of each product category.

A post-hoc study was conducted in order to check the perceived environmental relevance of the products used in this study. Seventy-eight university students are asked to evaluate the environmental impact of a laundry machine and a DVD player, concerning the material usage, consumption of energy and other resources, waste production, and contribution to environmental pollution throughout their entire life cycle. Responses are given on a 5 point Likert type scale (1= Not at all; 5=Far too much). Results indicate that the mean score of laundry machine's environmental relevance was 3.16 ($SD. =.77$), whereas it was 2.40 ($SD. =.83$). for DVD player. There was a significant difference between the means, $t(77)= 8.314$, $p=.000$. These results indicate that a laundry machine's environmental relevance is perceived as higher than a DVD player's environmental relevance.

3.2 Multivariate analyses of covariance

MANCOVA is used to analyze the association between environmental claim specificity and advertising effectiveness measures (Aad, Abr, Ip,) while controlling the respondents' pro-environmental orientation (EnvO). MANCOVA is an extension of analysis of variance (ANOVA) and is used in studies with more than one (correlated) dependent variables and one or more covariates. It enables researchers to remove the variance predicted by the covariate(s) from the dependent variables (Tabachnick and Fidell, 2007). Before MANCOVA results, the mean scores and standard deviations of the dependent variables across product types and environmental claim specificity are presented in table no. 2.

Table no. 2: Mean scores of the dependent variables in different treatments

Product Relevance	Environmental Claim Specificity	Attitude Toward Ad		Attitude Toward Brand		Purchase Intention	
		Mean	Std. D.	Mean	Std. D.	Mean	Std. D.
High Relevance (Laundry Machine)	Vague (N=90)	1,139	1,796	1,274	1,735	0,456	2,215
	Specific(N=90)	0,906	1,519	0,867	1,700	0,215	2,017
	Total (N=180)	1,023	1,663	1,070	1,725	0,335	2,116
Low Relevance (DVD Player)	Vague (N=90)	1,159	1,689	0,967	1,756	0,248	2,050
	Specific(N=90)	1,783	1,685	1,685	1,746	1,211	2,278
	Total (N=180)	1,471	1,711	1,326	1,783	0,730	2,214

Note: (Responses range from (-4) to (+4))

Answers to each product type are analyzed separately. Regarding the high environmental relevance product (laundry machine) Box's test for equality of covariance matrices revealed no differences in variability between the groups, $F(6, 229559.5)=0.671$; $p=0.673$. Levene's test for equality of error variances is not significant for any of the dependent variables. The MANCOVA revealed that neither environmental claim specificity (Wilks' $\Lambda=0.967$; exact

F (3, 174) =1.989; p=0.117; $\eta^2=0.033$) nor the respondents' level of pro-environmental orientation (Wilks' $\Lambda=0.975$; exact F (3, 174) =1.517; p=0.212; $\eta^2=0.025$) did not exert any significant effect on the three effectiveness measures (A_{ad}, A_{br}, and P_i). However, the interaction term formed between environmental claim type and pro-environmental orientation found to influence the three effectiveness measures at a marginally significant level (Wilks' $\Lambda=0.961$; exact F (3, 174) =2.348; p=0.074; $\eta^2=0.039$). Table no. 3 shows the summarized MANCOVA results for the high environmental relevance product.

Table no. 3: Summarized MANCOVA results for the high environmental relevance product

Factor/Independent Variable	Wilks' Lambda	Approximate Value ^a	F- Significance Level
Claim Specificity (SPC)	967	1.989	0.117
Pro-environmental Orientation (ENVO)	975	1.517	0.212
SPC x ENVO	961	2.348	0.074

Dependent Variables: A_{ad}, A_{br}, I_p
Hypothesis degree of freedom = 3; error degree of freedom = 174

Note: ^a The approximate F-values are the same regardless of whether Pillai's Trace, Wilks' Lambda, Hotelling's Trace or Roys' Largest Root statistics were used to assess the multivariate difference.

To facilitate interpretation, univariate analyses are also performed, as shown in table no. 4. As revealed by the F-statistics, green claim specificity exerts significant influences on attitude toward the ad (p=0,036) and purchase intentions (p=0,056), while it exerts a marginally significant influence on attitude toward the brand (p=0,056). Respondents' pro-environmental orientation exerts marginally significant influences on attitude toward the ad (p=0,066) and purchase intentions (p=0,081).

Table no. 4: Summarized univariate ANCOVA results for the high environmental relevance product

Factor/Covariate	Dependent Variable	F	Sig.	Pairwise Comparisons ^a
Claim Specificity (SPC)	A _{ad}	4,462	0,036	Vague = 1,169 vs. Specific =0,910
	A _{br}	3,686	0,056	Vague = 1,300 vs. Specific =0,874
	P _i	4,470	0,036	Vague = 0,493 vs. Specific =0,220
Pro-environmental Orientation (ENVO)	A _{ad}	3,422	0,066	
	A _{br}	1,538	0,217	
	P _i	3,074	0,081	
SPC x ENVO	A _{ad}	5,263	0,023	
	A _{br}	4,793	0,030	
	P _i	5,148	0,024	

Note: ^a Comparisons are based on the estimated marginal means. No significance level adjustment made for multiple comparisons (LSD)

The interaction term formed by claim specificity and pro-environmental orientation exerts significant influences on attitude toward the ad (p=0,023), attitude toward the brand (p=0,030) and purchase intentions (p=0,024). However, pair wise comparisons revealed no significant differences between vague and specific green claims. Thus, we could not find sufficient evidence to show the superiority specific claims concerning green advertising effectiveness for a high environmental relevance product.

Regarding the low environmental relevance product (DVD Player) Box's test for equality of covariance matrices revealed no differences in variability between the groups, $F(6, 229559.5)=0.531$; $p=0.785$. Levene's test for equality of error variances is not significant for any of the dependent variables. The MANCOVA revealed that environmental claim specificity exerts a marginally significant influence on the three effectiveness measures (Aad, Abr, and Pi) (Wilks' $\Lambda=0.958$; exact $F(3, 174)=2.529$; $p=0.059$; $\eta^2=0.042$). Respondents' level of pro-environmental orientation did not exert any significant effect on the three effectiveness measures (Wilks' $\Lambda=0.975$; exact $F(3, 174)=1.474$; $p=0.223$; $\eta^2=0.025$). Further, the interaction term formed between environmental claim type and pro-environmental orientation also found to exert a significant influence on the three effectiveness measures (Wilks' $\Lambda=0.945$; exact $F(3, 174)=3.368$; $p=0.020$; $\eta^2=0.055$). Table no. 5 shows the summarized MANCOVA results for the low environmental relevance product.

Table no. 5: Summarized MANCOVA results for the low environmental relevance product

Factor/Independent Variable Covariate	Wilks' Lambda	Approximate Value ^a	F- Significance Level
Claim Specificity (SPC)	958	2.529	0.059
Pro-environmental Orientation (ENVO)	975	1.474	0.223
SPC x ENVO	945	3.368	0.020
Dependent Variables: A_{ad} , A_{br} , I_p			
Hypothesis degree of freedom = 3; error degree of freedom = 174			

Note: ^a The approximate F-values are the same regardless of whether Pillai's Trace, Wilks' Lambda, Hotelling's Trace or Roys' Largest Root statistics were used to assess the multivariate difference.

To facilitate interpretation, univariate analyses are also performed, as shown in table no. 6. As revealed by the F-statistics, green claim specificity exerts significant influences on attitude toward the ad ($p=0,030$) and purchase intentions ($p=0,021$). Respondents' pro-environmental orientation exerts a significant influence on purchase intention ($p= 0,039$) and a marginally significant influence on attitude toward the brand ($p=0,078$). The interaction term formed by claim specificity and pro-environmental orientation exerts significant influences on attitude toward the ad ($p=0,010$) and purchase intentions ($p=0,005$); and a marginally significant influence on attitude toward the brand ($p=0,081$).

Table no. 6: Summarized univariate ANCOVA results for the high environmental relevance product

Factor/Covariate	Dependent Variable	F	Sig.	Pairwise Comparisons ^a
Claim Specificity (SPC)	A_{ad}	4,783	0,030	Vague = 1,168 vs. Specific =1,813*
	A_{br}	1,730	0,190	Vague = 0,967 vs. Specific =1,712*
	P_i	5,406	0,021	Vague = 0,255 vs. Specific =1,257*
Pro-environmental Orientation (ENVO)	A_{ad}	1,938	0,166	
	A_{br}	3,151	0,078	
	P_i	4,337	0,039	
SPC x ENVO	A_{ad}	6,736	0,010	
	A_{br}	3,075	0,081	
	P_i	7,959	0,005	

Note: ^a Comparisons are based on the estimated marginal means. No significance level adjustment made for multiple comparisons (LSD)

* The mean difference is significant at the ,05 level.

Estimated marginal means comparisons are made to follow up the significant effects for the low environmental relevance product. The attitude toward the ad mean score of specific claim version ($M = 1.813$) significantly exceeded that of the vague claim version ($M = 1.168$), ($p < 0.005$). The attitude toward the brand mean score of specific claim version ($M = 1.712$) significantly exceeded that of the vague claim version ($M = 0.967$), ($p < 0.005$). The purchase intention mean score of specific claim version ($M = 1.257$) significantly exceeded that of the vague claim version ($M = 0.255$), ($p < 0.005$). These results provide empirical evidence to show the superiority of specific green claims over vague green claims concerning advertising effectiveness for a low environmental relevance product.

Overall, these results show the superiority of specific environmental claims over vague claims concerning a low environmental relevance product. However, there is not any significant difference between the communication effectiveness of different claim types concerning the high environmental relevance product. Thus, H1 is only supported for low environmental relevance product. Further, these results provide empirical support for H2 that proposes a significant influence of product's environmental relevance on the association between claim specificity and advertising effectiveness. Perceived environmental relevance influences the impact of claim specificity on green advertising effectiveness.

Conclusions

In this study, the effect of environmental claim specificity on advertising effectiveness was explored in a context of product environmental relevance, while controlling the effect of respondents' level of pro-environmental orientation. Results show that in the low environmental relevance product's ad, specific environmental claims elicit better attitudes toward the ad and the brand; and they produce greater purchase intentions compared to vague claims. However, results do not provide enough evidence to support the previously documented superiority of specific environmental claims over vague claims in the high environmental relevance product's ad. Thus, results of this study partially confirm the previous findings of Davis 1993; Manrai and Manrai et.al, 1997; Chan, 2000 and Chan and Lau, 2004 on the superiority of specific (strong and substantive) environmental claims over vague claims.

Using environmental claims in a low environmental relevance product's ad might have triggered consumer skepticism. Consumers might have become curious about how can a low environmental relevance product be "green". Accordingly, consumers might have been more attentive to the ad and put a higher elaboration to process the ad message. High involvement with an issue enhances message processing and therefore can result in either increased or decreased acceptance (Petty and Cacioppo, 1979). Under high involvement, consumer attitudes are influenced primarily by the quality of the arguments in a message. They are relatively more positive toward strong and substantive arguments than toward weak arguments (Petty, Cacioppo, Goldman, 1981). From this perspective, a strong, detailed and specific environmental claim may produce better communication effectiveness in a low environmental relevance product's advertisement.

In the high environmental relevance product case, there are reasons to consider the primary product benefits expected. Laundry machine is a highly utilitarian (functional) product that

is purchased and used to gain primarily a functional benefit (e.g. cleaning the laundry). Functional products are usually purchased in a deliberate and careful manner to get the maximum value for money (Babin, Darden, Griffin, 1994). Consumer evaluations are based on functional performance (cleaning power), rather than subsidiary attributes (environmental sensitivity). Consumers require detailed, factual information about functional product attributes to be able to compare the alternatives in a rational manner (Johar and Sirgy, 1991). Thus, environmental claims in the laundry machine ad could be seen as subsidiary information and disregarded by the respondents. In addition to this, placing excessive emphasis on the environmental information in an advertisement might have induced consumer skepticism about the advertised product's ability to deliver conventional functional benefits. Consumers do not appear to be ready to base product purchase decisions primarily or exclusively based on environmental attributes (Davis, 1992). These findings must be investigated in further detail.

Nonetheless, findings of this research confirm the superiority of specific environmental claims over vague claims for a low environmental relevance product. Marketing managers who want to convey messages about their environmental sensitivity, are ought to pay attention to environmental claim specificity in the ads. Consumers are very talented to differentiate specific and vague environmental claims. It is also important that practitioners should be concerned with the level of product environmental relevance and primary sought benefits from the product category. Beyond consumer responses, legal authorities strictly monitor commercial communications and set regulations to align green advertising and to prevent greenwashing, too. Using specific, factual, and substantive environmental claims in marketing communications can provide a market advantage while preventing legal problems.

The study has some limitations. The main limitation of the study is the use of student subjects in a contrived setting. In addition, using hypothetical print advertisements in a questionnaire booklet may have created a higher level of task involvement than a natural setting would do. There is a need to replicate this research with the use of other population groups in order to improve the generalizability of the findings. Further, more realistic experimental settings may be designed by using real advertisements in magazines or newspapers. It is also important to replicate the study for other products in order to extend the findings on different product categories. It is understood that, primary product benefits sought (e.g. functional or symbolic) can be another important variable that may interact with environmental claim specificity. Future research should take into account all of these limitations.

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Appendix no. 1 – Items used to measure pro-environmental orientation

1. Humans must live in harmony with nature to survive.
2. The so-called “ecological crisis” facing humankind has been greatly exaggerated (r).
3. We, as individual citizens, cannot make any significant effect on solving environmental problems (r).
4. Protecting the natural environment should be given priority, even at the risk of slowing down economic growth.
5. If things continue on their present course, we will soon experience a major ecological catastrophe.
6. Humans have the right to modify the natural environment to suit their needs (r).