The Role of Qualifying Language on Consumer Perceptions of Environmental Claims

Thomas J. Maronick
Towson University

J. Craig Andrews
Marquette University, craig.andrews@marquette.edu

Follow this and additional works at: https://epublications.marquette.edu/market_fac

Part of the Marketing Commons

Recommended Citation
https://epublications.marquette.edu/market_fac/68
The Role of Qualifying Language on Consumer Perceptions of Environmental Claims

Thomas J. Maronick
Department of Marketing, Towson University, Towson, MD
J. Craig Andrews
Department of Marketing, Marquette University, Milwaukee, WI

Abstract
A copy-test of seven environmental claims on aerosol packages shows that consumers interpret general, unqualified claims (e.g., environmentally friendly or ozone friendly) as meaning the product is safe for the environment in both an absolute (safe) and a relative (safer) sense. These perceptions of environmental safety are enhanced by specific qualifiers for general claims such as No CFCs and general qualifiers for specific claims. In addition, the results show that almost all specific environmental claims improve consumers' perceptions of the aerosol product relative to general claims for environmental benefits of the product. Implications for marketing and public policy professionals are presented.

When it comes to a decision on using environmental claims in advertising and packaging, marketers are faced with conflicting perspectives regarding the role these factors play in consumer purchase behavior. On the one
hand, three-fourths of all consumers see themselves as *environmentalists* who are willing to purchase ecologically-sound products or goods and services and make ecologically-conscious decisions (the pro-environmental view) (Fisher 1990). Furthermore, 77 percent of consumers consider the company’s environmental reputation when buying a product (Kirkpatrick 1990) and have shown a willingness to pay a little more for environmentally safe packaging (Jay 1990). On the other hand, studies have shown that consumers do not understand many of the environmental claims they encounter in the marketplace (Cude 1991), lack an in-depth understanding of environmental terms, and tend to overgeneralize the level of safety from environmental claims (Morris, Hastak, and Mazis 1995). Moreover, research suggests a high degree of skepticism as evidenced by the fact that as many as half of all consumers dismiss environmental claims as *gimmicky* (Environmental Research Associates [ERA] 1990) and that brands that make environmental claims are “no better for the environment than brands that do not make environmental claims” (the *skeptical* perspective) (Mayer, Scammon, and Zick 1993).

The research on these perspectives has no doubt contributed to our knowledge of overall perceptions of environmental claims. This study extends this knowledge by examining consumer perceptions of actual environmental claims and variations in those claims to help provide insight into cause and effect relationships (Cook and Campbell 1979) and enhance the external validity of environmental claim findings (Calder, Phillips, and Tybout 1982; Lynch 1982). Such an analysis will help in assessing whether the first, pro-environmental perspective, or the second, more skeptical perspective will manifest itself from actual express and implied environmental claims.

From a regulatory perspective, the Federal Trade Commission (FTC), which is charged with regulating deceptive advertising claims in the marketplace (FTC 1992), has been actively involved in cases involving specific environmental claims since 1990. As reported by Scammon and Mayer (1995), the FTC brought thirty-five litigation cases between 1990-1994 involving environmental claims such as ozone friendly and environmentally friendly. Scammon and Mayer note that the product categories investigated have been broad, with aerosols and plastic bags the most common product classes challenged. Among cases dealing with aerosol propellants, the FTC found that claims such as ozone friendly were deceptive because other substances in the products were ozone-depleting (Zipatone Spray Cement 1991). The FTC also noted in DeMert & Dougherty, Inc. (1993) that, even when an aerosol does not contain substances that harm the ozone layer, a general claim that the product is environmentally safe may be deceptive if it causes or contributes to other types of harm, such as ground-level smog or pollution.

The FTC litigation efforts have raised a number of issues. Among these are whether a claim is deceptive because of what is said or implied in a specific claim such as No CFCs or because of what is omitted from a general claim (e.g., environmentally safe), thereby suggesting that the product is good for the environment without disclosing other harmful environmental effects caused by it. Furthermore, the FTC has raised questions about whether consumer perceptions are affected by the order in which general and specific claims are presented (compare Nationwide Industries 1993 and Redmond Products, Inc. 1994).

The FTC is not alone in raising questions and regulating environmental claims. As noted by Davis (1994), a number of states, led by California, Rhode Island, and Indiana, have adopted the FTC guides and determined that general, unqualified environmental claims such as environmentally friendly, or ecologically safe are inherently misleading and deceptive. For example, Rhode Island has determined that terms such as environmentally safe are inherently inaccurate and misleading to consumers because they are too general, do not contain sufficient disclosures, are too difficult for the consumer to interpret or, depending on their context, may suggest more far-reaching benefits than the product may actually offer. As a result, some of these states, particularly California and Indiana, have required marketers to specify any significant adverse environmental impacts and the extent to which the product meets regulatory definitions of the environmental claim. Finally,
regulators at the state level have interpreted general and unqualified claims as applying to the whole product, including usage activities (i.e., aerosol/pump) and disposal (Davis 1994).

In summary, prior research suggests a lack of understanding of environmental claims, consumer skepticism of brands making safer/better environmental claims, and a multitude of regulatory decisions at the federal and state level about whether differences in environmental claims affect consumers' interpretations of those claims. There has not been, however, a systematic evaluation of types of claims (i.e., general/specific; qualified/unqualified) or an analysis of the impact of the order of claims on consumer perceptions. Thus, the purpose of this study is to determine exactly how consumers interpret environmental claims made on packages. Based on prior theory and cases, this study examines the effectiveness of types of claims (i.e., general and specific) and the effect of types of qualifiers for such claims (e.g., No CFCs, Won't Harm the Ozone Layer) suggested in the FTC Hearings on Environmental Marketing Claims (FTC 1995b). As such, qualifiers serve to modify and provide additional information to the stated claims (see FTC 1995b). This study seeks to determine whether the addition of such qualifying language to unqualified general claims and specific claims results in an enhanced absolute (i.e., safe) or relative (i.e., safer than other (aerosol) products) perception of the product as safe for the environment. Such a distinction has been important in the FTC regulation of advertising in measuring absolute benefits versus relative ones (e.g., substitution effects, cf., FTC 1994). Finally, this study examines the extent to which consumers generalize to implied, nonfeatured claims (i.e., contributes to air pollution or contributes to smog) when exposed to unqualified general and specific environmental claims (e.g., Environmentally Friendly, No CFCs) and claims with specific and general qualifiers.

To accomplish these objectives, this study examines seven different environmental claims ranging from unqualified general claims such as environmentally friendly and ozone friendly to unqualified specific claims such as No CFCs and claims with general and specific qualifiers (see Figure 1). All of the claims are used on aerosol hair spray products. Aerosols are used as the basis for this research because, as noted by Scammon and Mayer (1995), aerosols (cleaners and personal care products) were the most common product class challenged by the FTC between 1990 and 1994, accounting for 41 percent of the FTC's environmental marketing cases (FTC 1995a). Implications of the findings for environmental marketing and public policy are offered.

PRIOR RESEARCH/HYPOTHESES

Unqualified General versus Unqualified Specific Claims

The type of communication claim presented (i.e., general versus specific) can play an important role in the generalization of marketing information by consumers. Even though many terms (e.g., general-specific, abstract-concrete, implied-express, subjective-objective, evaluative-factual) have been used in the literature (Shimp 1983), one common element of these distinctions is the degree to which the claim is verifiable. General claims are perceived as being more difficult for consumers to verify than specific claims because they are open to many possible interpretations (Darley and Smith 1993).

Several studies have addressed the question of the relative impact (i.e., information search, inferences, and perceptions) of general versus specific communication claims. The results indicate that consumers tend to rely upon and find more believable those claims that are more specific or concrete (Ford et al. 1990; Hoch and Ha 1986; Pechmann 1996). As an example of such impact in a negative sense, Pechmann (1996) found that stating a specific and potentially misleading claim led to reduced information search by consumers and resulted in more erroneous inferences than did general or vague claims. From a different perspective, Hoch and Ha (1986) found that when ambiguous or general evidence is presented to consumers, they often require further information (e.g., specifics from advertising or other sources) that can have a marked effect on product perceptions. Furthermore, Ford et al. (1990), writing in the economics of information literature, found that consumers often
treat general/subjective information (e.g., Environmentally Friendly) as puffery, reasoning they have less ability to hold advertisers accountable when claims are subjective.

Thus, using consumers' perceptions of the absolute (i.e., safe) and relative (i.e., safer) safety of an aerosol product (hair spray) for the environment as dependent variables, it is hypothesized that

H1(a): Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with an unqualified specific environmental claim than when exposed to a package label with an unqualified general environmental claim.

Unqualified General Claims versus General Claims with Specific Qualifiers
Advertising research on the role of general claims suggests that general claims without qualifications are more likely to be potentially deceptive or misleading than qualified general claims because they are not verifiable and open to many interpretations (cf., Darley and Smith 1993; Shimp 1983). Alternatively, a healthy skepticism and discounting of general claims is found in consumer research on nutritional claims (cf., Andrews, Netemeyer, and Burton 1998; FMI 1995). For example, Andrews et al. (1998, 70) show that specific nutrient content claims, such as No Cholesterol, are perceived as more believable and lead to more favorable brand and ad awareness than general nutrient content claims (e.g., Healthy). Similarly, decreasing the concreteness of ad claims is found to reduce their believability (Snyder 1989), while tangible verbal claims tend to enhance ad perceptions and attitudes to a greater extent than intangible verbal claims (Stafford 1996).

The skepticism about general claims raises a question as to whether the addition of specific qualifying information is likely to be perceived as important diagnostic help in evaluating the veracity of the claims. For example, as indicated in spreading activation theory (Collins and Loftus 1975), language that helps to expand the consumer's cognitive frame of reference tends to have a stronger impact than information that is more limiting in nature. As applied to the present study, arguments by authors such as Shimp (1986) suggest that, when a product is advertised as environmentally friendly, consumers may not know the true meaning of the term relative to the product until contextual content is added (e.g., This Product Is Environmentally Friendly Because It Contains No CFCs).

Such an effect also is likely in the case of general claims qualified by specific language. For example, and consistent with spreading activation theory (Collins and Loftus 1975), general language that helps to broaden a specific frame of reference (i.e., No CFCs) is likely to be viewed favorably by consumers because it expands their cognitive frame of reference. This suggests that specific qualifiers of general environmental claims should result in more positive evaluations regarding environmental benefits of the product. However, the use of the more positively evaluated specific language as a claim or as a qualifier is an important factor in the evaluation process (cf., Andrews et al. 1998). Thus, it is predicted that

H1(b): Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with general claims that are specifically qualified than when exposed to a package label with a general environmental claim without qualifiers.

H1(c): Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with specific claims that are generally qualified than when exposed to a package label with an unqualified general environmental claim.

Unqualified Specific Claims versus Qualified General Claims
As noted above, a number of authors have found that consumers are quite skeptical of subjective or general claims they see in the marketplace (Andrews et al. 1998; Ford et al. 1990). Thus, it is expected from spreading activation theory (Collins and Loftus 1975) that consumer perceptions would not be as strong when emanating
from a relatively weak (general) claim that is specifically qualified than from a stronger (i.e., specific) claim. Thus, it is hypothesized that

\[ H_2: \text{Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with an unqualified specific claim than when exposed to a package label with a general environmental claim that is specifically qualified.} \]

Order Effects
This study also examines the order of environmental claims. The question is whether the order of general and specific claims would be affected by a primacy effect. Thus, would a specific claim followed by a general claim (e.g., No CFCs—Environmentally Friendly [an inductive order, cf., Nationwide Industries 1993]) lead to a greater perception by consumers that the product is safe and/or safer for the environment than a general claim followed by a specific claim (e.g., Environmentally Friendly—No CFCs [a deductive order, cf., Redmond Products, Inc. 1994])? The idea is to examine logical differences between a general statement followed by a specific one (i.e., an Environmentally Friendly claim is true because of No CFCs) versus a specific statement followed by a general one (i.e., If It Has No CFCs, It Must Be Environmentally Friendly).

From the field of social psychology, Eagly and Chaiken (1993) have suggested four basic reasons for a primacy effect of a first message over a second message: (1) the first message interferes with the second, (2) a decreased attention to the second message due to declining interest in the topic, (3) greater criticality toward the second message due to acceptance of the first, and (4) the second message is changed or distorted by the first. Due to the concise nature of the two paired claims (i.e., Environmentally Friendly and No CFCs), and the complementary nature of the paired claims, reasons (1), (2), and (4) can be ruled out as the basis of primacy predictions in the context of our study. Thus, reason three (i.e., greater criticality toward the second message after acceptance of the first) provides the strongest rationale for a primacy effect. This is reinforced by research showing the effectiveness of specific versus general claims (Andrews et al. 1998; Darley and Smith 1993; Ford et al. 1990; Houston and Rothschild 1980; Snyder 1989; Stafford 1996) and suggestions about consumer preoccupation with the No CFCs claim in the case of aerosols (FTC 1995a).

Furthermore, temporal research on primacy and recency effects indicates that if two messages are presented simultaneously (e.g., No CFCs—Environmentally Friendly) and there is a (short) delay in effect measurement, then the primacy effect would predominate (Miller and Campbell 1959). A recency effect is predicted if the delay occurs between the first message and the simultaneous pairing of the second message with effect measurement. Because this study follows the former approach, a primacy effect for the difference between the specific and general claims is expected. Thus, based on the above social psychology research, we predict that

\[ H_3: \text{Consumers are more likely to perceive an aerosol product to be safe and/or safer for the environment when exposed to a package label with a specific claim with a general qualifier than when exposed to a package label with a general claim with a specific qualifier.} \]

Inferences from Implied Claims
Studies of consumer inferences suggest that when consumers see claims that are incomplete, they rely on evaluation-based inferences (i.e., halo effects) to judge brands on omitted attributes (Alba and Hutchinson 1987; Andrews et al. 1998; Dick et al. 1987; Pechmann 1996). Thus, a claim that a brand is good (or safe) on one aspect may be inferred to be good (or safe) on other, nonfeatured attributes. Other studies (Ford et al. 1990; Huber and McCann 1987; Pechmann 1992) suggest that consumers rely on concrete (i.e., specific) attribute information to make inferences about similarly concrete but omitted attributes. Finally, Hastak et al. (1994) and Morris et al. (1995) suggest that consumers generalize from express environmental claims to implied claims for specific environmental benefits. Thus, while a number of these studies focused on product attributes (e.g., Dick
et al. 1987 [cameras]; Pechmann 1996 [overnight delivery service pricing]), the halo effect research suggests that consumers are likely to generalize from claims made about the product on the label (i.e., Environmentally Friendly) to other, nonfeatured attributes (i.e., Contributes to Air Pollution or Smog). Furthermore, Alba and Hutchinson (1987) postulate that these halo effect inferences are likely to occur shortly after exposure to the claim because consumers fill in the gaps with default values inferred from the express claims. Thus, given the preceding literature on the superiority of specific claims over general claims, it is hypothesized that

H3a: Consumers are more likely to perceive that an aerosol product contributes to air pollution and/or smog when exposed to a package label with a general environmental claim than when exposed to a package label with a general environmental claim that is specifically qualified.

H3b: Consumers are more likely to perceive that an aerosol product contributes to air pollution and/or smog when exposed to a package label with no environmental claims (i.e., control) than when exposed to a package label with an environmental claim.

METHODOLOGY

Study Design
A total of 480 respondents in three geographically dispersed markets (i.e., 160 each in Philadelphia, Seattle, and St. Louis) were interviewed in a mall-intercept format for the study. Respondents were assigned to one of seven test conditions or a control condition (where no environmental claims were made). Each respondent (n = 60 per cell) was shown an aerosol hair spray container on which alternative environmental claims were displayed in a cloud on the front of the package. All the packages were identical with the exception of the claim. An aerosol package was used in the study because 41 percent of the FTC environmental marketing cases have involved this type of product (FTC 1995a). Further, a fictitious brand was used to eliminate any source effects or prior knowledge about the brand.

An analysis of whether respondents across six age categories (teens, 20s to over 60) and five education levels (some high school to post graduate work) used aerosol products, used aerosol hair sprays, and whether they bought environmentally friendly products indicated no significant differences across the claim categories, including the control cell. Therefore, it was concluded that any differences found across cells were due to the claim that respondents saw, not due to inherent differences in respondents across cells.

The assignment across cells and specific language of each claim is described in Figure 1. While claim length varied from two to twenty words, respondents were given as much time as they needed to read and process what was on the label. [1] After respondents had examined the label for the hair spray product, the package was removed from view and then the respondents were asked a series of open-ended and closed-end questions based on the information they saw on the package.

Respondents were asked to recall the claims they had seen and their perceptions about the safety of the aerosol product, in an absolute sense (i.e., how safe is the product) and relative sense (i.e., how safe is this aerosol product compared to others). [2] Absolute and relative scales were used for the dependent variable because one of the issues that the FTC regularly addresses is whether a claim conveys an absolute or a relative message (e.g., Does a low fat claim mean the product is absolutely low in fat or merely lower in fat than competitors’ products or prior formulations of the advertised brand?) (FTC 1994).

Figure 1

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>Unqualified</th>
<th>Qualified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td>General</td>
<td></td>
</tr>
</tbody>
</table>
Because respondents viewed a package that contained only one of the seven claims or were assigned to the control group \( n = 60 \) per claim, it is possible to determine what effect, if any, consumers' interpretation of general and specific environmental terms had on the perceived safety of an aerosol product. Further, the design permitted determination of the incremental impact of additional general or specific qualifying language and the order of presentation of claims on those perceptions. Also, the use of a control cell in the copy test made it possible to separate the effects due to the test condition/claim from effects due to external factors associated with such claims. These factors include prior knowledge and beliefs associated with the product (see Andrews and Maronick 1995).

A traditional funneling technique was used in the study design, which involved express claims. Respondents were first asked a screening question (e.g., Does the label say or suggest anything about the environment?). Only those who responded affirmatively were asked subsequent absolute and relative product safety questions. As a result, respondents were not asked about whether the product was safe or safer for the environment if they had not seen an environmental claim on the label. This assured that the results were not contaminated by false positive responses induced by such questions.

**ANALYSIS AND FINDINGS [3]**

**Unaided Recall of Environmental Claims**

Respondents were asked to recall what they could remember from the label. Respondents generally recalled the claim to which they were exposed, regardless of the nature of the claim. Specifically, 71.7 percent of those exposed to a general ozone friendly claim recalled seeing the claim and a similar percentage (71.7%) of respondents exposed to the Environmentally Friendly claim recalled seeing it. A slightly higher percentage recalled the Environmentally Friendly claim when it was placed after the No CFCs claim (75%) compared to when it was placed before the No CFCs claim (70%). However, adding either of the No CFCs qualifiers or that the product Would Not Harm the Ozone Layer did not improve recall over the basic Environmentally Friendly claim, without modifiers.

**Evaluation of the Product as *Safe* or *Safer* for the Environment**

Respondents who mentioned previously that the label said or suggested anything about the environment after exposure to the product \( n = 373 \) were asked an absolute safety closed-end question: Based on what the label says or suggests, how safe for the environment is the (aerosol) product? Respondents were also asked a
relative safety closed-end question: Based on what the label says or suggests and what you know about other aerosol hair sprays, how safe for the environment is this (aerosol) product compared to other aerosol products?

As noted in Table 1, there is a significant difference in overall consumer perceptions of the aerosol product as safe (absolute measure) for the environment \( (F = 6.78, p \leq .05) \) among respondents exposed to a general Environmentally Friendly claim as compared to respondents for whom the general claim was qualified with specific qualifiers such as Will Not Harm the Ozone Layer, No CFCs, or Contains No CFCs That Harm the Upper Ozone Layer. In addition, there is also a significant difference \( (F = 3.65; p \leq .10) \) in overall perceptions of the product as relatively safe (i.e., safer for the environment than other aerosol products) among respondents who saw an unqualified environmentally friendly claim versus those exposed to a general environmentally friendly claim with specific qualifiers.

Table 1 Overall Perceptions: Unqualified General Claims versus General with Specific Qualifiers

<table>
<thead>
<tr>
<th>Environmentally Friendly Claims (^a)</th>
<th>Safe</th>
<th></th>
<th>Safer</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>df</td>
<td>( p )</td>
<td>( F )</td>
</tr>
<tr>
<td>Environmentally Friendly (^a)</td>
<td>6.78</td>
<td>**</td>
<td>3.65</td>
<td>*</td>
</tr>
</tbody>
</table>

Table 1(a) Environmental Claim Means (SDs)

<table>
<thead>
<tr>
<th>Dependent Measures (^b)</th>
<th>Env Fr (1)</th>
<th>No CFC Env Fr (2)</th>
<th>Env Fr Not Harm Ozone Layer (3)</th>
<th>Env Fr No CFC (4)</th>
<th>Ozone Friendly (5)</th>
<th>Prod is ... Upper Ozone Layer (6)</th>
<th>No CFC (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe for Environment (Absolute)</td>
<td>5.14 (.46)</td>
<td>5.44 (.34)</td>
<td>5.71 (.20)</td>
<td>5.53 (.30)</td>
<td>5.11 (.24)</td>
<td>5.58 (.37)</td>
<td>5.18 (.63)</td>
</tr>
<tr>
<td>Safer for Environment (Relative)</td>
<td>3.43 (.93)</td>
<td>3.69 (.94)</td>
<td>3.73 (.95)</td>
<td>3.65 (.102)</td>
<td>3.64 (.96)</td>
<td>3.93 (.20)</td>
<td>3.69 (.14)</td>
</tr>
</tbody>
</table>

\(^a\)Environmentally Friendly (#I) versus Environmentally Friendly, Won't Harm Ozone Layer (#3) + Environmentally Friendly--No CFCs (#4) + Environmentally Friendly, Safe for Upper Ozone Layer (#6).

\(^b\)Safe for Environment measured on a 7-point scale (1 = unsafe; 7 = safe). Safer for Environment measured on a 5-point scale (1 = much less safe than other aerosols, 5 = much safer than other aerosols).

Unqualified General versus Qualified Specific Claims (H1a)

As noted in Table 2(a), no significant differences are found between either an unqualified general claim (i.e., environmentally friendly or ozone friendly) and the unqualified specific claims (i.e., No CFCs) for either the absolute safety (safe for the environment) or the relative safety (safer for the environment) variable. Thus, Hypothesis H1(a), which states that consumers are more likely to perceive an aerosol product as safe or safer for the environment when exposed to an unqualified specific claim than when exposed to an unqualified general claim, is not supported.

Unqualified General Claims versus General Claims with Specific Qualifiers (H1b)

(Environmentally Friendly)

As noted in Table 2(b), respondents are more likely to perceive the aerosol product as safe for the environment (i.e., an objective assessment) when exposed to the general environmental claim that is specifically qualified (i.e., Environmentally Friendly--Will Not Harm the Ozone Layer \( t = 2.34, p \leq .05 \); Environmentally Friendly--No CFCs \( t = 1.64, p \leq .05 \); and This Product Is Environmentally Friendly Because It Contains No CFCs or
Other Chemicals That Harm the Upper Ozone Layer ($t = 1.87, p \leq .05$)) than when exposed to an unqualified general environmental claim (i.e., Environmentally Friendly). Similarly, respondents are more likely to perceive the aerosol product as safer for the environment (i.e., a comparative assessment) when exposed to the general claim with a specific qualifier (i.e., This Product Is Environmentally Friendly Because It Contains No CFCs or Other Chemicals That Harm the Upper Ozone Layer ($t = 2.45, p \leq .05$)) than when exposed to an unqualified general environmentally friendly claim. Thus, Hypothesis H1(b) of a perceived difference is supported for the absolute assessment (i.e., safe for the environment) for all environmentally friendly claims and supported for the comparative assessment (i.e., safer for the environment) for the general environmentally friendly claim with the most specific qualifier. [4]

Unqualified General Claims versus General Claims with Specific Qualifiers (H1b) (Ozone Friendly)
As noted in Table 2(c), respondents are more likely to perceive the aerosol product as safe for environment (i.e., an absolute assessment) when exposed to a general ozone friendly claim that is specifically qualified (i.e., Environmentally Friendly--Will not Harm the Ozone Layer ($t = 2.23, p < .05$), and This Product Is Environmentally Friendly Because It Contains No CFCs or Other Chemicals That Harm the Upper Ozone Layer ($t = 1.76, p < .05$)) than when exposed to the general unqualified ozone friendly claim alone (i.e., Ozone Friendly). Furthermore, consumers are more likely to perceive the aerosol product as safer (relative safety) for the environment when exposed to a general ozone friendly claim (i.e., ozone friendly) that is qualified with a specific ozone friendly claim (i.e., This Product Is Environmentally Friendly Because It Contains No CFCs or Other Chemicals That Harm the Upper Ozone Layer ($t = 1.41, p < .10$)) than when exposed to an unqualified general ozone friendly claim. On the other hand, no significant differences are found in the perceived relative safety of the aerosol product between those respondents exposed to the general ozone friendly claim and those exposed to general environmental claim that is specifically qualified (e.g., ...Not Harm the Ozone Layer). Thus, Hypothesis H1(b) is of a perceived difference in perception of environmental ozone claims is supported for the objective assessment (i.e., safe for the environment) and supported in part for the comparative assessment of environmental ozone claims (i.e., safer for the environment).
Table 2(a) Planned Contrasts: Unqualified General versus Unqualified Specific Claims (H1a)

<table>
<thead>
<tr>
<th>Safe</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E.</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Safer</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E.</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#1 V #7a</td>
<td>.165</td>
<td>.27</td>
<td>.598</td>
<td>366</td>
<td>.55</td>
<td>ns</td>
<td>#1 v#7</td>
<td>.293</td>
<td>.22</td>
<td>1.36</td>
<td>366</td>
<td>.175</td>
</tr>
<tr>
<td></td>
<td>#5 v #7</td>
<td>.082</td>
<td>.28</td>
<td>.295</td>
<td>366</td>
<td>.78</td>
<td>ns</td>
<td>#5 v#7</td>
<td>.039</td>
<td>.22</td>
<td>1.79</td>
<td>366</td>
<td>.858</td>
</tr>
</tbody>
</table>

Table 2(b) Planned Contrasts: Unqualified General Claims versus General Claims with Specific Qualifiers (H1b, H1c) (Environmentally Friendly Claims)

<table>
<thead>
<tr>
<th>Safe</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Safer</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#1 v #2b</td>
<td>.38</td>
<td>.27</td>
<td>1.38</td>
<td>366</td>
<td>1.67</td>
<td>ns</td>
<td>#1 v #2</td>
<td>.29</td>
<td>.21</td>
<td>1.37</td>
<td>366</td>
<td>.170</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#1 v #3</td>
<td>.63</td>
<td>.27</td>
<td>2.34</td>
<td>366</td>
<td>.010</td>
<td>**</td>
<td>#1 v #3</td>
<td>.30</td>
<td>.20</td>
<td>1.47</td>
<td>366</td>
<td>.070</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#1 v #4</td>
<td>.45</td>
<td>.27</td>
<td>1.64</td>
<td>366</td>
<td>.050</td>
<td>**</td>
<td>#1 v #4</td>
<td>.22</td>
<td>.21</td>
<td>1.06</td>
<td>366</td>
<td>.145</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#1 v #6</td>
<td>.50</td>
<td>.27</td>
<td>1.87</td>
<td>366</td>
<td>.031</td>
<td>**</td>
<td>#1 v #6</td>
<td>.50</td>
<td>.21</td>
<td>2.45</td>
<td>366</td>
<td>.008</td>
<td>**</td>
<td></td>
</tr>
</tbody>
</table>

Table 2(c) Planned Contrasts: Unqualified General Claims versus General Claims with Specific Qualifiers (H1b) (Ozone Friendly Claims)

<table>
<thead>
<tr>
<th>Safe</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Safer</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#5 v #3</td>
<td>.61</td>
<td>.27</td>
<td>2.23</td>
<td>360</td>
<td>.013</td>
<td>**</td>
<td>#5 v #3</td>
<td>.09</td>
<td>.21</td>
<td>.43</td>
<td>355</td>
<td>.330</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#5 v #6</td>
<td>.48</td>
<td>.27</td>
<td>1.76</td>
<td>360</td>
<td>.039</td>
<td>**</td>
<td>#5 v #6</td>
<td>.23</td>
<td>.21</td>
<td>1.41</td>
<td>355</td>
<td>.081</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Table 2(d) Planned Contrasts: Unqualified Specific Claims versus General Claims with Specific Qualifiers (H2)

<table>
<thead>
<tr>
<th>Safe</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Safer</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#7 v #2</td>
<td>.21</td>
<td>.27</td>
<td>.78</td>
<td>366</td>
<td>.433</td>
<td>ns</td>
<td>#7 v #2</td>
<td>.002</td>
<td>.21</td>
<td>.008</td>
<td>366</td>
<td>.994</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#7 v #3</td>
<td>.54</td>
<td>.27</td>
<td>2.03</td>
<td>366</td>
<td>.043</td>
<td>**</td>
<td>#7 v #3</td>
<td>.030</td>
<td>.21</td>
<td>.016</td>
<td>366</td>
<td>.873</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#7 v #3</td>
<td>.33</td>
<td>.27</td>
<td>1.25</td>
<td>366</td>
<td>.213</td>
<td>ns</td>
<td>#7 v #3</td>
<td>.150</td>
<td>.21</td>
<td>.730</td>
<td>366</td>
<td>.466</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

Table 2(e) Planned Contrasts: Order Effects (H3)

<table>
<thead>
<tr>
<th>Safe</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Safer</th>
<th>Contrast</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#2 v #4</td>
<td>.07</td>
<td>.26</td>
<td>.285</td>
<td>360</td>
<td>.291</td>
<td>ns</td>
<td>#2 v #4</td>
<td>.04</td>
<td>.20</td>
<td>.28</td>
<td>366</td>
<td>.414</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

**p≤.05; *p≤.10

*Environmentally Friendly (#1) versus No CFCs (#7) -- see Figure 1.
Generally Qualified Specific Claims versus Unqualified General Claims (H1c)
As noted in Table 2(b), there is a significant difference in respondents' perceptions of an aerosol product as being both safe for the environment (absolute safety) \( (t = 2.34, p < .10) \) and safer for the environment than other aerosol products (relative safety) \( (t = 1.47, p < .10) \) when exposed to an unqualified specific claim (No CFCs), which has a general environmental qualification (Environmentally Friendly), than when exposed to an unqualified general claim (e.g., Environmentally Friendly). Therefore, Hypothesis H1(c) of a difference in perception is supported in the case of both absolute (safe) and relative (safer) environmental safety claims.

Unqualified Specific Claims versus Qualified General Claims (H2)
As noted in Table 2(d), there is a significant difference in perceptions of the absolute safety of an aerosol product among respondents exposed to an unqualified specific environmental claim (i.e., No CFCs) versus respondents exposed to a general environmental claim (i.e., Environmentally Friendly) that is qualified with a specific ozone qualifier (...Will Not Harm the Ozone Layer") \( (t = 2.03, p < .05) \). However, no significant differences are found in respondents' perceptions of the absolute safety of the aerosol product when exposed to an unqualified general environmental claim and a general claim that is specifically qualified with a No CFCs qualifier (i.e., No CFCs or ...Because It Contains No CFCs That Harm the Ozone Layer.). Furthermore, there are no significant differences in respondents' perceptions of the relative safety (safer for the environment than other aerosol products) among respondents exposed to the unqualified specific claims and those exposed to general claims with specific qualifiers. Thus, Hypothesis H2 is supported in part as to the perceived absolute safety of aerosol products but is not supported as to perceived relative safety of aerosol products.

Order Effects (H3)
As noted in Table 2(e), no differences are found in respondents' perceptions of the aerosol product as safe (absolute) or safer (relative) for the environment as a function of the order of the presentation of the claims (i.e., No CFCs--Environmentally Friendly or Environmentally Friendly--No CFCs). Thus, Hypothesis H3, which states that there is a difference in perception of the safety of the aerosol spray as a function of the order of the general and specific claims, is not supported. One possible explanation for this finding is that, while the study design implies that Environmentally Friendly and No CFCs are two separate claims, respondents could be treating them as a single/unified claim due to the brief nature of the separate claims (i.e., all between two and twenty words long).

Consumer Evaluations of Implied Environmental Claims (H3a, H3b)
In response to an open-ended question regarding whether the label said or suggested anything about air pollution or smog, only 13.3 percent of all respondents indicated that the label said or suggested anything about these attributes. All respondents, including those who responded positively (i.e., they saw an air pollution or a smog claim) and those who did not see an implied claim were asked whether, based on the label and everything else they knew about aerosol products, the product would contribute to air pollution or smog. [5] Slightly less than half of all respondents indicated that the product would contribute to air pollution. Across the seven claims, the responses varied slightly but not significantly, with fewer respondents indicating they thought the product would contribute to air pollution than those indicating that the aerosol product would not contribute to air pollution across the claim categories.

When asked whether, based on the label and everything else they knew about aerosol products, the product would contribute to smog, significantly \( (p \leq .05) \) more respondents indicated that the aerosol product would not contribute to smog as compared to those who believed that it would. Among respondents in individual cells, the only significant difference \( (p \leq .05) \) is found among respondents exposed to an unqualified specific claim (i.e., No CFCs) compared to those respondents exposed to the general claim with a specific (i.e., No CFCs),
qualifier. Thus, Hypothesis H3a is not supported except for one environmental claim. In all other cases, there is no difference in perception of the aerosol product contributing to air pollution and/or smog.

As noted in Table 3, significantly more respondents in the control cell indicated that the aerosol product contributed to air pollution ($p < .05$ for all claims) compared to respondents in any of the environmental claim cells. When asked about whether the product contributed to smog, significant differences in responses are found between the control cell and those exposed to some of the environmental claims. Specifically, significant differences are found for the general, unqualified Environmentally Friendly claim ($t = 1.69 \ p < .05$), the general environmentally friendly claims with specific qualifiers [i.e., Environmentally Friendly, Won't Harm the Ozone Layer ($t = 1.64 \ p < .05$); Environmentally Friendly, No CFCs ($t = 2.03 \ p < .05$); and Environmentally Friendly, Contains No CFCs ... That Harm the Upper Ozone Layer ($t = 1.64 \ p < .05$)]. On the other hand, no significant differences are found between the control group and those exposed to the general Ozone Friendly claim or the specific, unqualified No CFCs claim. Consistent with Morris et al. (1995), these findings suggest that consumers do generalize from express environmental claims to implied claims for specific environmental benefits.

Given these findings, Hypothesis H3b is supported. Across almost all cells, the inclusion of an environmental claim, including both unqualified and qualified language, results in a reduction in belief as to the extent to which the aerosol product contributes to air pollution and smog. These findings are noteworthy because, historically, aerosols have contained an ingredient known to either deplete the ozone layer or contribute to ground-level smog (FTC 1995b). Table 4 provides a summary of the research hypotheses and findings.

CONCLUSIONS AND PUBLIC POLICY IMPLICATIONS

Three implications seem to flow from this study. First, the findings clearly show some misunderstanding by consumers as to what environmental claims mean. As noted above, two-thirds of consumers who saw the general, unqualified Ozone Friendly claim and half of all respondents exposed to the general, unqualified Environmentally Friendly claim interpret it to mean that the product is safe for the environment. The findings also show that consumers exposed to general unqualified claims, such as environmentally friendly or ozone friendly, give the terms a broad interpretation and extrapolate to a broader belief that the products are safe for the environment and safer for the environment than other brands that do not make such claims. This suggests that limitations on general claims that have been argued in California, Rhode Island, and Indiana may be justified because they have a capacity to mislead consumers.
Table 3 Planned Contrasts: Control versus Environmentally Friendly Claims and Nonfeatured Implied Claims (H3a)

<table>
<thead>
<tr>
<th>Contrast to Air Pollution</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
<th>Contrast to Smog</th>
<th>Value</th>
<th>S.E</th>
<th>t</th>
<th>d.f.</th>
<th>p</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally Friendly Claims</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#1 v #8*</td>
<td>.35</td>
<td>.119</td>
<td>2.92</td>
<td>472</td>
<td>.004</td>
<td>**</td>
<td>#1 v #8</td>
<td>.217</td>
<td>.108</td>
<td>2.01</td>
<td>472</td>
<td>.045</td>
<td>**</td>
</tr>
<tr>
<td>#2 v #8</td>
<td>.37</td>
<td>.119</td>
<td>3.06</td>
<td>472</td>
<td>.002</td>
<td>**</td>
<td>#2 v #8</td>
<td>.368</td>
<td>.108</td>
<td>3.39</td>
<td>472</td>
<td>.001</td>
<td>**</td>
</tr>
<tr>
<td>#4 v #8</td>
<td>.42</td>
<td>.119</td>
<td>3.48</td>
<td>472</td>
<td>.001</td>
<td>**</td>
<td>#4 v #8</td>
<td>.268</td>
<td>.108</td>
<td>2.47</td>
<td>472</td>
<td>.014</td>
<td>**</td>
</tr>
</tbody>
</table>

Planned Contrasts: Control versus Ozone Friendly Claims (H3b)

| #3 v #8                 | .40   | .119 | 3.34 | 472  | .001    | **        | #3 v #8         | .200  | .108 | 1.82 | 472  | .065    | **        |
| #5 v #8                 | .37   | .119 | 2.65 | 472  | .008    | **        | #5 v #8         | .133  | .108 | 1.23 | 472  | .218    | ns        |

Planned Contrasts: Control versus CFC Claims (H3b)

| #7 v #8                 | .300  | .119 | 2.50 | 472  | .013    | **        | #7 v #8         | .150  | .108 | 1.389| 472  | .166    | ns        |

*p < .10

**p < .05

*Environmentally Friendly (#1) versus Control Cell (#8) (No Environmental Claims)--see Figure I.
Table 4 Summary of Major Hypotheses, Claims, and Findings

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Claims</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1(a)</td>
<td>Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with an unqualified specific environmental claim than when exposed to a package label with an unqualified general environmental claim.</td>
<td>#1 (Env Fr), #5 (Ozone Fr) versus #7 (No CFCs)</td>
</tr>
<tr>
<td>H1(b)</td>
<td>Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with general claims that are specifically qualified than when exposed to a package label with a general environmental claim without qualifiers.</td>
<td>#1 (Env Fr) versus #2 (Env Fr, No CFCs) #3 (Env Fr, Not Harm Ozone Layer)</td>
</tr>
<tr>
<td>H1(c)</td>
<td>Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with specific claims that are generally qualified than when exposed to a package label with an unqualified general environmental claim.</td>
<td>#1 (Env Fr) versus #3 (Env Fr, Not Harm Ozone Layer)</td>
</tr>
<tr>
<td>H2</td>
<td>Consumers are more likely to perceive an aerosol product as safe and/or safer for the environment when exposed to a package label with an unqualified specific claim than when exposed to a package label with a general environmental claim that is specifically qualified.</td>
<td>#7 (No CFCs) versus #2 (Env Fr, No CFCs) #3 (Env Fr Because No CFCs ... Upper Ozone Layer)</td>
</tr>
<tr>
<td>H3</td>
<td>Consumers are more likely to perceive an aerosol product to be safe and/or safer for the environment when exposed to a package label with a specific claim with a general qualifier than when exposed to a package label with a general claim with a specific qualifier.</td>
<td>#2 (Env Fr, No CFCs) versus #4 (No CFCs, Env Fr)</td>
</tr>
<tr>
<td>H3(b)</td>
<td>Consumers are more likely to perceive that an aerosol product contributes to air pollution and/or smog when exposed to a package label with no environmental claim (i.e., control) than when exposed to a package label with an environmental claim.</td>
<td>#8 (Control) versus [all claims]</td>
</tr>
</tbody>
</table>

Second, the findings suggest that adding specific qualifiers (i.e., No CFCs) to general claims, such as environmentally friendly, increases the perception of safety of the product for the environment. This is consistent with prior research that has shown that adding concrete information to abstract terms aids in providing context to those terms. This also suggests support for requirements that environmental claims be specific, not general (FTC 1992). The question it raises, however, is whether the benefits of requiring very specific qualifiers are justified. The data show that unqualified general claims, such as those found to be deceptive in two past FTC cases [Nationwide Industries (1993); Redmond Products (1994)], were no more effective or deceptive than other claims. These results suggest a dilemma for environmental marketers in that the data show that more detailed environmental claims lead to more favorable safety evaluations of the product for the environment. The difficulty, from the perspective of public policy, is that even specific environmental claims may be judged as misleading because they fail to point out that the product may contain other ingredients (e.g., VOCs, HCFCs) that may harm the atmosphere. The public policy problem is determining what level of general or specific environmental claim to permit without opening the environmental marketer to risks for failure to disclose other relevant information. In other words, the question becomes, are the marketers better off using unqualified general claims rather than attempting to fully inform the consumer and, in the
process, failing to disclose the right information related to other ingredients? And, if they do use only unqualified general claims, do they run afoul with regulators in California, Rhode Island, or Indiana, who have determined that general claims are misleading because they are too general?

Third, the data show that consumers in almost all cases, do not draw greater inferences from general environmental claims than from general claims that are specifically qualified for at least some specific environmental benefits not included on the package (i.e., that the product contributes to air pollution or smog). Our research found, however, that environmental claims, regardless of type, resulted in a reduction of prior negative perceptions about the extent to which aerosol products contribute to air pollution or smog. The implication is that public policy professionals must weigh the benefits of this reduction against the costs of perceptions of the product as safe for the environment as a function of general and specific claims with different types of qualifiers, especially if other ingredients that deplete the ozone layer or contribute to smog are part of the aerosol product.

LIMITATIONS AND FUTURE RESEARCH

One limitation of this study is that it focused solely on claims on hair spray products in aerosol packages and excluded products in pump containers. Because the data in the control cell show that consumers have strong negative beliefs about the effect of aerosol hair spray products on the environment, future research should compare environmental claims across aerosol and pump products. Second, the data were collected in a mall-intercept environment. As a result, the sample is a convenience sample and, strictly speaking, not projectable to the total population. However, multiple, geographically dispersed, malls were used in the study and the researchers believe the results are at least generalizable to the population. Third, the length of the claims varied and some of the differences found may have been a function of claim length. While it is believed that, based on the pretest results, the difference in the length of the claim in the context of a package label was not significant, future research could address the issue. Fourth, the Ozone Friendly claims used in the study were not mutually exclusive and collectively exhaustive. While an attempt was made to include many combinations of general claims and qualifications to those claims (e.g., Environmentally Friendly—Environmentally Friendly, No CFCs), the ozone claims contained a narrower scope of modifications that may have affected the results (e.g., Ozone Friendly—Environmentally Friendly, Will Not Harm Ozone Layer rather than Environmentally Friendly, Ozone Friendly). Future environmental research could address the question of whether a broader set of modifications could have an impact on consumer perceptions. Fifth, attention was focused on two implied claims, air pollution and smog. There may be a question as to whether consumers see these as two separate dimensions of environmental impact. To understand this potential problem, future research is needed to distinguish between consumer interpretations of claims (i.e., the direct meaning of the claim) from the inferences drawn from these claims. Sixth, this study only examined a limited number of environmental claims, particularly Environmentally Friendly and Ozone Friendly and alternative specific and general qualifiers for those claims. Future research could address the question of how consumers interpret other environmental concepts that are less well known to consumers. For example, will claims such as those related to VOCs or HCFCs be interpreted differently than environmental claims where the level of understanding is somewhat higher (i.e., CFCs, ozone layer)? Finally, consumer perceptions of life cycle claims could be explored, including cross-cultural studies. In such an analysis, assessments undertaken in the European Union and Canada might be examined because they are apparently more advanced than the U.S. in this area (European Environmental Agency 1998).

Thomas J. Maronick is Professor, Department of Marketing, Towson University, Towson, MD, and was formerly the Head of the Office of Impact Evaluation at the FTC. J. Craig Andrews is Professor and Charles H. Kellstadt
Chair, Department of Marketing, Marquette University, Milwaukee, WI, and served as a Consumer Research Specialist at the FTC from 1992-1993.

ENDNOTES

(1.) Pretesting indicated that respondents had sufficient time to process the claim. The aerosol spray contained only the claim (in the cloud), the brand name, and the weight of the product. No distractor claims or cluttering text appeared on the package.

(2.) Absolute scale = 7-point: Unsafe (1) to Safe (7); Relative scale = 5-point: Much Less Safe (1) to Much Safer (5).

(3.) Planned contrasts and one-tail t-tests used for analysis, except where indicated.

(4.) It should be noted that there is a notable difference in length of claims from the unqualified general claim (two words) to the longest specifically qualified general claim (twenty words). Part of the difference in these findings may have been the result of the variance in length of claim.

(5.) The approach of adding, "... and everything else you know about aerosol products," was taken after the pretest indicated many respondents were providing only literal responses after review of the label (i.e., a reading test) without consideration of possible implied claims.

REFERENCES