

The effectiveness of environmental information in Latin America: Evidence from Chile

Abstract

The purpose of this study is to test the viability of environmental information in Chile. Data were collected via controlled experimentation. The results show that consumer perception of product quality, value, and purchase intentions differ significantly between products with positive environmental messages and those without any message. It is also found that the impact of environmental information is greater for consumable products. The results support the idea that positive environmental information might be effective for many marketing campaigns in Latin America.

Keywords: environmental information; eco-labeling; green marketing.

1. Introduction

Environmental (ecological, green) marketing is the marketing of products that are presumed to be environmentally safe. Thus environmental marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Environmental information intends to make it easy to take environmental concerns into account when shopping. Two-thirds of consumers agree that environmental information helps them to understand product benefits and to make more informed purchasing decisions. However, many firms underestimate the value of advertising their green initiatives, preferring to remain modest in hopes that consumers will learn of them organically. Other firms don't want to draw attention to their efforts for fear of being accused of greenwashing (Landor Associates, 2013). The term greenwashing refers to all firms that adopt outwardly green acts with an underlying purpose to increase profits (e.g., the hotelier's practice of placing notices in hotel rooms which asked their guests to reuse towels to "save the environment").

Many firms are reluctant to use environmental information. Given the lack of information about positive and negative environmental impact, consumers are unable to effectively determine the comparative advantage of an eco-friendly product against a similar product that is not eco-friendly. In order to investigate the effects of impact enclosure in the U.S., Borin et al. (2011) investigate different levels of environmental information provided on product labels. Borin et al. (2011) show that consumer perception of product quality, value, and purchase intentions does not differ significantly between products with positive environmental messages and those without any message. Additionally, products with positive environmental messages are viewed better than

products with negative environmental messages. It is also found that the impact of environmental information is greater for consumable products.

While findings from the U.S. suggest that clearly presented information can make a significant difference in consumer evaluation of products in that country (Borin et al., 2011), there are no studies addressing whether environmental information can be effective in other countries. The influence of culture is particularly important in advertising because communication patterns are closely linked to cultural norms (Hong et al., 1987). There may well be cultural factors that cause environmental information to be seen as useful, which therefore increases its effectiveness. Hofstede (2001) reported that Latin American countries have high uncertainty avoidance scores (Argentina 75, Brazil 65, Chile 75, Colombia 69, Costa Rica 75, Ecuador 57, El Salvador 83, Guatemala 89, Mexico 71, Panama 75, Peru 76, Uruguay 88, Venezuela 65). In contrast, the U.S. scores well below average, with a low score of 37, on the uncertainty avoidance dimension. Purity in products is an important need in cultures of high uncertainty avoidance. The need for purity is related to the sales of many products (De Mooij and Hofstede, 2002). In cultures with high uncertainty avoidance scores (e.g., Latin American countries), cultural norms are more compatible with environmental information than cultures with low uncertainty avoidance scores (e.g., the U.S.).

Marketing is an understudied area in Latin America (Fastoso and Whitelock, 2011), and the field of environmental information is no exception. Too little is known about the potential of environmental information in Latin America because there is no research that analyzes its effectiveness in the region. Consequently, the purpose of this study is to test the viability of environmental information in Chile.

2. Conceptual Framework

Environmental labeling (eco-labeling) refer to information a product provides about the environmental impacts associated with the production or use of a product (Rotherham, 1999). Research indicates that consumers often have difficulty understanding what the labels intend to communicate (Thøgersen, 2000). Terms such as “recyclable”, “eco-friendly”, “environmentally safe” are vague and may create skepticism among consumers. Additionally, packages with an earth and flower on it do not provide consumers with specific information to make an informed decision regarding the environmental impact of the product. Environmental information intends to make it easy to take environmental concerns into account when shopping. However, studies have determined that green communication is a major area of weakness. Pickett-Baker and Ozaki (2008) found that, except for cleaning products, most consumers cannot identify greener products.

If the consumer grants credibility to the environmental information, the individual will behave more respectfully toward the environment. On the other side, an individual's belief that environmental information lacks honesty can have a negative effect on purchase intention. This skepticism is due to various factors such as the absence of scientific knowledge necessary to interpret environmental information, and, in particular, the falsehoods and exaggeration of some advertising techniques.

Additionally, studies have found that consumers believe that green products are priced higher and of poorer quality than the non-green alternative (D'Souza et al., 2007). Consumers continue to have guarded impressions of the quality of environmental products, often believing that in order for a product to be green there must be a trade-off on quality. Additionally, the price premium of these products may negatively affect consumer value judgment (Esty and Winston, 2006; D'Souza et al., 2007).

Past research has found that consumers react more favorably to positive attribute messages, relative to negative attribute messages (Beach et al., 1996; Buda and Zhang, 2000; Johnson, 1987; Levin and Gaeth, 1988). Positive messages evoke favorable memories, while negative messages evoke less desirable associations. Another explanation is the concept of priming in which the message primes the subject either positively or negatively and this evaluation is transferred to the object (Levin et al., 1998). Positive (negative) environmental information could be more (less) effective across cultures, given the underlying assumption that environmental information distinctively affects consumers' cognitive and/or affective activities. Hence:

H1. In Chile, positive environmental information will have a positive impact on consumer metrics relative to those products with negative environmental information.

H2. In Chile, products with positive environmental messages will have a positive impact on key consumer metrics relative to products with no (neutral) environmental information.

H3. In Chile, products with negative environmental messages will have a negative impact on key consumer metrics relative to products with no (neutral) environmental information.

Decision makers prefer more information to less. However, there is a limit to the amount of information consumers can absorb during a specific time period. Drichoutis et al. (2006) suggest that consumers might be unwilling to evaluate more complicated information. Hence:

H4. In Chile, there will be no significant differences on key consumer metrics between environmental messages that provide more or less detail on the impacts of the ingredients.

Grankvist and Biel (2006) found that of the three environmental factors (pesticides, greenhouse gases, and energy usage) pesticides had the greatest influence on product purchase. They conjecture that this response may be due to the perception that ingredients such as pesticides have a negative impact on both the environment and on the consumer's health. This finding may lend support to the hypothesis that product categories that have a personal health impact (e.g., apples, bar soap) may have stronger effects of environmental information than products that do not (e.g., printer paper, headphones). Hence:

H5. In Chile, the effects of environmental disclosure on consumer metrics will be greater for products that contain environmentally harmful ingredients and that may have a more direct health risk for the consumer.

3. Research Design

Data were collected via controlled experimentation. The design of the study was 5 (level of environmental information) \times 4 (product category). The level of environmental information was a between subject factor with five levels: very positive, positive, neutral, negative, and very negative. The product category was a between subject factor with four product categories: apples, bar soap, headphones, and printer paper. Apples grown with and without the use of pesticides were selected to represent a product that could have the highest perceived health impact. Bar soap, with and without formaldehyde as an ingredient, was used to represent a product that could have a moderate perceived health impact. Although

bar soap is not ingested, it has direct contact with the skin and with the body interior through inhalation and exposure to mucous membranes. Headphones with and without the use of plasticizers were selected to represent a product that could have a slight perceived health impact. Finally, printer paper made of either recycled or non-recycled materials represented a product that could have the lowest perceived health impact (Borin et al., 2011).

3.1. Sample

402 undergraduate students at a Chilean university participated in the study. Participants' ages ranged from 18 to 29, with an average of 21. Student samples have been widely used in advertising research (e.g., Barry, 1993; Choi and Miracle, 2004; Manzur et al., 2012; Pillai and Goldsmith, 2008; White Nye et al., 2008; Yagci et al., 2009). Previous studies have asserted that the use of homogeneous convenience samples improve the internal validity of experimental results (Calder et al., 1981; Cook and Campbell, 1975). Also, a student sample was appropriate for the present experiment because undergraduate students are a major target market for a large number of product categories (e.g., audio and video, health and beauty, computers, mobile phones, banking). In Chile, marketers have conducted promotional campaigns aimed directly at this market segment.

3.2. Stimuli development

Following Borin et al. (2011), the study tested five different levels of environmental information for each product category: very positive, positive, neutral, negative, and very negative. Borin et al. (2011) evaluate whether the scenarios were communicating the intended level of environmental impact. They demonstrate that the five message levels

were perceived in the direction anticipated. All labels had the same graphic design. The structure and creativity was exactly the same in all labels, with the sole variation of the product category and the level of environmental information, as demanded by the specific experimental treatment. Other features in the labels such as size, color, and layout were identical across all treatments. At the extremes (very positive, very negative), the information highlighted the presence or absence of an active ingredient/process (e.g., “pesticide free”, “grown with the use of pesticides”), followed by a specific description regarding the potential environmental harm of the ingredient/process (e.g., “pesticides can cause harm to humans, animals, or the environment because they are designed to kill or otherwise adversely affect living organisms”). The less extreme scenarios (positive, negative) presented the absence or presence of the key ingredient/process, but did not specify the environmental impact (e.g., “pesticides are harmful chemicals”). The study also included a presentation of a neutral position. Borin et al. (2011, p. 84) provides detail on the five different levels of environmental disclosure that were developed to conduct the study:

Very positive. The message presents both the absence of an environmentally harmful ingredient/process (e.g., “plasticizer-free”) and a specific impact of this ingredient/process (e.g., “the Environmental Protection Agency concluded that plasticizers can reasonably be expected to cause cancer, and liver, kidney, and developmental toxicity”).

Positive. The message states both the environmentally related key ingredient/process (e.g., “plasticizer-free”) and a general impact of this ingredient/process (e.g., “plasticizers are harmful chemicals”).

Neutral. There is no environmentally-related message.

Negative. The message lists both the presence of an environmentally harmful ingredient/process (e.g., “contains plasticizers”) and a general impact of this ingredient/process (e.g., “plasticizers are harmful chemicals”).

Very negative. The message lists both the presence of an environmentally harmful ingredient/process (e.g., “contains plasticizers”) and a specific impact of this ingredient/process (e.g., “the Environmental Protection Agency concluded that plasticizers can reasonably be expected to cause cancer, and liver, kidney, and developmental toxicity”).

3.3. Procedure

Participants were directed to an online survey that randomly assigned them to view one of twenty advertisements. Then, participants answered the questionnaire. Directly after viewing the advertisements, respondents were asked to evaluate the perceived quality, value, and purchase intent, based on a seven-point Likert scale. Following Borin et al. (2011), three items were used for perceived quality, four for perceived value, and two for purchase intentions. Scales were combined and averaged for each consumer metric.

4. Results

The analysis of the means for each of the twenty treatments is presented in Table 1, and the means of the factors are presented in Table 2. Analysis of variance (ANOVA) has previously been used by other researchers in advertising research (e.g., Cowley, 2006;

Manning et al., 2001; Manzur et al., 2012; Pillai and Goldsmith, 2008; White Nye et al., 2008; Yagci et al., 2009). Consequently, ANOVAs were calculated for consumer perception of product quality, value, and purchase intentions. The ANOVAs for each variable are presented in Table 3. Finally, Table 4 presents the Eta^2 , which reflects the percentage of dependent variable variance explained by the independent variable in the sample data.

<< Table 1 here >>

<< Table 2 here >>

Results for all metrics show clear support for H1. Products with positive environmental messages are perceived as better quality and value, and are more likely to be purchased, than those products that must disclose the negative environmental impacts of their products. Results were significantly different at both the general and specific message levels (See Table 2).

The post-hoc analysis in Table 2 supports H2. Groups exposed to products with no environmental messages, which represents the majority of products currently on the market, had averages lower than those of positive message groups. Consequently, the results suggest that in Chile products with positive environmental messages will have a positive impact on key consumer metrics relative to products with no (neutral) environmental information.

The post-hoc analysis in Table 2 partially supports H3. Table 2 shows that groups exposed to products with very negative environmental messages had averages lower than groups exposed to products with no environmental messages. However, the results show that there are no significant differences on key consumer metrics between products with

negative environmental information and those with no (neutral) environmental information. Cultural constructs are only activated when that construct is accessible and applicable to the situation (e.g., a very negative message) (Ladbury and Hinsz, 2009). Additionally, very negative messages are less common than negative messages (Buda and Zhang, 2000). Latin American countries have higher uncertainty avoidance scores than the U.S. (Hofstede, 2001). Consequently, individuals in Latin America could vary in their response to negative messages.

H4 examined the depth of the environmental message. With the exception of two comparisons (very positive vs. positive in product quality and purchase intentions), the results in Table 2 support the hypothesis that there would be differences in consumer metrics based on whether the message contained general or specific environmental information (very positive vs. positive, and very negative vs. negative).

The main effect of product category was not of theoretical or practical interest, so the focus was on the interaction, which tested the hypothesis that the effectiveness of level of environmental information varied by product category. H5 is supported because data allow the assertion that the effect of level of environmental information on consumer metrics (product quality and purchase intentions) is moderated by the product category (p-value < .05; See Table 3; Lowest $\eta^2 = .021$; See Table 4). Specifically, in Chile the effects of environmental disclosure on consumer metrics will be greater for products that contain environmentally harmful ingredients and that may have a more direct health risk for the consumer (See Table 1).

<< Table 3 here >>

<< Table 4 here >>

5. Discussion

The results show that consumer perception of product quality, value, and purchase intentions differ significantly between products with positive environmental messages and those without any message. It is also found that the impact of environmental information is greater for consumable products. The results support the idea that positive environmental information might be effective for many marketing campaigns in Latin America. The results suggest that if clear explanations of environmental impact, both positive and negative, are required, consumer evaluations of green products will improve and, ultimately, a larger percentage of consumers will purchase green products. The findings suggest that policy makers should require manufacturers to disclose key product ingredients and their environmental impact.

Clearly presented information can make a significant difference in consumer evaluation of products. In most Latin American countries, advertising is self-regulated by private organizations: the CONARP in Argentina and Uruguay, CONAR in Brazil, Bolivia, Argentina, Chile, and Paraguay, etc. These private organisms perform two primary functions: they receive complaints about advertisements (corrective function) and publicize the advertising codes of ethics and jurisprudence (orienting function) (Manzur et al., 2012). As a consequence, this research is an important contribution for this type of organizations, as well as for instructors and professionals of the area. In Latin America, the results presented in this study suggest that environmental information could produce a more favorable customer response in Latin America, which further increases advertisers' incentives to use this type of claims in Latin America.

Clearly this is an exploratory study, and a number of other topics are worth exploring in the future. First, not all individuals within a culture are identical. Indeed, there is substantial variation within a culture as well as considerable overlap among different cultures. Individual differences should be incorporated into future research, as should enduring consumer involvement, need for cognition, consumer knowledge, consumer expertise, brand loyalty, smart shopper self-perception, among others.

Second, although the use of a student sample was appropriate for this study, future studies should also use samples of consumers who are in the target markets for many other product categories. Such studies could increase the generalizability of the results as well as its applicability to advertising public policy and advertising management in Latin America.

Third, the experiment should be replicated with other advertising media, such as television or radio, which would help examine the extent to which the results are generalizable to other media vehicles. Additionally, twenty advertisements are certainly insufficient to produce a definitive set of conclusions. Also, the brands used in this study were hypothetical. The participants had no knowledge of these brands. The effect of environmental information on established brands and the process by which a message for a well-known brand is processed may be different than the process investigated in this study. Consequently, the experiment should be replicated with real brand names, although the use of real brands has some weaknesses.

Finally, possible differences between countries makes it essential to develop studies that measure, compare, and analyze the different levels of acceptance of environmental information among countries and their possible causes. This article attempts to encourage similar research in Latin America and other regions that confirms or refutes the results presented in this work.

Referencias

Alba JW, Hutchinson JW. Knowledge calibration: what consumers know and what they think they know. *Journal of Consumer Research* 2000; 27 (2):123–56.

Barry, T. (1993), Twenty years of comparative advertising in the United States, *International Journal of Advertising*, 12, 323-350.

Beach, L.R., Puto, C.P., Heckler, S.E., Naylor, G. and Marble, T.A. (1996), Differential versus unit weighting of violations, framing, and the role of probability in image theory's compatibility test, *Organizational Behavior and Human Decision Making Processes*, 65(2), pp. 77-82

Begg IM, Anas A, Farinacci S. Dissociation of processes in belief: Source recollection, statement familiarity, and the illusion of truth. *Journal of Experimental Psychology: General* 1992;121(4):446–58.

Bellingall, A.J. (2010), Comparative advertising in Brazil, *Intellectual Property Magazine*, October 1, 27-30.

Braun KA. Postexperience advertising effects on consumer memory. *Journal of Consumer Research* 1999;25:319–34 [March].

Bjork RA. Theoretical implications of directed forgetting. In: Melton AW, Martin E, editors. Coding processes in human memory. New York NY: Wiley; 1972. p. 217–35.

Borin, N., Cerf, D.C., & Krishnan, R. (2011). Consumer effects of environmental impact in product labeling, *Journal of Consumer Marketing*, 28(1), 76-86

Buda, R. and Zhang, Y. (2000), Consumer product evaluation: the interactive effect of message framing, presentation order, and source credibility, *Journal of Product & Brand Management*, 9(4), 229-242.

Calder, B., Phillips, L. and Tybout, A. (1981), Designing research for application, *Journal of Consumer Research*, 8(2), 197-207

Chandrashekar, R. and Grewal, D. (2003), Assimilation of advertised reference prices: the moderating role of involvement, *Journal of Retailing*, 79(1), 53-62.

Choi, Y.K. and Miracle, G.E. (2004), The effectiveness of comparative advertising in Korea and the United States: a cross-cultural and individual-level analysis”, *Journal of Advertising*, 33(4), 75-87.

Chow, C. and Luk, C. (2006), Effects of comparative advertising in high and low-cognitive elaboration conditions, *Journal of Advertising*, 35(2), 55-67

Cook, T. and Campbell, D. (1975), The design and conduct of experiments and quasiexperiments in field settings, in Dimmette, M. (Ed.), *Handbook of Industrial and Organisational Research*, Rand McNally, Chicago, IL, 223-326.

Cowley E. Recognition confidence, recognition accuracy and choice. *Journal of Business Research* 2004;57:641–6 [June].

Cowley E, Janus E. Not necessarily better, but certainly different: A limit to the advertising misinformation effect on memory. *Journal of Consumer Research* 2004;31:229–35 [June].

De Mooij, M, and Hofstede, G. (2002). Convergence and divergence in consumer behavior: implications for international retailing, *Journal of Retailing*, 78, 61-69

D'Souza, C., Taghian, M. and Khosla, R. (2007), Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention, *Journal of Targeting, Measurement and Analysis for Marketing*, 15(2), 69-78.

Esty, D.C. and Winston, A.S. (2006), Green to Gold. *How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage*, Yale University Press, New Haven, CT and London.

Fastoso, F. and Whitelock, J. (2011), Why is so little marketing research on Latin America published in high quality journals and what can we do about it? Lessons from a Delphi study of authors who have succeeded, *International Marketing Review*, 28(4), 435-449

Feidler K, Wlahter E, Armbruster T, Fau D, Naumann U. Do you really know what you have seen? Intrusion errors and presuppositions effects on constructive memory. *Journal of Experimental Social Psychology* 1996; 32:428–511.

Gardener MP, Mitchell AA, Russo JE. Chronometric analysis: An introduction and application to low involvement perception of advertisement. In: Hunt HK, editor. *Advances in Consumer Research*, vol. 5. Ann Arbor MI: Association for Consumer Research; 1978. p. 581–9.

Gao, Z., Li, N., Scorpio, E. (2012). Perception of puffery in advertising: investigating the China-US differences, *Asia Pacific Journal of Marketing and Logistics*, 24(2), 179-198

Gao, Z., and Scorpio, E. (2011). Does Puffery Deceive? An Empirical Investigation, *Journal of Consumer Policy*, 34(2), 249-264

Gilbert DT. How mental systems believe. *American Psychologist* 1991;46 (2):107–19.

Gilbert DT, Krull DS, Malone PS. Unbelieving the unbelievable: Some problems in the rejection of false information. *Journal of Personality and Social Psychology* 1990; 59(4):601–13.

Gilbert DT, Tafarodi RW, Malone PS. You can't not believe everything you read. *Journal of Personality and Social Psychology* 1993;65(2):221–33.

Haan, P., and Berkey, C. (2002). A study of the believability of the forms of puffery, *Journal of Marketing Communications*, 8(4), 243-256

Hall, E. (1976), *Beyond Culture*, Doubleday, New York, NY.

Hawkins SA, Hoch SJ, Meyers-Levy J. Low-involvement learning: repetition and coherence in familiarity and belief. *Journal of Consumer Psychology* 2001;11(1):1-11.

Hidalgo, P., Manzur, E., Olavarrieta, S. and Farías, P. (2008), Customer retention and price matching: the AFPs case, *Journal of Business Research*, 61(6), 691-696.

Hoffman, D. A. (2006), The best puffery article ever, *Iowa Law Review*, 91, 101-140.

Hofstede, G. (2001), *Culture's Consequences: Comparing Values. Behaviors Institutions and Organizations Across Nations*, 2nd ed., Sage Publications Inc, Thousand Oaks, CA.

Holbrook MB. Beyond attitude structure: toward the informational determinants of attitude. *Journal of Marketing Research* 1978;15(4):545–56.

Hong, J.W., Muderrisoglu, A. and Zinkhan, G. (1987), Cultural differences in advertising expression: a comparative content analysis of Japanese and US magazine advertising”, *Journal of Advertising*, 16(1), 55-62.

Jimenez, F., Hadjimarcou, J., Barua, M., and Michie, D. (2013), A cross-national and cross-generational study of consumer acculturation to advertising appeals, *International Marketing Review*, 30(5), 418-439

Johnson, R.D. (1987), Making judgments when information is missing: inferences, biases, and framing effects”, *Acta Psychologica*, 66, 69-82

Kahneman, D. and Tversky, A. (1979), Prospect theory: an analysis of decision under risk, *Econometrica*, 47(2), 263-291.

Kamins MA, Marks LJ. Advertising puffery: the impact of using two-sided claims on product attitude and purchase intention. *Journal of Advertising* 1987;16(4):6-15.

Ladbury, J., and Hinsz, V. (2009). Uncertainty Avoidance Influences Choices for Potential Gains but not Losses, *Current Psychology*, 28(3), 187-193

Landor Associates (2013), Green Brands 2012: Four insights into consumer eco-perceptions, available at <http://landor.com/#!/talk/articles-publications/articles/green-brands-2012-four-insights-into-consumer-eco-perceptions/>

Levin, I.P. and Gaeth, G.J. (1988), Framing of attribute information before and after consuming the product, *Journal of Consumer Research*, 15, 374-378.

Levin, I.P., Schneider, S. and Gaeth, G.J. (1998), All frames are not created equal: a typology and critical analysis of framing effects, *Organizational Behavior and Human Decision Processes*, 76(2), 149-188.

Manning, K., Miniard, P., Barone, M. and Randall, R. (2001), Understanding the mental representation created by comparative advertising, *Journal of Advertising*, 30(2), 27-39.

Manzur, E., Uribe, R., Hidalgo, P., Olavarrieta, S., and Farías, P. (2012), Comparative Advertising Effectiveness in Latin America: Evidence from Chile, *International Marketing Review*, 29(3), 277-298

Mayo R, Schul Y, Burnstein E. "I am not guilty" vs "I am innocent": successful negation may depend on the schema used for its encoding. *Journal of Experimental Social Psychology* 2004;40:433–49.

McGorry, S.Y. (2000), Measurement in a cross-cultural environment: survey translation issues, *Qualitative Market Research: An International Journal*, 3(2), 74-81.

Olson JC, Dover PA. Cognitive effects of deceptive advertising. *Journal of Marketing Research* 1978;15(1):29–38.

Petty, R., Cacioppo, J. and Schumann, D. (1983), Central and peripheral routes to advertising effectiveness: the moderating role of involvement”, *Journal of Consumer Research*, 10(2), 135-146.

Petty RE, Tormala ZL, Rucker DD. Resisting persuasion by counterarguing: an attitude strength perspective. In: Jost JT, Banaji MR, Prentice DA, editors. *Perspectivism in social psychology: the yin and yang of scientific progress*, APA science series. APA decade of behavior series. Washington, DC, US: American Psychological Association; 2004. p. 37–51.

Pickett-Baker, J. and Ozaki, R. (2008), Pro-environmental products: marketing influence on consumer purchase decision”, *Journal of Consumer Marketing*, 25(5), 281-293

Pillai, K. and Goldsmith, R. (2008), How brand attribute typicality and consumer commitment moderate the influence of comparative advertising, *Journal of Business Research*, 61(9), 933-941.

Preston IL. *The great American blowup: puffery in advertising and selling*. Madison WI: The University of Wisconsin Press; 1996.

Preston IL. Puffery and other ‘loophole’ claims: how the law's ‘don't ask, don't tell’ policy condones fraudulent falsity in advertising. *Journal of Law and Commerce* 1998;1:49-114.

Rotfeld HJ, Rotzoll KB. Is advertising puffery believed? *Journal of Advertising* 1980;9(3):16–20.

Rotfeld HJ, Preston IL. The potential impact of research on advertising law. *Journal of Advertising Research* 1981;21(2):9-17.

Rotherham, T. (1999), Meeting of Technical Specialists and Policy Experts on Environmentally-Sound Trade Expansion in the Americas. Selling Sustainable Development: Environmental Labeling and Certification Programs, University of Miami, October 28-29, available at: www.iisd.org/standards/pdf/miami_paper_final.pdf (accessed March 25, 2009).

Schul Y, Burnstein E. When discounting fails: conditions under which individuals use discredited information in making a judgement. *Journal of Personality and Social Psychology* 1985;49:894–903.

Shimp TA. Do incomplete comparisons mislead? *Journal of Advertising Research* 1978;18:21–8 [December].

Shimp TA, Preston IL. Deceptive and nondeceptive consequences of evaluative advertising. *Journal of Marketing* 1981;45(1):22–32.

Thøgersen, J. (2000), Psychological determinants of paying attention to eco-labels in purchase decisions: model development and multinational validation, *Journal of Consumer Policy*, 23(3), 285-315

Tversky, A. and Kahneman, D. (1981), The framing of decisions and the psychology of choice, *Science*, 211(4481), 453-458.

Walker, B., Swasy, J. and Rethans, A. (1986), The impact of comparative advertising on perception formation in new product introductions”, *Advances in Consumer Research*, 13(1), 121-125

White Nye, C., Roth, M. and Shimp, T. (2008), Comparative advertising in markets where brands and comparative advertising are novel, *Journal of International Business Studies*, 39(5), 851-863

Wyckham RG. Implied superiority claims: parody parading as superiority. Proceedings of the 12th International Research Seminar in Marketing, La Londe Les Maures 1985:360–87.

Wyckham RG. Implied superiority claims. *Journal of Advertising Research* 1987;27(1):54–63.

Wyer RS, Budesheim TL. Person memory and judgments: the impact of information that one is told to disregard. *Journal of Personality and Social Psychology* 1987;53:14–29.

Yagci, M., Biswas, A. and Dutta, S. (2009), Effects of comparative advertising format on consumer responses: the moderating effects of brand image and attribute relevance, *Journal of Business Research*, 62(8), 768-774

Table 1. Means

Apples						
	Very positive	Positive	Neutral	Negative	Very negative	Difference Positive-negative
Quality	5.22	5.25	4.91	3.94	3.35	1.59
Value	5.17	4.93	4.74	4.06	3.56	1.24
Purchase intentions	5.22	4.85	4.71	3.88	2.90	1.65
Bar soap						
	Very positive	Positive	Neutral	Negative	Very negative	Difference Positive-negative
Quality	5.20	4.80	4.26	3.62	2.87	1.76
Value	5.10	4.63	4.21	3.44	3.08	1.61
Purchase intentions	5.00	4.85	4.44	3.12	2.23	2.25
Headphones						
	Very positive	Positive	Neutral	Negative	Very negative	Difference Positive-negative
Quality	4.93	4.35	3.76	4.00	3.35	.97
Value	4.63	4.03	3.91	3.82	3.31	.77

Purchase intentions	4.07	3.90	3.12	3.85	3.00	.56
Printer paper						
	Very positive	Positiv e	Neutral	Negative	Very negative	Difference Positive-negative
Quality	5.32	5.62	4.47	4.56	4.12	1.13
Value	5.56	5.43	4.29	4.38	3.88	1.37
Purchase intentions	5.54	5.68	4.82	5.00	3.89	1.17

Notes: Difference positive-negative: very positive and positive scores were averaged and very negative and negative scores were averaged.

Table 2. Mean of factors

	Level of environmental information					Product category			
	Very positive	Positive	Neutral	Negative	Very negative	Apples	Bar soap	Headphone s	Printer paper
Quality	5.16 ^a	5.01 ^a	4.35 ^b	4.03 ^b	3.42 ^c	4.47 ^b	4.09 ^c	4.05 ^c	4.80 ^a
Value	5.12 ^a	4.75 ^b	4.29 ^c	3.93 ^c	3.46 ^d	4.44 ^a	4.05 ^b	3.91 ^b	4.69 ^a
Purchase intentions	4.96 ^a	4.82 ^a	4.27 ^b	3.96 ^b	3.00 ^c	4.23 ^b	3.84 ^c	3.56 ^c	4.93 ^a

Notes: Comparing across columns, means with different superscript differ at $p < 5\%$ (Tukey's HSD).

Table 3. ANOVAs (F-values)

	Level of environmental information (main effect)	Product category (main effect)	Level of environmental information x Product category (interaction effect)
Quality	49.482**	12.485**	2.025*
Value	45.231**	14.488**	1.413
Purchase intentions	44.065**	27.051**	3.126**

Notes: Design: Intercept + Level of environmental information + Product category + Level of environmental information x Product category. *p-value < 5%, **p-value < 1% (all intercepts showed statistical significance)

Table 4. Eta²

	Level of environmental information (main effect)	Product category (main effect)	Level of environmental information x Product category (interaction effect)
Quality	.202	.046	.030
Value	.188	.053	.021
Purchase intentions	.184	.094	.046

Notes: Design: Intercept + Level of environmental information + Product category + Level of environmental information x Product category. Eta² reflects the percentage of dependent variable variance explained by the independent variable in the sample data.