

THE IMPACT OF AN ENVIRONMENTALLY FRIENDLY ADVERTISING CLAIM ON PURCHASE INTENTIONS

WILLIAM T. NEESE, *Nicholls State University*

MONICA J. FAVIA, *Bloomsburg University*

This study documents a statistically significant impact exerted by an Environmentally Friendly advertising claim on consumer purchase intentions for a high involvement product. The Environmentally Friendly claim in an otherwise identical treatment significantly improved purchase intentions compared to a Great Performance claim. In addition, two covariates that significantly improved the statistical power for the multivariate tests used in this analysis are identified and discussed. These are (1) product involvement and (2) concern about air pollution. Details of the mall intercept survey designed and implemented for this analysis are provided.

INTRODUCTION

Interest among public and private entities in developing environmentally friendly marketing mixes has grown exponentially since the first Earth Day on April 22, 1971, both domestically and abroad. In the United States, the Federal Trade Commission has long recognized this trend, setting forth guidelines for the use of environmental marketing claims in 1992 (Werner & Brown, 1993). Modern human beings across the planet have become increasingly concerned that nonrenewable ecological resources such as fossil fuels will too rapidly be consumed, leaving nothing but harmful side effects such as air pollution. The consumption of petroleum by industrial societies like the United States that have heavily adopted internal combustion engine technology is often at the core of this global debate. One result of this growing awareness is that “research into sustainable consumption has become a burgeoning field across many perspectives, including in economics, anthropology, psychology, sociology, human geography, and marketing (Pepper, Jackson & Uzzell, 2009, p.126).” Kinear and Taylor (1973) and Kinnear, Taylor, and Ahmed (1974) are among the earliest examples found in the marketing literature. Their focus was on describing environmentally conscious consumers and how those tendencies

subsequently impacted brand beliefs and attitudes.

Focus of This Study

Many if not most empirical studies identified for this project in the marketing literature have tested the impact of environmentalism on purchase decisions under low involvement conditions, which has been identified as a potential problem in the involvement literature (Patterson, 1993). In addition, many of those studies used generalized measures that are not product category specific. According to Korgaonkar and Moschis (1982), “The concept of product involvement is product class specific... (p.34).” As a result, we believe that reported results in this area of the literature are generally weak. For example, Laroche, Bergeron and Barbaro-Forleo (2001) found that “the behaviors ‘recycling’ and ‘buying environmentally friendly products’ were not good predictors of consumers’ willingness to pay more for green products (p. 515)” such as household cleaning supplies, which are typically low involvement purchases. Schuhwerk and Lefkoff-Hagius (1995) reported that the green claim they tested was only significant for their low involvement group, but they used a very non-specific, generalized measure of involvement with the environment. On the other hand, when a high involvement product was considered, a significant relationship between green information seeking and hybrid automobile purchase intentions in the United States is reported (Oliver & Lee,

2010; Oliver & Rosen, 2010). High involvement brands can be seen by others and linked to an individual's social status, so those purchase decisions are potentially significant in a social context (Janssen & Jager, 2002). Several early studies clearly demonstrate that involvement levels vary across product categories and that automobiles are normally in the high range (e.g., Korgaonkar & Moschis, 1982; Vaughn, 1986; Zaichkowsky, 1987).

According to Montoro-Rios, Luque-Martinez, and Rodriguez-Molina (2008), "the relationship between environmental associations and attitudes toward a brand are conditioned in part on the product category and the brand. As such, the usefulness of environmental associations to improve attitudes toward a brand should not be generalized (p.547)." Based on this discussion, our study is primarily designed to test whether or not the advertising claim Environmentally Friendly can significantly influence consumer decisions for a high involvement product versus a Great Performance claim in an identical advertisement. The automobile product category was selected for this research not only because it is typically a high involvement purchase, but also because its consumption has a well-known impact on the environment through air pollution. As recommended by Montoro-Rios, Luque-Martinez, and Rodriguez-Molina (2008), we adopted very specific measures of product category involvement (Zaichkowsky, 1985) and concern about air pollution (Antil, 1985) for our current study.

MARKETING AND ENVIRONMENTAL CONCERNS

The term *environmentalism* has typically been loosely defined in existing literature, and mostly measured in the form of a broad attitude or opinion expressing concern for the environment. Its multidimensional nature could incorporate a wide range of environmental concerns from air and water pollution to conservation of land, wildlife or other natural resources. Most existing research has focused on "symptoms of environmental decline such as

pollution, resource depletion, and waste. When specific topics were studied they included such factors as energy conservation, recycling, 'green' product usage, and specific legislative initiatives (Kilbourne & Beckmann, 1998, p.519)." As previously mentioned, many existing studies do not focus the respondent on a specific product or product class. Contrary to that tendency, Kassarian (1971) did design a study that specifically tested consumer concern for air pollution, brand awareness, and willingness to pay more for one particular product that would reduce air pollution. That early study focused on a gasoline additive that claimed to reduce air pollution, and identified a significant relationship between concern for air pollution and brand awareness. Kassarian's (1971) analysis also found a significant correlation between concern for air pollution and a consumer's willingness to pay more for a product that would reduce air pollution.

Green Marketing

The preference by practitioners to use certain types of advertising claims over others tends to be cyclical (Fay, 2006). According to Hartmann and Apaolaza-Ibanez (2009, p.715): "After a surge in green advertising in the 1990s, the use of green advertising claims decreased for nearly a decade. At present, however, a revival of green advertising can be observed." As noted in the popular business press, advertising agencies and other media and marketing companies have specifically concentrated on green marketing initiatives in recent years (Hanas, 2007; McIlroy, Bush, Parekh, Frazier, and Mullman, 2008; Schwartz, 2007). According to Orange (2010), "Around the world, growing numbers of consumers are purchasing supposedly eco-friendly products such as organic clothing, energy-saving light bulbs, and reusable shopping bags (p.29)." Responding to this trend, a cover story in *Marketing News* (2008) notes:

Marketers have jumped onto the environmentally friendly bandwagon as real world events and scientific evidence - Hurricane Katrina, major oil spills, global

warming - have grown from a non-issue for most consumers to an undeniable reality... For product marketers, 'green' is the new 'low-fat' (p.15).

Despite the fact that much has been written about green marketing (particularly in the trade press) few empirical studies exist. According to Montoro-Rios, Luque-Martinez, and Rodriguez-Molina (2008, p.547): "There is little scientific literature dealing with the experimental study of the impact of environmental information and associations on the formation of new attitudes towards products or brands." We seek to address that deficiency by adding the empirical analysis reported here to the literature. Based on our previous discussion, we designed a product-specific research domain with focused variables such as the impact concern about air pollution has on automobile purchase intentions.

Hypotheses

To determine our hypotheses, we depend on the Elaboration Likelihood Model from the consumer involvement literature. Petty, Cacioppo and Schumann's (1983) Elaboration Likelihood Model (ELM) is widely adopted in the involvement literature and is predicated on the hierarchy of effects model traditionally used in advertising effectiveness studies (Lavidge & Steiner, 1961; Ray, 1973; Vaughn, 1986). The ELM holds that consumers under high involvement situations will favor brand-related information such as product performance that is *central* to the purchase decision (i.e., functional claims), but when low involvement conditions prevail and consumers do not care that much about the product itself, a catchy tune in a TV commercial or an attractive model demonstrating the product will have a more significant impact on purchase intentions (i.e., *peripheral cues*). We believe that an Environmentally Friendly claim is peripheral and thus falls into the latter category.

There have been several manifestations of hierarchal models in the marketing literature, notably in consumer decision making where

brand awareness and knowledge or beliefs (cognition) result in brand evaluation or attitude (affection) that subsequently leads to a purchase (conation). Using hierarchy of effects parlance, the ELM would predict brand beliefs to form brand attitudes for high involvement products, but attitude toward the advertisement would more significantly impact the formation of brand attitudes for low involvement products. Brand attitude would in turn immediately predict purchase intentions in most ELM models (Costley 1988; Homer 1990; MacKenzie, Lutz & Belch 1986; Zinkhan & Martin 1982; Zinkhan & Fornell 1989). The ELM has long been known to have both face validity and relatively strong empirical support (Miniard, Dickson & Lord, 1988; Miniard, Bhatla & Rose, 1990). However, this brief discussion is provided as background information only. The focus of our study does not include the sequential or hierarchal effects of post-processing consumer decision making. We are instead interested in the impact an Environmentally Friendly claim might simultaneously exert across the decision process versus a Great Performance claim, which is the alternative direction to the hypotheses we state below based on involvement literature.

Under high involvement conditions such as those related to purchasing an automobile, consumers are more likely to be persuaded by functional claims that contain product performance information central to product utility and value. Petty, Cacioppo, and Schumann (1983) reported that "argument quality was a more important determinant of purchase intentions under high rather than low involvement (p.141)." They operationalized the strong or "cogent" argument included in their test advertisements for a disposable razor with product performance claims such as "In direct comparison tests, the Edge blade gave twice as many close shaves as its nearest competitor (p.139)." Korgaonkar and Moschis (1982) found that high expectations of product performance produced higher mean product evaluation scores for the high involvement

product they tested. According to Korgaonkar and Moschis (1982, p.38): "To the marketers of involving products, the study suggests the use of a promotional mix designed to create high expectations [of product performance]." Satisfaction with product performance was a key dependent measure in their analysis. Finally, Patterson (1993, p.449) reported that "perceived product performance [was] the most powerful determinant... of customer satisfaction for a high-involvement product."

We believe the literature cited here suggests that the more product-centric Great Performance claim featured in our test ads (versus the more peripheral Environmentally Friendly claim) will significantly impact hierarchy of effects measures typically used in advertising effectiveness studies due to the high involvement nature of the product being analyzed. We therefore hypothesize the following:

- H₁: A Great Performance claim will produce more positive attitudes toward the advertisement (Aad) compared to an Environmentally Friendly claim.*
- H₂: A Great Performance claim will produce more positive attitudes toward the brand (Ab) compared to an Environmentally Friendly claim.*
- H₃: A Great Performance claim will produce more positive brand beliefs (Bblf) compared to an Environmentally Friendly claim.*
- H₄: A Great Performance claim will produce more positive purchase intentions (PI) compared to an Environmentally Friendly claim.*

The interesting question alternating these hypotheses is whether the environmental issue has risen in importance to the level of product performance for contemporary consumer decision making when concern about pollution has become a much more salient topic.

METHODOLOGY

An existing automobile dealership granted permission to execute the current study, and our

test advertisements were almost entirely based on an actual newspaper advertisement run by this dealership to preserve as much realism as feasible given the nature of the research design (see Exhibit A). The dealership did not otherwise participate in this research project. The goal of the initial factorial design was to include consumer comparisons of actual automobiles (Honda Accord and Honda Civic) featuring conventional engines versus hybrids for the identical models to avoid introducing a confound effect in the analysis (e.g., Honda Accord hybrid mixed in with Ford Fusion hybrid). The *Accord* (Treatments 1,2,5,6) versus *Civic* (Treatments 3,4,7,8) models, *Hybrid* (Treatments 1,3,5,7) versus *Standard* (i.e., EX) engines (Treatments 2,4,6,8), and *Great Performance* (Treatments 1,2,3,4) versus *Environmentally Friendly* (Treatments 5,6,7,8) advertising claims define the 2x2x2 factorial design initially analyzed. The reader should note that our primary intent for this manuscript is to test only those hypotheses previously detailed that relate to the controllable advertising claim main effect, however.

As we previously highlighted, consistent with a majority of advertising effectiveness studies, the *attitude toward the advertisement* (Aad) - *brand belief* (Bblf) - *attitude toward the brand* (Ab) - *purchase intention* (PI) hierarchy of effects is used in this study to model post-exposure consumer decision making. Construct formation was developed in and adapted from the following literature stream (Neese, 2004; Neese & Hult, 2002, 1996; Neese & Capella, 1997; Neese, Taylor, & Capella, 1997; Neese & Taylor, 1994), plus a principal component factor analysis applied specifically to this study. The need to include two uncontrollable influences on consumer decision making (i.e., product involvement and concern about air pollution) was also identified through our literature review. Equivocal results in the marketing literature demonstrating a direct impact of environmental concern on purchase intentions are likely not only due to the low involvement nature of most products analyzed and broadly-stated measures, but according to Ray (1979) also because involvement and other

EXHIBIT A: Test Advertisements

1

HONDA ACCORD HYBRID

- 255-hp, 3.0-liter, i-VTEC® V-6 Engine with Integrated Motor Assist (IMA™)
- 5-speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Great Performance!

Starting At **\$ 30,140**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

2

HONDA ACCORD EX V-6

- 244-hp, 3.0-liter 24-valve SOHC VTEC® V-6 Engine
- 5-speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Great Performance!

Starting At **\$ 27,300**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

3

HONDA CIVIC HYBRID

- 110-hp, 1.3-liter, 8-valve, i-VTEC® 4-cylinder Gasoline Engine
- 5-Speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Great Performance!

Starting At **\$ 21,850**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

4

HONDA CIVIC EX V-4

- 140-hp, 1.8-liter, SOHC i-VTEC® 4-cylinder Engine
- 5-Speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Great Performance!

Starting At **\$ 19,060**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

5

HONDA ACCORD HYBRID

- 255-hp, 3.0-liter, i-VTEC® V-6 Engine with Integrated Motor Assist (IMA™)
- 5-speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Environmentally Friendly!

Starting At **\$ 30,140**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

6

HONDA ACCORD EX V-6

- 244-hp, 3.0-liter 24-valve SOHC VTEC® V-6 Engine
- 5-speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Environmentally Friendly!

Starting At **\$ 27,300**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

7

HONDA CIVIC HYBRID

- 110-hp, 1.3-liter, 8-valve, i-VTEC® 4-cylinder Gasoline Engine
- 5-Speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Environmentally Friendly!

Starting At **\$ 21,850**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

8

HONDA CIVIC EX V-4

- 140-hp, 1.8-liter, SOHC i-VTEC® 4-cylinder Engine
- 5-Speed Automatic Transmission
- Automatic Climate Control
- AM/FM/XM Satellite Radio with 6-disc CD Changer
- Power Windows
- Tilt
- Cruise
- Heated Leather Seats
- Power Moonroof w/ Tilt
- Power Locks w/ Remote Entry

Environmentally Friendly!

Starting At **\$ 19,060**

*Tax, tags additional

INDEPENDENCE HONDA **1-800-536-1476**

On Rte. 11, Between Bloomsburg & Berwick
Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm

TABLE 1:
Questionnaire Items and Factor Analysis Statistics

Multi-Item Scale	Factor Loading	Item Number and Description
Involvement With Automobiles ²	.501	(1) Important - Not Important
	.637	(2) Not Relevant - Relevant
	.573	(3) Means A Lot - Means Nothing
	.601	(4) Not Exciting - Exciting
	.709	(5) Fascinating - Dull
	.597	(6) Does Not Matter - Matters A Lot
	.699	(7) Fun - Not Fun
	.727	(8) Not Appealing - Appealing
	.748	(9) Interesting - Boring
	.673	(10) Of No Concern - Of Concern
	.518	(11) Wanted - Not Wanted
	.659	(12) Not Beneficial - Beneficial
	.460	(13) Desirable - Not Desirable
	.462	(14) Says Nothing About the Owner - Says A Lot About Owner
	.541	(15) Helps the Owner's Image - Does Not Help Owner's Image
Pollution Concern ³	.829	(16) Air pollution from automobiles is a critical problem today.
	.789	(17) Not enough is being done to save scarce petroleum resources.
	.653	(18) I'd be willing to walk or ride a bicycle to reduce air pollution.
	.786	(19) More fuss is made about air pollution than is really justified.
	.714	(20) I rarely ever worry about the effects of air pollution.
Attitude Toward the Advertisement ⁴	.462	(21) Offensive - Not Offensive
	.664	(22) Believable - Not Believable
	.544	(23) Not Clear - Clear
	.724	(24) Informative - Not Informative
	.690	(25) Not Likable - Likable
	.675	(26) Convincing - Not Convincing
	.650	(27) Irritating - Not Irritating
	.581	(28) Boring - Interesting
	.638	(29) Professional - Not Professional
	.731	(30) Low Quality - High Quality
Attitude Toward the Brand ⁵	.619	(31) Desirable - Not Desirable
	.577	(32) Not Very Unique - Unique
	.823	(33) Worthless - Valuable
	.817	(34) Good - Bad
	.830	(35) Not Satisfactory - Satisfactory
	.690	(36) Useful - Not Useful
	.762	(37) Below Average - Above Average
	.685	(38) Convenient - Inconvenient
Brand Beliefs ⁶	.735	(39) The car in this advertisement is good quality.
	.724	(40) The car in this advertisement is stylish and beautiful.
	.699	(41) The car in this advertisement has many desirable options.
	.808	(42) The car in this advertisement is worth learning more about.
Purchase Intentions ⁷	.897	(43) I am interested in test driving the car in this advertisement.
	.881	(44) I am interested in purchasing the car in this advertisement.

Notes.

1. All Items Are 7-Point Likert Scales.
2. K-M-O Test of Sampling Adequacy = .865; Bartlett's Sphericity Test = <.001; Eigenvalue = 5.657; Cumulative % = 35.355.
3. K-M-O Test of Sampling Adequacy = .825; Bartlett's Sphericity Test = <.001; Eigenvalue = 2.863; Cumulative % = 57.257.
4. K-M-O Test of Sampling Adequacy = .847; Bartlett's Sphericity Test = <.001; Eigenvalue = 3.661; Cumulative % = 36.608.
5. K-M-O Test of Sampling Adequacy = .912; Bartlett's Sphericity Test = <.001; Eigenvalue = 4.841; Cumulative % = 48.407.
6. K-M-O Test of Sampling Adequacy = .700; Bartlett's Sphericity Test = <.001; Eigenvalue = 2.668; Cumulative % = 29.642.
7. K-M-O Test of Sampling Adequacy = .707; Bartlett's Sphericity Test = <.001; Eigenvalue = 2.358; Cumulative % = 58.962.

TABLE 2:
Coefficient Alpha Reliability Statistics

Multi-Item Scale	Cronbach's Alpha	Item Number	Mean	Standard Deviation	Corrected Item-Total Correlation	Cronbach's Alpha if Item is Deleted
Involvement With Automobiles	.870 ₁	1	6.55	.891	.452	.866
		2	5.71	1.738	.416	.870
		3	6.11	1.091	.545	.862
		4	5.34	1.490	.508	.863
		5	5.24	1.370	.514	.863
		6	5.88	1.460	.637	.856
		7	5.74	1.312	.523	.862
		8	5.71	1.319	.631	.857
		9	5.60	1.220	.652	.857
		10	5.90	1.239	.671	.856
		11	6.35	1.179	.585	.860
		12	6.37	1.278	.446	.866
		13	6.15	1.318	.576	.860
		14	5.20	1.720	.393	.871
Pollution Concern	.799 ₂	15	5.16	1.505	.397	.869
		16	5.59	1.360	.678	.738
		17	5.55	1.362	.624	.753
		18	3.56	1.865	.487	.799
		19	4.74	1.693	.629	.745
		20	4.38	1.702	.551	.772
Attitude Toward the Advertisement	.808 ₃	21	6.21	1.299	.359	.805
		22	5.68	1.369	.548	.784
		23	5.60	1.553	.431	.798
		24	5.36	1.677	.600	.775
		25	5.32	1.329	.573	.781
		26	4.76	1.677	.546	.783
		27	5.43	1.501	.534	.785
		28	4.39	1.644	.435	.798
		29	5.28	1.514	.506	.788
Attitude Toward the Brand	.881 ₄	30	5.42	1.259	.642	.866
		31	5.08	1.519	.536	.877
		32	4.45	1.697	.492	.884
		33	5.38	1.186	.745	.859
		34	5.50	1.295	.733	.858
		35	5.53	1.164	.756	.858
		36	5.58	1.281	.595	.870
		37	5.20	1.282	.671	.864
		38	5.37	1.234	.580	.871
Brand Beliefs	.744 ₅	39	5.30	1.119	.562	.671
		40	4.69	1.354	.626	.596
		41	5.41	1.135	.537	.697
Purchase Intentions	.842 ₆	42	4.69	1.505	.627	.854
		43	3.90	1.759	.776	.713
		44	3.09	1.595	.733	.756

Notes.

1. Cronbach's Alpha Based on Standardized Items = .878.
2. Cronbach's Alpha Based on Standardized Items = .811.
3. Cronbach's Alpha Based on Standardized Items = .809.
4. Cronbach's Alpha Based on Standardized Items = .889.
5. Cronbach's Alpha Based on Standardized Items = .745.
6. Cronbach's Alpha Based on Standardized Items = .842.

constructs such as environmental tendencies may not directly influence brand purchase intentions but moderate them instead (i.e., act as covariates). Research on the persuasive power of advertising claims has long demonstrated the influence that a variety of moderating variables can exert on consumer decision making (e.g., Ha & Hoch, 1989). Specifically, we include these two covariates to improve the statistical power of our multivariate tests. A complete description of the items used to capture data in our study is presented in Table 1 along with principle component factor analysis results for each multi-item scale. A complete description of the corresponding coefficient alpha statistics for all multi-item scales is presented in Table 2.

The questionnaire used in our study was administered with written permission from mall management through two mall intercept surveys in two different counties, both in the geographical target market of the featured dealership as verified by dealership management. Respondents were randomly approached in each mall by a trained data gatherer, who was also an Honors student with a Marketing major working on this project for credit in an Honors independent study at a regional AACSB-International accredited university. Upon approach, each person was asked if he or she was willing to take five-to-ten minutes and fill out the paper-and-pencil questionnaire on a clipboard for a \$2.00 cash incentive paid immediately upon completion. Only adults appearing to be over the age of 18 were approached for recruitment, and this was the only pre-screening question used (i.e., "Are you at least 18 years old?"). However, the interviewer was instructed to attempt to maintain a balance between male and female participants. A chart the student had to submit for a grade was designed to ensure that data was gathered across the entire week from morning, midday, and evening hours in both malls. Ownership of the featured brands and prior experience with the dealership were measured on the survey instrument. A between-subjects design was employed, where each respondent was exposed to only one of the eight

total treatments that were embedded in the questionnaire packets at the appropriate point after the introduction page and prior to the dependent measures.

This effort took approximately four-to-five weeks and ultimately produced a useable sample of 280 adult consumers for analysis (35 per cell in the 2x2x2 treatment design). For the main effect tested, each category contains an independent sample of 140 consumers. A complete demographic profile is provided in Table 3. The sample profiled consistently with census data for the two counties involved. A lack of significant differences for brand ownership, dealership familiarity, and demographics across the eight treatments suggests that personal characteristics for the sample segments do not account for differences in hierarchy of effects responses. Nonparametric statistical tests of frequency distributions (Kruskal-Wallis) for demographic differences across our treatments resulted in the following significance levels: Marital Status = .812; Income = .607; Gender = .943; Age = .757; Education = .214; Race/Ethnicity = .630; and Occupation = .074. Two ownership questions were also included, "Do you drive a Honda?" and "Do you drive a hybrid car?" Neither were significantly different across the eight treatments, with significance levels at .745 and .325 respectively. Finally, a cross-treatment significance level produced by the Kruskal-Wallis test that was specifically related to whether each respondent had ever leased or purchased a car from the featured dealership was .064.

RESULTS

An initial Multivariate Analysis of Variance (MANOVA) test was run which treats four hierarchy of effects multi-item measures as dependent variables and measures the impact of the three main effects in our treatment newspaper advertisements on that purchase hierarchy: (1) Attitude toward the Advertisement; (2) Attitude toward the Brand; (3) Brand Beliefs, and (4) Purchase Intentions. A Pearson Correlation matrix is included in

TABLE 3:
Sample Demographic Profile

Label	Category Description	Frequency	%
Household Income	(1) Under \$19,999	38	13.6
	(2) \$20-29,999	24	8.6
	(3) \$30-39,999	26	9.3
	(4) \$40-49,999	33	11.8
	(5) \$50-59,999	52	18.6
	(6) \$60-69,999	43	15.4
	(7) Over \$70,000	64	22.9
Gender	(1) Male	136	48.6
	(2) Female	144	51.4
Age	(1) Under 25 Years	99	35.4
	(2) 25-34 Years	52	18.6
	(3) 35-44 Years	44	15.7
	(4) 45-54 Years	48	17.1
	(5) 55-64 Years	28	10.0
	(6) 65-74 Years	5	1.8
	(7) Over 74 Years	4	1.4
Education	(1) Less Than High School	8	2.9
	(2) High School	97	34.6
	(3) Some College	100	35.7
	(4) Undergraduate	60	21.4
	(5) Graduate	15	5.4
Race	(1) African American	4	1.4
	(2) Asian	2	.7
	(3) Caucasian	271	96.8
	(4) Hispanic	1	.4
	(5) Native American	2	.7
Head of Household Occupation	(1) Executive/Management	44	15.7
	(2) Professional	53	18.9
	(3) Marketing/Sales	22	7.9
	(4) Secretary/Clerical	14	5.0
	(5) Agriculture/Forestry/Fishing	13	4.6
	(6) Construction	19	6.8
	(7) Manufacturing	12	4.3
	(8) Transportation	4	1.4
	(9) Laborer	22	7.9
	(10) Other	33	11.8
	(11) Retired	16	5.7
	(12) Student	28	10.0

Table 4, which helps illustrate that the assumptions for effectively conducting a MANOVA are satisfied. Eighty percent of the fifteen possible correlations among the four dependent constructs and two moderating variables are significant, 67 percent at the .01 level and 13 percent at the .05 level. The pattern of correlations lends face validity to the

research design: product involvement and pollution concern are not correlated with each other, but each moderator is correlated with three of the four dependent measures. All four of the dependent constructs are correlated with one another at the .01 level of significance. In addition, Bartlett's Test of Sphericity is significant at the <.001 level, indicating that the

TABLE 4:
Pearson Correlations for Dependent and Covariate Measures

	Product Involvement (INV)	Pollution Concern (PC)	Attitude Toward the Advertisement (Aad)	Attitude Toward the Brand (Ab)	Brand Beliefs (Bblf)	Purchase Intentions (PI)
INV	Coef. = 1.00 Sig. = NA	Coef. = -.003 Sig. = .985	Coef. = .291** Sig. = <.001	Coef. = .296** Sig. = <.001	Coef. = .153* Sig. = .011	Coef. = .085 Sig. = .155
PC		Coef. = 1.00 Sig. = NA	Coef. = .144* Sig. = .016	Coef. = .170** Sig. = .004	Coef. = .097 Sig. = .106	Coef. = .287** Sig. = <.001
Aad			Coef. = 1.00 Sig. = NA	Coef. = .646** Sig. = <.001	Coef. = .354** Sig. = <.001	Coef. = .208** Sig. = <.001
Ab				Coef. = 1.00 Sig. = NA	Coef. = .575** Sig. = <.001	Coef. = .402** Sig. = <.001
Bblf					Coef. = 1.00 Sig. = NA	Coef. = .464** Sig. = <.001
PI						Coef. = 1.00 Sig. = NA

Notes.

* Correlation is significant at the .05 level (2-tailed).

** Correlation is significant at the .01 level (2-tailed).

TABLE 5:
Multivariate Analysis of Variance (MANOVA) Multivariate Tests ₁

Main Effect	Test	Value	F	Hypoth. df	Error df	Sig. of F	Observed Power
Honda Accord vs. Honda Civic Model	Pillai's Trace Wilks' Lambda Hotelling's Trace Roy's Largest Root	.030 .970 .030 .030	2.091 2.091 2.091 2.091	4.000 4.000 4.000 4.000	275.000 275.000 275.000 275.000	.082 .082 .082 .082	.618 .618 .618 .618
Hybrid vs. Conventional (EX) Engine	Pillai's Trace Wilks' Lambda Hotelling's Trace Roy's Largest Root	.013 .987 .013 .013	.901 .901 .901 .901	4.000 4.000 4.000 4.000	275.000 275.000 275.000 275.000	.464 .464 .464 .464	.285 .285 .285 .285
Great Performance vs. Environmentally Friendly Claim	Pillai's Trace Wilks' Lambda Hotelling's Trace Roy's Largest Root	.043 .957 .045 .045	3.091 3.091 3.091 3.091	4.000 4.000 4.000 4.000	275.000 275.000 275.000 275.000	.016 .016 .016 .016	.808 .808 .808 .808

Note.

1. Comparison of Three Main Effects by Treatment.

dependent measures are significantly correlated as required to proceed with the MANOVA.

Multivariate statistics for the tests we ran to detect any differences for each of the three main effects previously discussed are presented in Table 5, and the univariate statistics for the single significant main effect (i.e., the Environmentally Friendly versus Great Performance claim) are included in Table 6. To remind the reader (see Exhibit A), test ads 1-4

are recoded to construct the Great Performance sample (N = 140), and versions 5-8 are recoded to form the Environmentally Friendly group (N = 140). The reader should also note that this first quantitative test does not include the covariates. As Hair et al. (2010, p.374) explain:

The most important role of the covariate (s) is the overall impact in the statistical tests for the treatments. The most direct approach to evaluating these impacts is to run the analysis *with and without the*

TABLE 6:
Multivariate Analysis of Variance (MANOVA) Univariate Tests ¹

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig. of F	Observed Power
Corrected Model	Ad Attitude	4.409E-5	1	4.409E-5	.000	.994	.050
	Brand Attitude	.852	1	.852	.936	.334	.161
	Brand Beliefs	.486	1	.486	.503	.479	.109
	Purchase Intentions	10.673	1	10.673	5.413	.021	.640
Treatment Newspaper Advertisements	Ad Attitude	4.409E-5	1	4.409E-5	.000	.994	.050
	Brand Attitude	.852	1	.852	.936	.334	.161
	Brand Beliefs	.486	1	.486	.503	.479	.109
	Purchase Intentions	10.673	1	10.673	5.413	.021	.640

Note.

1. Great Performance vs. Environmentally Friendly Main Effect.

covariates [emphasis added]. Effective covariates will improve the statistical power of the tests...

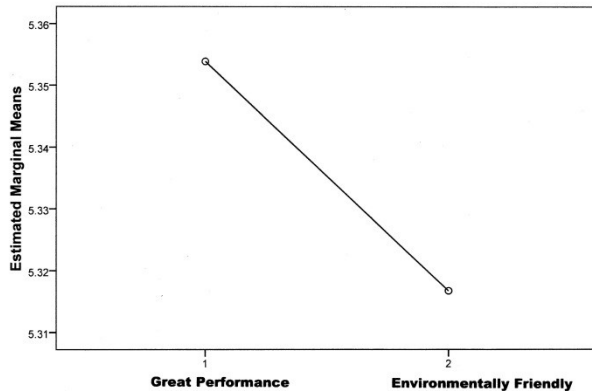
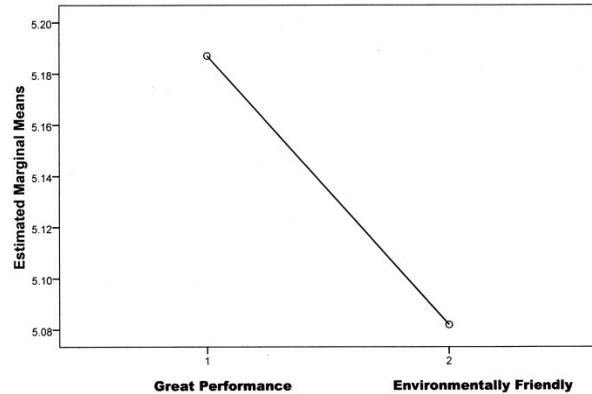
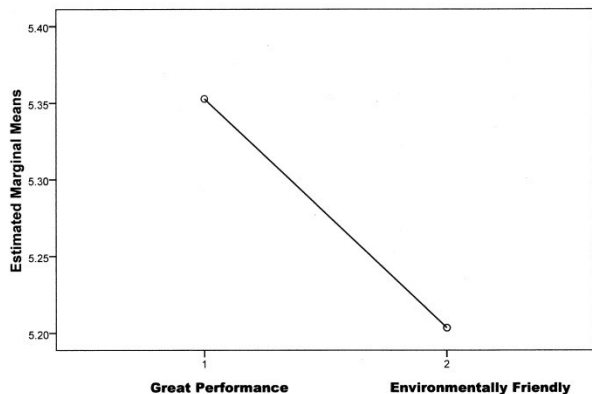
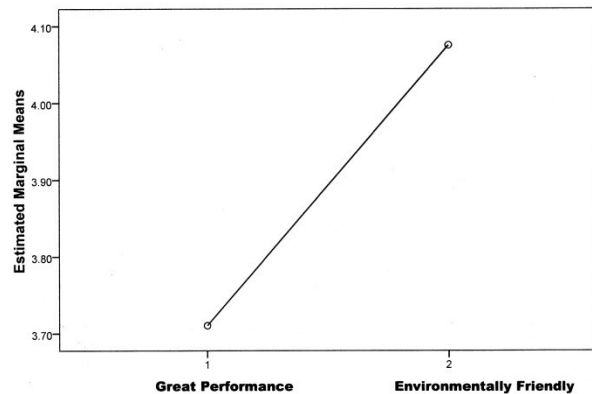
We employ that methodology in our subsequent analysis as detailed in a following section.

Two tests for the assumption of homoscedasticity across the two treatment categories of primary interest here were conducted: Box's Test of Equality of Covariance Matrices (Box's M) and Levene's Test of Equality of Error Variances. Levene's test assesses this assumption at the Univariate level whereas Box's M tests the assumption at the Multivariate level (i.e., the vector score formed from all four dependent measures combined). For this assumption to be met, non-significant results are necessary in both tests. The Box's M results are as follows: Box's M = 12.636; F = 1.244; Sig. = .257. Therefore, no significant difference across the Great Performance versus Environmentally Friendly treatment groups for the variance-covariance matrices is indicated at the Multivariate level. At the Univariate level, Levene's test produced the following significance levels: Aad = .247; Ab = .566; Bblf = .018, and PI = .567. Given the presence of homoscedasticity for three of the four dependent measures and the overall lack of heteroscedasticity detected at the Multivariate level, no corrective remedies are necessary for our Brand Beliefs variable (see

guidelines furnished by Hair et al. 2010 discussed on page 391).

According to Hair et al. (2010, p.375), "One of the most important considerations in a successful MANOVA is the statistical power of the analysis." The desired level of observed power is .80, which is achieved for the claim main effect at the Multivariate level (see Table 5) but is not achieved in this initial run for the corrected model at the Univariate level (see Table 6). As a result, we subsequently include the two covariates previously discussed to an otherwise identical second Multivariate Analysis of Covariance (MANCOVA) test to determine if the observed power improves prior to evaluating H_1 - H_4 . The Multivariate results for our MANCOVA are displayed in Table 7, with corresponding Univariate results in Table 8. The multivariate test demonstrates that both covariates produce significant impacts on the hierarchy of effects variables at the .05 significance level, as do the test advertisements. Observed power levels for the covariates (.999 and .997) are excellent, plus the observed power for the treatment effect improves from .808 to .833. At the Univariate level, three of four observed power levels for the dependent constructs improve to outstanding levels (Aad = .999; Ab = 1.000, and PI = .999) as reported in Table 8 for the corrected model. The marginal .762 value for Brand Beliefs is very close to the desired .80 and far improved over the .109 value presented with the original

EXHIBIT B:
Adjusted Mean Plots for the Great Performance vs. Environmentally Friendly Main Effect

Attitude Toward the Advertisement*Brand Beliefs**Attitude Toward the Brand**Purchase Intentions*

MANOVA results in Table 6. Considering the fact that all four dependent measures exhibited unacceptable observed power results in the initial MANOVA run, we determine that inclusion of this pair of covariates was not only statistically successful but also necessary to have reasonable confidence in our results.

Evaluation of Hypotheses H₁-H₄

The Significance of $F = .012$ levels for all four Multivariate tests of treatment effects exhibited in Table 7 allow us to proceed to the Univariate tests for each of the four dependent measures displayed in Table 8. The brace of mean scores related to these statistical tests are included in Table 9 and visually displayed in Exhibit B. These are the statistics needed to evaluate our

hypotheses. Although H₁, H₂, and H₃ visually appear to be supported by these means, no statistically significant differences were actually produced by the two advertising claims for our Aad (H₁), Ab (H₂), and Bblf (H₃) dependent measures.

Contrary to what the involvement literature suggests, the single univariate source for a significant difference in consumer responses to the two claims is for purchase intentions, and that is in the opposite direction as hypothesized. The Environmentally Friendly claim resulted in enhanced purchase intentions compared to the Great Performance claim, so H₄ is not directly supported in the direction stated. However, in contrast to the lack of significant differences in either direction for H₁, H₂, and H₃, the

TABLE 7:
Multivariate Analysis of Covariance (MANCOVA) Multivariate Tests ₁

Effect	Test	Value	F	Hypoth. df	Error df	Sig. of F	Observed Power
Automobile Involvement	Pillai's Trace	.111	8.486	4.000	273.000	<.001	.999
	Wilks' Lambda	.889	8.486	4.000	273.000	<.001	.999
	Hotelling's Trace	.124	8.486	4.000	273.000	<.001	.999
	Roy's Largest Root	.124	8.486	4.000	273.000	<.001	.999
Pollution Concern	Pillai's Trace	.100	7.548	4.000	273.000	<.001	.997
	Wilks' Lambda	.900	7.548	4.000	273.000	<.001	.997
	Hotelling's Trace	.111	7.548	4.000	273.000	<.001	.997
	Roy's Largest Root	.111	7.548	4.000	273.000	<.001	.997
Treatments	Pillai's Trace	.046	3.278	4.000	273.000	.012	.833
	Wilks' Lambda	.954	3.278	4.000	273.000	.012	.833
	Hotelling's Trace	.048	3.278	4.000	273.000	.012	.833
	Roy's Largest Root	.048	3.278	4.000	273.000	.012	.833

Note. 1. Great Performance vs. Environmentally Friendly Main Effect.

TABLE 8:
Multivariate Analysis of Covariance (MANCOVA) Univariate Tests ₁

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig. of F	Observed Power
Corrected Model	Ad Attitude	26.670	3	8.890	10.893	<.001	.999
	Brand Attitude	31.094	3	10.365	12.840	<.001	1.000
	Brand Beliefs	9.558	3	3.186	3.389	.019	.762
	Purchase Intentions	59.499	3	19.833	10.964	<.001	.999
Automobile Involvement	Ad Attitude	21.428	1	21.428	26.256	<.001	.999
	Brand Attitude	22.829	1	22.829	28.282	<.001	1.000
	Brand Beliefs	6.511	1	6.511	6.925	.009	.746
	Purchase Intentions	3.448	1	3.448	1.906	.169	.280
Pollution Concern	Ad Attitude	5.320	1	5.320	6.518	.011	.720
	Brand Attitude	7.508	1	7.508	9.302	.003	.860
	Brand Beliefs	2.591	1	2.591	2.756	.098	.380
	Purchase Intentions	45.469	1	45.469	25.135	<.001	.999
Treatment	Ad Attitude	.093	1	.093	.114	.736	.063
Newspaper	Brand Attitude	1.528	1	1.528	1.893	.170	.278
Advertisements	Brand Beliefs	.751	1	.751	.799	.372	.145
	Purchase Intentions	9.247	1	9.247	5.112	.025	.615

Note. 1. Great Performance vs. Environmentally Friendly Main Effect.

TABLE 9:
Adjusted Mean Scores ₁

Dependent Variable	Category	Mean ₂	Standard Error	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Ad Attitude	1 - Great Performance	5.354	.076	5.203	5.504
	2 - Environmentally Friendly	5.317	.076	5.167	5.467
Brand Attitude	1 - Great Performance	5.352	.076	5.203	5.502
	2 - Environmentally Friendly	5.204	.076	5.055	5.354
Brand Beliefs	1 - Great Performance	5.186	.082	5.025	5.348
	2 - Environmentally Friendly	5.083	.082	4.921	5.244
Purchase Intentions	1 - Great Performance	3.711	.114	3.487	3.935
	2 - Environmentally Friendly	4.075	.114	3.851	4.299

Notes. 1. Great Performance vs. Environmentally Friendly Main Effect. 2. Covariates in the model are evaluated at the following values: Automobile Involvement = 5.8024; Pollution Concern = 4.7650.

alternative to our research hypothesis H4 is confirmed. This fact is particularly interesting given the lack of impact on dependent measures the hybrid engine exerted on our survey participants. One might reasonably anticipate that consumers driven more by an environmental advertising claim would also prefer a hybrid automobile since they are frequently marketed as a better alternative for the ecological environment. However, the fact that hybrid technology can be used to enhance power and performance instead of significantly reducing energy consumption through better fuel economy (*AutoWeek*, 2005; *BusinessWeek*, 2005; Truett, 2006) could explain this lack of variance in the data. We believe that the direct impact pollution concern exerts on purchase intentions compared to involvement could also explain to a large degree why the Environmentally Friendly advertising claim produces the higher purchase intention mean among respondents.

CONCLUSION

Contrary to the lack of significant results reported in many green marketing studies, we find that Environmentally Friendly claims in advertising can have a significant and positive impact on purchase decisions. Perhaps the importance of this issue has become salient enough in the contemporary consumer decision making process to rival the importance of product performance for high involvement products. Future research will need to be designed to specifically answer that question. Although not predicted by the involvement literature, given similar results reported in a limited number of studies that are also directly related to environmentally friendly claims in advertising (e.g., Montoro-Rios, Luque-Martinez, & Rodriguez-Molina, 2008; Schuhwerk & Lefkoff-Hagius, 1995), we believe our results are credible. The measures we take to ensure validity, reliability, and statistical power give us confidence that our results are more than just a sample-specific phenomenon. Our study clearly demonstrates the moderating effects exerted by consumer

involvement and a consumer's concern about air pollution for the product category studied. Prior to the inclusion of covariates, results of tests for treatment effects are essentially the same as for the MANCOVA. However, the observed power for preliminary univariate tests is uniformly unacceptable based on standard guidelines. When covariates are empirically considered, the power of our significance tests is significantly improved. As a result, the reader can be more confident that our study has added to the literature in a valid and reliable manner.

Limitations and Direction for Future Research

We believe this analysis has face validity. The two moderators influenced consumer decision making as expected. For example, concern about pollution affected attitude toward the advertisement and the featured brand plus impacted purchase intentions, but did not have an impact on brand beliefs. Concern about pollution should influence how a consumer *feels* about advertising content, but really should not impact the facts known about a specific brand. However, the specific nature of the product category, featured brands, and geographical market limits generalizability. Future research should analyze more product categories for national and global markets. Finally, other moderators such as materialism (Richins & Dawson, 1992) and/or consumer orientation toward innovativeness (Leavitt & Walton 1975) could feasibly impact green marketing consumer decision-making and should be analyzed.

REFERENCES

- Antil, J.A. (1985). Socially Responsible Consumer: Profile and Implications for Public Policy. *Journal of Macromarketing*, Fall, 18-39.
- AutoWeek* (2005). Drivers Log. 55(9), 9.
- BusinessWeek* (2005). Personal Business - Cars: Honda Accord. (April 25), 124.

- Costley, C.L. (1988). Meta-Analysis of Involvement Research. *Advances in Consumer Research*, 15(1), 554-562.
- Fay, M. (2006). Cyclical Patterns in the Content of Advertisements: Replication, Confirmation, Extension and Revision. *European Journal of Marketing*, 40(1/2), 198-217.
- Ha, Y.W. & Hoch, S.J. (1989). Ambiguity, Processing Strategy, and Advertising-Evidence Interactions. *Journal of Consumer Research*, 16(3), 354-360.
- Hair, Joseph F., Jr., William C. Black, Barry J. Babin, Rolph E. Anderson (2010), *Multivariate Data Analysis (7th Edition)*, Prentice Hall: New Jersey.
- Hanas, J. (2007). A World Gone Green. *Advertising Age*, 78(24), S1-S11.
- Hartmann, P. & Apaolaza-Ibanez, V. (2009). Green Advertising Revisited: Conditioning Virtual Nature Experiences. *International Journal of Advertising*, 28(4), 715-739.
- Homer, P.M. (1990). The Mediating Role of Attitude Toward the Ad: Some Additional Evidence. *Journal of Marketing Research*, 27 (February), 78-86.
- Janssen, M.A. & Jager, W. (2002). Stimulating Diffusion of Green Products. *Journal of Evolutionary Economics*, 12(3), 283-306.
- Kassarjian, H.H. (1971). Incorporating Ecology into Marketing Strategy: The Case of Air Pollution. *Journal of Marketing*, 35(3), 61-65.
- Kilbourne, W.E. & Beckmann, S.C. (1998). Review and Critical Assessment of Research on Marketing and the Environment. *Journal of Marketing Management*, 14 (6): 513-532.
- Kinney, T.C. & Taylor, J.R. (1973). The Effect of Ecological Concern on Brand Perceptions. *Journal of Marketing Research*, 10(2), 191-197.
- _____, _____, & Ahmed, S.A. (1974). Ecologically Concerned Consumers: Who Are They? *Journal of Marketing*, 38(2), 20-24.
- Korgaonkar, P.K. & Moschis, G.P. (1982). An Experimental Study of Cognitive Dissonance, Product Involvement, Expectations, Performance and Consumer Judgement of Product Performance. *Journal of Advertising*, 11(3), 32-44.
- Laroche, M., Bergeron, J. & Barbaro-Forleo, G. (2001). Targeting Consumers who are Willing to Pay More for Environmentally Friendly Products. *Journal of Consumer Marketing*, 18(6), 503-520.
- Lavidge, R.J. & Steiner, G.A. (1961). A Model for Predictive Measurements of Advertising Effectiveness. *Journal of Marketing*, 25(6), 59-62.
- Leavitt, C. & Walton, J. (1975). Development of a Scale for Innovativeness. *Advances in Consumer Research*, 2(1): 545-554.
- MacKenzie, S.B., Lutz, R.J. & Belch, G.E. (1986). The Role of Attitude Toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations. *Journal of Marketing Research*, 23(May), 130-143.
- Marketing News* (2008). Cover Story: Going Green. 42(2), 14-19.
- McIlroy, M., Bush, M., Parekh, R., Frazier, M. & Mullman, J. (2008). How Agencies Are Helping Their Clients Help the Environment. *Advertising Age*, 79(23), S4-S10.
- Miniard, P.W., Dickson, P.R. & Lord, K.R. (1988). Some Central and Peripheral Thoughts on the Routes to Persuasion. *Advances in Consumer Research*, 15(1), 204-208.
- _____, Bhatla, S. & Rose, R.L. (1990). On the Formation and Relationship of Ad and Brand Attitudes: An Experimental and Causal Analysis. *Journal of Marketing Research*, 27 (August): 290-303.
- Montoro-Rios, F.J., Luque-Martinez, T. & Rodriguez-Molina, M.A. (2008). How Green Should You Be: Can Environmental Associations Enhance Brand Performance? *Journal of Advertising Research*, 48(4), 547-563.

- Neese, W.T. (2004). Brand vs. Dealership Purchase Intentions: The Role of Product Involvement and Consumer Ethnocentrism in Consumer Decision Making at the Retail Level. *Journal of Business & Entrepreneurship*, 16(1): 87-102.
- _____ & Hult, G.T.M. (2002). Local Retail Segmentation Using the CETSCALE: A Test of Comparative Advertising Effectiveness in the Domestic versus Imported Luxury Sedan Market. *Journal of Promotion Management*, 8(2): 135-161.
- _____ & _____ (1996). Demographic Predictors of Country-of-Origin Tendencies: A Luxury Sedan Example. *Journal of Marketing Management*, 6(2): 47-59.
- _____ & Capella, L.M. (1997). An Analysis of the Independent Influences Hypothesis Across Involvement Environments: When Attitude Toward the Ad Predicts Purchase Intentions. *Journal of Promotion Management*, 4(1): 89-109.
- _____, Taylor, R.D. & Capella, L.M. (1997). Evaluating the Effectiveness of Comparative Advertising Using Product Involvement Segmentation. *Journal of Segmentation in Marketing*, 1(2): 53-70.
- _____ & Taylor, R.D. (1994). Verbal Strategies for Indirect Comparative Advertising. *Journal of Advertising Research*, 34(2): 56-69.
- Oliver, J.D. & Lee, S.H. (2010). Hybrid Car Purchase Intentions: A Cross-Cultural Analysis. *Journal of Consumer Marketing*, 27(2), 96-103.
- _____ & Rosen, D.E. (2010). Applying the Environmental Propensity Framework: A Segmented Approach to Hybrid Electric Vehicle Marketing Strategies. *Journal of Marketing Theory and Practice*, 18(4), 377-393.
- Orange, E. (2010). From Eco-Friendly to Eco-Intelligent. *Futurist*, 44(5), 28-32.
- Patterson, P.G. (1993). Expectations and Product Performance as Determinants of Satisfaction for a High-Involvement Purchase. *Psychology & Marketing*, 10(5), 449-465.
- Pepper, M., Jackson, T. & Uzzell, D. (2009). An Examination of the Values that Motivate Socially Conscious and Frugal Consumer Behaviours. *International Journal of Consumer Studies*, 33(2), 126-136.
- Petty, R.E., Cacioppo, J.T. & Schumann, D. (1983). Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement. *Journal of Consumer Research*, 10(September), 135-146.
- Ray, M.L. (1973). Marketing Communication and the Hierarchy of Effects. In *New Models for Mass Communications Research*, P. Clarke (Ed.), 147-176. Sage Publications: Beverly Hills, CA.
- _____ (1979). Involvement and Other Variables Mediating Communications Effects as Opposed to Explaining All Consumer Behavior. *Advances in Consumer Research*, 6(1), 197-199.
- Richins, M.L. & Dawson, S. (1992). A Consumer Values Orientation for Materialism and Its Measurement: Scale Development and Validation. *Journal of Consumer Research*, 19(3), 303-316.
- Schuhwerk, M.E. & Lefkoff-Hagius, R. (1995). Green or Non-Green? Does Type of Appeal Matter When Advertising a Green Product? *Journal of Advertising*, XXIV(2), 45-54.
- Schwartz, M. (2007). New Companies Sprout Up to Help Marketers Reach Green Businesses. *B To B*, 92(9), 1,43.
- Truett, R. (2006). Not Every Hybrid is a Hot Seller. *Automotive News*, 81(6230), 31.
- Vaughn, R. (1986). How Advertising Works: A Planning Model Revisited. *Journal of Advertising Research*, 26(1), 57-66.
- Werner, R.O. & Brown, R.C. (1993). Regulation of Product Characteristics. *Journal of Marketing*, 57(2), 110-111.
- Zaichkowsky, J.L. (1985). Measuring the Involvement Construct. *Journal of Consumer Research*, 12(December), 341-352.
- _____ (1987). The Emotional Aspect of Product Involvement. *Advances in Consumer Research*, 14(1), 32-35.
- Zinkhan, G.M. & Martin, C.R. (1982). The Attitudinal Implications of a New Brand's Name. *Advances in Consumer Research*, 9(1), 467-471.

& Fornell, C. (1989). A Test of the Learning Hierarchy in High- and Low-Involvement Situations. *Advances in Consumer Research*, 16(1), 152-159.