

Feeling ambivalent about going green: implications for green advertising processing.(Report)

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Public concerns about the environment keep increasing and going global. Polls in the United States, Europe, and East Asia all demonstrate a significant increase in environmental awareness throughout the 2000s (Eurobarometer 2008; Saad 2007; Xinhua News Agency 2008). Indeed, 2006 was designated the year of environmentalism (Hanas 2007). These enhanced concerns also lead to more green, proenvironmental products (Chen 2001), yet consumers are not necessarily displaying green buying behaviors (Hanas 2007). That is, most consumers share common concerns about environmental issues, but a lag persists between environmental concerns and green buying behaviors. This study argues that consumers may vary in their ambivalent attitudes toward green products and buying them, even if they are consistently concerned about the environment.

Ambivalent attitudes toward an object emerge when people sense simultaneous positive and negative evaluations (Scott 1968). Some consumers thus might have ambivalent attitudes toward buying green products because they maintain both positive and negative evaluations of such purchases. On the one hand, consumers like to buy green products because they do not harm the environment and consumers enjoy the emotional benefits of green purchasing behaviors (feeling proud). On the other hand, they may have doubts about buying green products because they suspect the products have inferior quality or cost more. Some of these doubts also may reflect individual differences, such as a sense of low perceived efficacy in changing the world (i.e., perceived consumer effectiveness) or skepticism toward green marketing in general. This study conducts a survey to explore the determinants of ambivalent attitudes toward buying green products, and investigates whether traditional measures of attitudes can capture consumers' ambivalent attitudes toward buying green products.

Ambivalent people respond differently to persuasive messages (e.g., Armitage and Conner 2000). If consumers have conflicting attitudes toward buying green products, they also may respond differently to ads that feature different green claims, including those that involve different levels of efforts and resources expended by advertisers. Specifically, high-effort claims that consumers perceive as exaggerated should induce greater levels of discomfort among ambivalent consumers, which prompts them to engage in motivated processing, such that they discount the believability of not only the ad, but also the green claims. As a result of such processing, their evaluations of the product should become more negative. The effects may not emerge

when green claims involve low or moderate levels of efforts though, because they should not elicit discomfort, even among ambivalent consumers. An experiment tests these predictions.

In turn, this paper adds to extant literature in three ways. First, it demonstrates that consumers' attitudes toward buying green products can be ambivalent; second, it identifies the factors that account for participants' ambivalence toward buying green products; and third, it proposes a model to explain how ambivalent attitudes toward buying green products may moderate the effectiveness of ads with green claims that involve different levels of effort by advertisers.

AMBIVALENT ATTITUDES

Attitudes refer to "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken 1993, p. 1). This view assumes that positive and negative evaluations are activated reciprocally and that the evaluation of an object can be captured by a bipolar system, ranging from very unfavorable to very favorable. However, some researchers (Kaplan 1972; Scott 1968) suggest that positive and negative evaluations can also be independent, and a continuous bipolar scale cannot distinguish those who feel equally positive and negative toward an object from those who feel neither positive nor negative toward it (Priester and Petty 2001). The former are "ambivalent," defined as the simultaneous presence of positive and negative evaluations of an object (Scott 1966), whereas the latter are "indifferent" (Kaplan 1972) or "neutral" (Cacioppo, Gardner, and Berntson 1997). In other words, to the degree that positive and negative evaluations of an attitude object are equal and extreme, people feel greater levels of ambivalence toward that object. In other cases, they may exhibit univalent attitudes, which imply the presence of predominantly positive or negative evaluations.

Many attitude theorists define attitude as an evaluative tendency (Olson and Zanna 1993), whose presence can be inferred from evaluative responses (Eagly and Chaiken 1993). According to Eagly and Chaiken's (1993) review, evaluative responses consist of three categories: cognition, affect, and behavior. Thoughts and ideas about an attitude object fall into the cognitive category of evaluative responses. Feelings and emotions people experience in reaction to an object represent the affective category, and intentions to act in response to an attitude object or behaviors in relation to an object constitute the behavioral category of evaluative responses. These characteristics also should apply to ambivalent attitudes.

Attitudes toward an object or a product comprise evaluations of different aspects of that object (Fishbein and Ajzen 1975; Nakanishi and Bettman 1974); the same ingredients appear in ambivalent attitudes. Therefore, a common cause of ambivalent attitudes is a positive evaluation of some aspect of an attitude object, but a negative evaluation of other aspects of the same object (Jonas, Diehl, and Bromer 1997; Priester and Petty 1996; van Harreveld et al. 2004).

DETERMINANTS OF AMBIVALENT ATTITUDES TOWARD BUYING GREEN

According to the definition of ambivalence, for people to feel ambivalent toward an object, they should have both positive and negative perceptions or evaluations of the attitude object. For example, in Ojala's (2008) study, ambivalent attitudes toward recycling include both positive perceptions, such as "recycling is meaningful," and negative perceptions, such as "recycling is a waste of time." Thus, ambivalence toward buying green products should be predicted by both positive and negative perceptions of green products.

An alternative view instead implies that even when people have positive and negative evaluations of an attitude object, their negative evaluations are more likely to account for attitude ambivalence than are their positive ones (Cacioppo, Gardner, and Berntson 1997). Cacioppo and colleagues refer to this phenomenon as the "asymmetries of ambivalence." They posit two sources of asymmetry. First, negative evaluations should be more associated with ambivalence than positive evaluations, because when only negative evaluations of an object get activated, they are accompanied by the activation of positive evaluations due to the positivity offset effect—that is, the tendency to feel positive toward an object about which there is no information. In contrast, activations of positive evaluations are not accompanied by automatic activations of negative evaluations. Second, negative evaluations are weighted more than positive evaluations. Ambivalence thus increases more with an increase in negative evaluations than with the same increase in positive evaluations.

This review suggests two possible explanations of why people feel ambivalent toward buying green products. First, they could possess both positive and negative perceptions of green products that account for their ambivalent attitudes. Second, their negative perceptions alone might predict ambivalent attitudes. For the test of these competing theories, this paper reviews prior literature to identify positive and negative factors that may underlie attitude ambivalence and can be categorized as product- and consumer-related factors.

Product-Related Determinants of Green Product Ambivalence

Perceived Higher Price

Consumers may perceive that green products are more expensive; researchers often ask consumers how much more they are willing to pay for a green product (e.g., Berger and Corbin 1992; Chan 1999; Lee and Holden 1999). Public opinion surveys in the United States show that 82 % of respondents express a willingness to pay at least 5% more for green products (Levin 1990). Research among Chinese respondents indicates they are willing to pay 4.5% more for a green version of the same product (Chan 1999). If the price premium did not concern people, the survey question such as how much more people are willing to pay for a green product would not be meaningful. Therefore, price perceptions should account for some variance in consumers' ambivalence toward buying green products.

Perceived Lower Quality

Consumers may believe green products suffer from lower quality. For example, to measure green buying intentions, Shrum, McCarty, and Lowrey (1995) use the item "I would switch from my usual brands and buy

environmentally safe cleaning products, even if I have to give up some cleaning effectiveness." The assumption implies that green products are associated with poorer performance or quality. To the degree that consumers believe green products suffer from poor quality, they should feel more ambivalent toward buying them.

Perceived Green Product Utility

There are many ways to reduce pollution in the environment. For example, people can take public transportation, recycle, purchase energy-saving appliances, or buy environmentally safe products. Different consumers may hold different beliefs regarding how effective green products are in reducing threats to the environment.

Consumer-Related Determinants of Green Product Ambivalence

Perceived Consumer Effectiveness

Perceived consumer effectiveness (PCE), first introduced by Kinnear, Taylor, and Ahmed (1974), refers to the degree to which consumers believe that their personal actions can benefit the environment. Subsequent studies show that PCE is a significant predictor of a variety of ecologically conscious and proenvironmental consumer behaviors, such as using biodegradable and energy-saving products and engaging in recycling (Lee and Holden 1999). It is also a significant predictor of green buying behaviors, including the purchase of sustainable products (Vermeir and Verbeke 2006), organic food (Verhoef 2005), and green products (Kim and Choi 2005). Consumers who have low PCE therefore should have more ambivalent attitudes toward buying green products, because they do not believe they are able to make a difference.

Skepticism Toward Green Marketing

Consumers might not find proenvironmental claims believable (Chase and Smith 1992), or might distrust advertising and proenvironmental claims (Schwartz and Miller 1991). It is difficult for many consumers to assess whether a product is as proenvironmental as advertisers claim it to be. Green claims are often exaggerated or misleading, and skepticism toward green claims in marketing communications is a global phenomenon (e.g., Chan 2001; Mohr, Eroglu, and Ellen 1998). The degree to which consumers feel skeptical toward green claims should make them more ambivalent toward buying green products.

Perceived Emotional Benefits

In addition to beliefs or cognition, consumers are emotionally involved with green behaviors (Chan 1999). Consumers associate negative affect with not protecting the environment, which enhances attitudes toward green purchase and intentions to pay more for environmentally safe products (Chan 2001; Lee and Holden 1996). Hartmann and Ibanez (2006) have also identified the emotional benefits of green purchasing behaviors; people feel good about themselves when they pay more for green products.

These product-related and consumer-related factors pertain to either positive or negative aspects of green products or the purchase of green products. This paper tests two competing possibilities: a traditional view, which indicates that positive and negative perceptions of green products together account for ambivalent attitudes, versus an asymmetry of ambivalence view, which suggests that negative perceptions alone predict ambivalent attitudes.

RQ: Of these factors, which predicts attitude ambivalence toward (1) green products, and (2) the purchase of green products?

SURVEY

Participants and Procedures

College students from a university in the Midwest participated in this survey for extra credit. Among the sample ($n = 100$), 48% were men, and their age varied from 19 to 28 years, with a mean age of 21.64 years.

Participants first rated their attitudes toward green products and buying green products, and then rated their ambivalence toward green products and buying green products. Next they completed the scales for perceived higher price of green products, perceived lower quality of green products, perceived green product utility, perceived consumer effectiveness, skepticism toward green marketing, perceived emotional benefits, and concern about the environment.

Measures

Ambivalence Toward Green Products and Buying Green Products

Priester and Petty (2001) suggest two ways to infer the presence of ambivalent attitudes. The first, an objective measurement approach, asks people to provide separate ratings of their positive and negative reactions toward a target. A second approach uses subjective measures, such that people rate their subjective feelings or the extent of conflict they experience in response to an attitude object (e.g., Sparks, Hedderley, and Shepherd 1992; Tourangeau et al. 1989). Both measurement approaches achieve predictive validity as ambivalence indicators (Bargh et al. 1992). The survey for this study adopts the second approach. Participants rated their ambivalence on seven-point Likert scales, using Priester, Petty, and Park's (2007) and Newby-Clark, McGregor, and Zanna's (2002) items (with the blank completed by "green products" or "buying green products," as appropriate): "I have strong mixed emotions both for and against --," "I find myself feeling torn between the positive and negative sides of --," "I feel conflict when thinking about --," "I feel indecisive about --," and "I feel ambivalent toward --" (Cronbach's $[\alpha] = .90$ for green products, $.92$ for buying green products). Twenty percent of the participants noted an average agreement rating greater than 4, which indicates that they feel ambivalent toward buying green products.

Perceived Higher Price

A three-item scale was created for the survey: "green products are expensive," "green products cost more than non-green products," and "green products are cheaper than non-green products" (R) (Cronbach's $[\alpha] = .79$). Responses to the first two items and reversed responses to the third item were averaged (this procedure also applies for the following scales).

Perceived Lower Quality

Another scale containing two items was created for this survey: "green products are of inferior quality" and "green products do not perform as well as non-green products" (Cronbach's $[\alpha] = .70$).

Perceived Green Product Utility

A three-item scale was created for this survey: "green products are good for the environment," "green products cannot help slow the deterioration of the environment" (R), and "green products can effectively reduce pollution" (Cronbach's $[\alpha] = .81$).

Perceived Consumer Effectiveness

This two-item scale comes from Ellen, Wiener, and Cobb-Walgren (1991): "there is not much that any one individual can do about the environment" and "the conservation efforts of one person are useless as long as other people refuse to conserve" (Cronbach's $[\alpha] = .72$).

Skepticism Toward Green Marketing

This scale, adopted from Mohr, Eroglu, and Ellen (1998), consists of four items: "most environmental claims made on package labels or in advertising are true" (R); "because environmental claims are exaggerated, consumers would be better off if such claims on package labels or in advertising were eliminated"; "most environmental claims on package labels or in advertising are intended to mislead rather than to inform consumers"; and "I do not believe most environmental claims made on package labels or in advertising" (Cronbach's $[\alpha] = .72$).

Perceived Emotional Benefits

Participants rated the following two items: "I feel proud when I buy/use green products" and "I feel less guilty when I buy/ use green products" (Cronbach's $[\alpha] = .90$).

Attitudes Toward Green Products and Buying Green Products

Participants rated their general attitudes toward green products using Miniard et al. 's (1991) three product attitude items (with the blank completed with "green products" or "buying green products"): "I like __," "I feel

positive toward ___, and" are favorable" (Cronbach's $[\alpha] = .92$ for green products, $.88$ for buying green products).

Concern About the Environment

To confirm ambivalent consumers are not necessarily unconcerned about the environment, the survey asked participants to respond to Schuhwerk and Lefkoff-Hagius's (1995) environmental concern scale: "I am concerned about the environment," "the condition of the environment affects the quality of my life," "I am willing to make sacrifices to protect the environment," and "my actions impact the environment" (Cronbach's $[\alpha] = .91$).

Results

Correlations between attitudes toward green products and ambivalent attitudes (Pearson's $r = -.14$, $p = .15$) and correlations between buying green products and ambivalent attitudes are not significant (Pearson's $r = .10$, $p = .31$), suggesting that bipolar attitude measures cannot capture the simultaneous presence of positive and negative evaluative responses to an attitude object.

The multiple regression analysis revealed that when ambivalent attitudes toward green products were regressed on the six predictors, skepticism, higher price, and lower quality were significant predictors (see Table 1). When ambivalent attitudes toward buying green products were the dependent variable, the multiple regression analysis found that skepticism and utility were both significant predictors. Consistently then, skepticism predicts ambivalent attitudes, whether the target is green products or buying green products.

In contrast, the results differ in the regression of attitudes toward

green products on the six predictors. Multiple regression analyses showed that being proud and utility (positive factors) and lower quality (a negative factor) emerged as significant predictors (see Table 1). When attitudes toward buying green products were the dependent variable, the multiple regression analysis revealed that being proud and utility (positive factors) and lower quality and higher price (negative factors) emerged as significant. The consistent finding, though different from that for ambivalent attitudes, is that being proud predicts attitudes, whether toward green products or buying green products.

Ambivalent attitudes toward green products/buying green products are not significantly correlated with concern for the environment (Pearson's $r = -.17$, $p = .09$; Pearson's $r = .03$, $p = .15$). In other words, ambivalent attitudes are not likely to be caused by concern for the environment.

Discussion

Traditional measure of attitudes cannot capture the simultaneous presence of positive and negative evaluative responses to a target, because scores of subjective and objective ambivalence are not significantly correlated with scores using the traditional attitude measures.

The results suggest that evaluations of negative aspects account for ambivalent attitudes toward green products, whereas evaluations of both positive and negative aspects relate to ambivalent attitudes toward buying green products. These results are congruent with Cacioppo, Gardner, and Berntson's (1997) view that negative evaluations alone can account for attitude ambivalence, whether positive evaluation is a significant predictor or not.

It is important to note that among all the predictors, skepticism emerged as a consistent predictor of ambivalent attitudes toward green products and buying green products. If negative evaluations such as skepticism toward green marketing relate strongly to ambivalent attitudes, they should be more accessible to ambivalent consumers, who in turn should respond differently to green advertising. The next experiment therefore explores whether ambivalence toward buying green products influences consumers' responses to green ads.

GREEN ADVERTISING

This study defines green advertising as advertising that claims the advertised products are environmentally friendly or that their production process conserves resources or energy. Green claims differ in their focus: recyclable packaging, biodegradable raw materials, or perhaps energy conservation achieved in the production process (Wagner and Hansen 2002). Manrai et al. (1997) suggest that green claims vary in their strength; they categorize 5 %, 15 %, and 69% pollution reduction claims as weak-, moderate-, and high-strength claims, respectively. In addition, it is likely that the effects of green claims vary according to the extent of effort that consumers perceive a company exerts to accomplish those claims. For example, recyclable packaging, biodegradable raw materials, and energy conservation in the production process involve different levels of effort and resources.

Early research suggests that ads with green claims were more effective in generating favorable brand attitudes than were ads without green claims (Mobley et al. 1995). Subsequent research has challenged this view, however, suggesting that green ad effectiveness varies as a function of claim types. For example, specific claims result in more favorable ad and brand attitudes than do vague claims (Davis 1993), and moderately strong claims generate more favorable brand attitudes than do low- or high-strength claims (Manrai et al. 1997). People discount the credibility of strong claims, and they similarly may discount the credibility of green claims when they indicate a great investment of resources or efforts by advertisers.

[FIGURE 1 OMITTED]

Individual differences clearly influence the effectiveness of green ads. For example, Schuhwerk and Lefkoff-Hagius (1995) find that when an ad uses green appeals, more involved participants generate relatively

greater purchase intentions and more favorable brand attitudes than do less involved participants. D'Souza (2005) also demonstrates that highly involved participants have more favorable attitudes toward green ads and rate them as more believable than do less involved participants. This study explores another important individual difference, namely, ambivalent attitudes toward buying green products in general. The deteriorated effects for claims that involve a great amount of effort may emerge especially among those who have ambivalent attitudes, rather than those with univalent attitudes, because their conflicting attitudes toward buying green products should make them more likely to engage in motivated processing.

THE MODEL: ATTITUDE AMBIVALENCE AND GREEN AD PERSUASION

This study proposes a model to explain why attitude ambivalence may moderate the effectiveness of green ads with claims that involve various levels of advertisers' efforts (see Figure 1). Specifically, high effort green claims should induce greater levels of discomfort among ambivalent participants, which encourages them to engage in motivated processing, defined as reasoning driven by motives (Kunda 1990). In other words, when ambivalent consumers are motivated to reduce their discomfort, they should distort ad messages to achieve that goal. Reasoning, such as discounting the believability of an ad and its green claims, might help in this effort, which would lead to more negative evaluations of the product.

Discomfort Triggered by Ambivalence

According to cognitive dissonance theory (Festinger 1957), people tend to prefer consistency in their thoughts, emotions, and attitudes. Similarly, feeling ambivalence suggests conflicting attitudes and therefore is associated with discomfort and aversion (Bell and Esses 2002; Hass et al. 1992; Nordgren, van Harreveld, and van der Pligt 2006). Ambivalence also elicits aversive feelings, such as discomfort, guilt, tenseness, and anxiety (Monteith 1996; Nordgren, van Harreveld, and van der Pligt 2006).

Discomfort triggered by ambivalence varies as a function of situational contexts. For example, Hass and colleagues (1992) reveal that ambivalent people feel greater levels of negative affect when a racial controversy is salient, and Nordgren, van Harreveld, and van der Pligt (2006) demonstrate that people sense increased discomfort when they cannot attribute their ambivalence to environmental factors. Similarly, the degree to which ambivalent participants experience discomfort may depend on the type of green claims presented. Attitude ambivalence should be associated with greater levels of discomfort when the ad features green claims that demand a great amount of advertiser efforts, because they can be exaggerated. In contrast, when the ad features green claims that can be accomplished with a lower level of efforts (i.e., low or moderate), attitude ambivalence should not predict discomfort.

Hypothesis 1: There is an interaction between ambivalence and green claims on discomfort. When the ad features high (but not moderate or low) effort green claims, attitude ambivalence is a positive predictor of discomfort.

Discomfort Reduction

People are motivated to reduce discomfort triggered by inconsistency (Johnson-Laird, Girotto, and Legrenzi 2004). Ambivalence literature also demonstrates that people are motivated to reduce the specific discomfort generated by ambivalent attitudes (Bell and Esses 2002), which could lead to message discounting. Nordgren, van Harreveld, and van der Pligt (2006) demonstrated that among consumers who had ambivalent attitudes caused by the prime of an article with mixed negative and positive information about genetically modified food, those who experienced more intense discomfort engaged in motivated processing by generating more one-sided thoughts. In other words, people develop different strategies to reduce their discomfort.

Discounting messages may provide a means to reduce the discomfort triggered by high-effort claims among ambivalent participants. Prior research reveals that when consumers find ads inappropriate, they are more likely to discount the believability of those messages. For example, consumers perceive ad messages as low in believability if they use undesirable persuasive tactics (Chang 2007; Jain and Posavac 2004). This study thus proposes that ambivalent participants, as opposed to univalent participants, should be more likely to discount the ad when ads feature high effort green claims rather than moderate or low effort green claims. In a similar vein, ambivalent participants, as opposed to univalent participants, should be more likely to discount green claims specifically when they see ads that feature green claims with high efforts expended rather than those featuring green claims involving moderate- or low-level efforts.

Hypothesis 2: There is an interaction effect between ambivalence and green claims on ad believability. When an ad features high (but not moderate or low) effort green claims, attitude ambivalence is a negative predictor of ad believability.

Hypothesis 3: There is an interaction effect between ambivalence and green claims on green claims' believability. When an ad features high (but not moderate or low) effort green claims, attitude ambivalence is a negative predictor of green claims' believability.

The assumption behind H1-H3 is that discomfort triggered by ambivalence mediates the process and leads to motivated processing and message discounting, as tested in H4:

Hypothesis 4: Discomfort mediates the influence of the interaction between claim strength and (a) ambivalence about ad believability and (b) ambivalence about green claims' believability.

Message Discounting Effects on Brand Attitudes

Greater ad message discounting leads to less favorable brand attitudes. For example, Jain and Posavac (2004) demonstrate that ad believability results in more favorable brand attitudes, and Chang (2009) reveals that the less believable participants rate an ad, the less favorable their attitudes toward the advertised brand will be.

Therefore, a significant interaction effect should exist between ambivalence and green claim type on brand attitudes.

Hypothesis 5: There is an interaction effect between ambivalence and green claims on brand attitudes. When an ad features high (but not moderate or low) effort green claims, attitude ambivalence is a negative predictor of brand attitudes.

EXPERIMENT

Design

The manipulated factor is green claim type, according to the three levels of effort expended to achieve the green claims (low, moderate, and high). Participants' ambivalence toward green products is the measured factor.

Participants and Procedures

The 90 participants in this study (48.9% men, average age 20.72 years) were students recruited from a university in the Pacific Rim, who were paid for their participation. These participants, who responded to recruitment ads, first answered a short survey online, in which they rated their ambivalence toward green products and their concern for the environment, and completed other filler scales. Assessing ambivalence at this stage helps reduce sensitivity to the purpose of the study; if participants rated their ambivalence toward green products immediately before rating the ad with green product claims, they might be more likely to guess the purpose of the research and respond in ways that anticipated the investigator's expectations. Including filler scales at this stage also helps reduce sensitivity to the ambivalence items.

Participants then enrolled for specific time slots and came to a research lab to complete the experiment. Upon their arrival, the ambivalent and univalent participants were randomly assigned to one of the three ad conditions (low, moderate, high). They read a filler wristwatch ad, followed by the stimulus ad. Next, they rated their discomfort levels and completed measures to assess their attitudes toward the brands featured in the ads, as well as ad and green claim believability. They then completed some manipulation and confound checks.

Stimuli

Shampoo, a product that is commonly used by college students, provides the target product. Prior research suggests that green claims tend to focus on the recyclable package, biodegradable materials, or energy conservation in the production process (Wagner and Hansen 2002), and a pretest ($n = 25$) revealed that the perceived efforts associated with these three types of green claims proceeded in this order, from low to high. Therefore, the weak green claim indicates recyclable packaging, the moderate claim features both recyclable packaging and biodegradable materials, and the strong green claim notes all three features.

Independent Variables

Claim Type

For the manipulation checks, participants rated three items: the effort a company exerts if it produces products with recyclable packaging, with biodegradable materials, and with energy-conserving factories. On five-point scales (1 = very low efforts to 5 = very high efforts), the means for the three items are, respectively, 1.80 (SD = .81), 2.72 (SD = 1.06), and 3.44 (SD = 1.28). Thus, ratings of the first item are significantly lower than those on the second item, $t(89) = 6.96$, $p < .01$, and the third item, $t(89) = 10.14$, $p < .01$, and the ratings for the second item are significantly lower than ratings for the third, $t(89) = 6.88$, $p < .01$.

Unsubstantiated information in green ads might reduce effectiveness (Banerjee, Gulas, and Iyer 1995), which means this factor may be a confound. Therefore, this study confirms that the three ads do not differ in their degree of substantive information by asking participants to rate, on a seven-point scale, two items: "the ad provides specific information regarding how to achieve its claims" and "the ad provides clear information as evidence of how they have helped the environment" (Cronbach's $[\alpha] = .91$). The averaged responses to these two items indicate no significant differences among the ads, $F(2, 87) = 1.00$, $p = .37$; [M.sub.low] = 4.30, SD = 1.24; [M.sub.moderate] = 4.72, SD = 1.16; [M.sub.high] = 4.65, SD = 1.27. The contrasts between low and moderate, $t(59) = 1.32$, $p = .19$, low and high, $t(59) = 1.10$, $p = .27$, and moderate and high, $t(59) = .21$, $p = .83$, claims are not significant, which suggests that the three ads differ only on claim strength, not in the substantiation of the information they provide.

Ambivalence Toward Buying Green Products in General

In the initial online survey, participants rated their ambivalence on a seven-point Likert scale and Priester and Petty's (2001) items: "I have strong mixed emotions both for and against --," "I feel conflict when thinking about --," and "I feel indecisive about --," with the blanks completed by "buying green products" (Cronbach's $[\alpha] = .77$).

Early research indicates that concerns about the environment influence consumers' responses to green ads. If ambivalent attitudes are associated with concerns about the environment, it would be difficult to discern whether the effects were caused by ambivalence or concern. Participants therefore rated how concerned they were about the environment on a seven-point scale. The correlation analyses between ambivalence and concern were not significant (Pearson's $r = -.19$, $p = .08$), consistent with the result patterns reported for the survey.

Dependent Measure

Discomfort

On seven-point semantic differential scales, participants rated the degree to which the ad made them feel: "uncomfortable/ comfortable," "calm/tense," and "uneasy/easy" (Cronbach's $[\alpha] = .82$). These three items come from Monteith's (1996) discomfort scale, which uses Likert scales instead of semantic differential scales. Monteith's discomfort scale employs eight items to measure affective responses to racial issues, so some items (i.e., "bothered," "fearful," "anxious," "frustrated," and "threatened") are not appropriate to measure responses to green claims and they were therefore not included.

Ad Believability

On seven-point Likert scales, participants indicated their degree of agreement with the following evaluative items from Beltramini (1982) and MacKenzie and Lutz (1989): "believable," "trustworthy," "credible," "reasonable," "convincing," and "unbiased" (Cronbach's $[\alpha] = .94$).

Green Claims Believability

For these items, developed specifically for this experiment, participants indicated the degree to which they agreed on seven-point Likert scales: "the green claims are not believable" (reversed), "the green claims are exaggerated" (reversed), "the green claims are misleading" (reversed), and "the green claims are real" (Cronbach's $[\alpha] = .81$).

Brand Attitudes

On seven-point Likert scales, participants indicated the degree to which they believed the following evaluative items applied to the brand (Chang 2002): "good," "positive," "likable," "pleasant," and "good quality" (Cronbach's $[\alpha] = .90$).

Results and Analyses

In the regression analysis, the two orthogonal contrast codes for low-, moderate-, and high-effort claims are "-.5, -.5, 1" and "1, -1, 0." In the regression analyses, the dependent measures are regressed on five predictors: ambivalence (continuous measure), the two contrast codes for green claims, and the two interaction terms.

The test of ill regresses discomfort on the five predictors, and the results reveal that the interaction between the first contrast of claim type (-.5, -.5, 1) and ambivalence is significant ($[\beta] = 1.03$, $p = .01$). The positive $[\beta]$ suggests that when the green claim involves high efforts rather than moderate or low efforts, more ambivalent participants experience more discomfort. The regression of discomfort on ambivalence, using only responses in the high effort claim condition, shows that the influence of ambivalence is significant ($[\beta] = .45$, $p = .01$, $[R.\text{sup}.2] = .20$): Greater levels of ambivalence lead to greater levels of discomfort. In contrast, the influence of ambivalence is not significant when discomfort is regressed on ambivalence using the responses in the

moderate ($[\beta] = -.27, p = .15, [R.\text{sup}.2] = .07$) or low ($[\beta] = .01, p = .99, [R.\text{sup}.2] = .01$) effort claim conditions. The findings are consistent with the expectations of H1.

To test H2, this study regresses ad believability on the five predictors. The interaction between the first contrast (-.5, -.5, 1) and ambivalence is significant ($[\beta] = -.90, p = .03$). This negative $[\beta]$ suggests that the more ambivalent participants are, the lower are their ratings of ad believability when the green claim involves greater efforts as opposed to moderate and low levels of efforts. The regression of ad believability on ambivalence using only responses in the high effort claim condition shows that the influence of ambivalence is significant ($[\beta] = -.41, p = .02, [R.\text{sup}.2] = .17$), with greater ambivalence resulting in lower ad believability. In contrast, the influence of ambivalence is not significant in the regression of ad believability on ambivalence using responses in the moderate ($[\beta] = .14, p = .47, [R.\text{sup}.2] = .02$) or low ($[\beta] = -.04, p = .82, [R.\text{sup}.2] = .01$) effort claim conditions. These findings support H2.

In the regression of green claim believability on the five predictors, the interaction between the first contrast (-.5, -.5, 1) and ambivalence is significant ($[\beta] = -.87, p = .03$). The more ambivalent participants are, the lower are their ratings of green claim believability when the green claim notes great levels of efforts expended rather than moderate or low levels. When claim believability is regressed on ambivalence using only responses in the high-effort condition, the influence of ambivalence is significant ($[\beta] = -.44, p = .02, [R.\text{sup}.2] = .19$); that is, greater levels of ambivalence result in lower levels of claim believability. In contrast, the influence of ambivalence is not significant when the claim believability regression includes ambivalence in the moderate- ($[\beta] = -.02, p = .92, [R.\text{sup}.2] = .01$) and low- ($[\beta] = -.09, p = .66, [R.\text{sup}.2] = .01$) effort conditions. The results support H3.

Following Baron and Kenny's (1986) approach, H4 tests the mediating role of discomfort between the interaction and message discounting. First, the significant interaction effect between the first contrast (-.5, -.5, 1) and ambivalence on discomfort (mediator) has been established (see regression results for H1). Second, the significant interactions between the first contrast and ambivalence on two dependent variables (i.e., ad and green claim believability) have been established (see results for H2, H3). Third, discomfort (mediator) accounts for significant variance in ad believability ($[\beta] = -.61, p < .01$) and green claim believability ($[\beta] = -.44, p < .01$). Fourth, when the five predictors and discomfort (mediator) appear together in the regression, the impact of the first contrast (-.5, -.5, 1) by ambivalence interaction (independent variable) becomes insignificant when the dependent variable is ad believability ($[\beta] = -.28, p = .42$) or green claim believability ($[\beta] = -.43, p = .26$). Moreover, the influence of discomfort (mediator) remains significant when the dependent variable is ad believability ($[\beta] = -.61, p < .01$) or green claim believability ($[\beta] = -.43, p < .01$). Therefore, discomfort meets the criteria to be a mediator between the interaction and ad believability and green claim believability.

The findings also support H5. The regression of brand attitudes on the five predictors shows a significant interaction between the first contrast (-.5, -.5, 1) and ambivalence ($[\beta] = -1.00, p = .02$), such that more ambivalent participants indicate less favorable brand attitudes when the green claim involves high levels as

opposed to moderate and low levels of efforts. When brand attitudes are regressed on ambivalence using only responses in the high-effort condition, the influence of ambivalence is significant ($[\beta] = -.36, p = .05, [R.\text{sup}.2] = .13$): More ambivalence leads to lower brand attitudes. In a clear contrast, the influence of ambivalence is not significant when brand attitudes are regressed on ambivalence using responses in the moderate- ($[\beta] = .24, p = .20, [R.\text{sup}.2] = .06$) or low- ($[\beta] = .19, p = .33, [R.\text{sup}.2] = .04$) effort conditions.

Further regression analysis tested the path from discomfort to ad believability and then to brand attitudes. First, discomfort predicts ad believability ($[\beta] = -.61, p < .01$). Second, discomfort predicts brand attitudes ($[\beta] = -.80, p < .01$). Third, ad believability (mediator) accounts for significant variance in brand attitudes ($[\beta] = .74, p < .01$). Fourth, when both discomfort and ad believability are in the equation, the impact of discomfort reduces but remains significant ($[\beta] = -.56, p < .01$). Therefore, discomfort exerts direct influence on brand attitudes as well as indirect influence on brand attitudes via its influence on ad believability.

This paper also tested the path from discomfort to claim believability and then to brand attitudes. First, discomfort predicts ad believability ($[\beta] = -.44, p < .01$). Second, discomfort predicts brand attitudes ($[\beta] = -.80, p < .01$). Third, claim believability (mediator) accounts for significant variance in brand attitudes ($[\beta] = .55, p < .01$).

Fourth, when both discomfort and ad believability are in the equation, the impact of discomfort reduces but remains significant ($[\beta] = -.69, p < .01$). Therefore, discomfort exerts a direct influence as well as an indirect influence on brand attitudes through its influence on claim believability.

Discussion

The results of the preceding survey served as the background for this experiment. In particular, the survey suggested that skepticism consistently accounts for attitude ambivalence, so it makes sense to argue that ambivalent consumers, whose skepticism toward green marketing may be more accessible, should feel discomfort when they view ads with high effort green claims and would then engage in motivated reasoning. As expected, in the high-effort conditions, highly ambivalent consumers felt greater levels of discomfort and generated lower ad believability, lower green claim believability, and lower brand attitude ratings. In the moderate- and low-effort conditions, consumer ambivalence did not generate different responses. The results thus support the proposed model and confirm that discomfort mediates the relationship between the interaction term and message discounting (ad and green claim believability).

GENERAL DISCUSSION

Contribution and Findings

Ambivalent attitudes and their implications represent critical topics in persuasion literature but have not drawn equal attention from advertising researchers. This study offers an initial attempt to apply ambivalent attitudes

literature to identify ambivalent attitudes toward green products/buying green products in an advertising context. Consumers are likely to feel ambivalent toward a product or its appeals, which means attitude ambivalence deserves more research attention. Using ambivalent attitudes toward buying green products as an example, this study develops models to explain the factors that account for ambivalence, as well as how ambivalence influences ad persuasion. Specifically, this paper asks two important questions: What are the antecedents of consumers' ambivalent attitudes toward buying green products, and how might ambivalent attitudes affect their responses to green advertising that varies in its claims?

The findings from the survey show that skepticism is a consistent predictor of ambivalent attitudes, whether the attitude target is green products or buying green products. This survey demonstrates that negative perceptions of green products (i.e., skepticism, perceived higher price, and lower quality), not positive perceptions, account for ambivalence toward green products. Both positive and negative perceptions (perceived emotional benefits and skepticism) cause ambivalence toward buying green products. Finally, the survey confirms that ambivalent attitudes toward green products or buying green products do not correlate significantly with attitudes toward green products or buying green products, which suggests that the traditional attitudinal measure cannot capture simultaneous positive and negative evaluative responses toward an attitude object.

The experiment tests the influence of ambivalent attitudes toward buying green products on processing ads that contain green claims that involve different levels of advertisers' efforts. The proposed model helps explain how attitude ambivalence moderates the effectiveness of green ads. As expected, green claims that are associated with greater expended efforts induce greater levels of discomfort among ambivalent participants, which motivates them to discount the believability of the ad and its green claims. As a result, their evaluations of the product become more negative.

Further Research

Ambivalent attitudes represent important topics that demand more attention from advertising researchers. For example, consumers may hold ambivalent attitudes toward advertising in general, with both positive (e.g., advertising provides product information that facilitates the choice process) and negative (e.g., advertising can be misleading) perceptions. Additional research can explore what elements account for consumers' ambivalent attitudes toward advertising in general and examine how these attitudes influence responses to advertising. In addition to ambivalence toward advertising in general, consumers may hold ambivalent attitudes toward specific types of advertising. For example, smokers might feel ambivalent toward antismoking advertising, so research might investigate the degree to which ambivalence influences their responses to antismoking advertising.

Moreover, consumers may feel ambivalent about advertised issues. For example, some women may feel ambivalent toward abortion, so they may respond to ads addressing different views on these issues differently than do univalent women. Some consumers might also hold ambivalent attitudes about controversial products

such as alcohol and condoms, and toward the purchase of such products. An interesting topic for further research therefore pertains to how ads for such products may trigger different psychological processes among ambivalent consumers.

Persuasion literature indicates that people who feel ambivalent toward an issue are more motivated to engage in message elaboration (Jonas, Diehl, and Bromer 1997) and are more subject to persuasion (Zemboirain and Johar 2007). This study also finds that people who feel ambivalent toward an issue are more likely to engage in motivated processing when an ad elicits discomfort. Other processing differences may emerge among ambivalent people when they are exposed to persuasive messages; these topics should be examined further.

Moreover, individual differences other than ambivalence should be explored. For example, the purchase of green products is often associated with a desire for status, and the revolutionary theory of competitive altruism suggests that status is associated with prosocial behaviors (Griskevicius 2008). Therefore, owners of green products may be perceived as more proenvironmental and prosocial, and people who purchase green products for these reasons may respond differently to green advertising.

Implications for Practitioners

The findings have several important implications for practitioners. When consumers hold ambivalent attitudes toward buying green products, high effort green claims—which this study defines as claims that would demand more effort to accomplish—elicit discomfort, encourage message discounting, and decrease brand attitudes. Therefore, when advertisers try to "go green," they should assess the ambivalence of their target consumers' attitudes toward buying green. If most of their target consumers have ambivalent attitudes toward the target products, marketers should be cautious about presenting their claims to avoid eliciting consumer discomfort and deteriorated brand attitudes. They might also investigate the possible association between demographics and attitude ambivalence. For example, if advertisers want to target young women, age 16-20 years, and find that young people and women are more likely to feel ambivalent toward green products, they should be cautious in selecting their green claims.

Limitations

The findings of this study must be interpreted with its limitations in mind. Ambivalence may be associated with constructs that should be controlled. For example, in the experiment, the correlation between ambivalence and concern for the environment is not significant ($p = .08$), but it approaches significance, so research should confirm whether concern relates to ambivalence. The experiment only tests one product, though the product category may be an important moderator. A product with a negative impact on the environment might cause consumers to feel even more ambivalent toward it. It is not clear whether ambivalent attitudes toward green products are a domain-specific phenomenon or whether they reflect consumers' general skepticism toward advertising or marketing. Feeling ambivalent could also reflect a personality or enduring disposition. To rule out this possibility, further research should confirm that a person can respond variably to ambivalent attitude

measures pertaining to different objects. Finally, appeal type in this study refers specifically to appeals that feature claims that demand different levels of resources and efforts. Therefore, generalizations of these findings to other green appeals or products demand caution and further investigation.

Despite its limitations, this research highlights the importance of exploring attitude ambivalence in an advertising context and establishes a model that may serve as an important foundation on which further research can build.

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TABLE 1
Summary of Regression Analysis for Positive and Negative Factors
Predicting Ambivalent Attitudes and Attitudes Toward Green Products
and Buying Green Products (n = 100)

	Ambivalent attitudes toward green products			Ambivalent attitudes toward buying green products		
	b	SE b	B	b	SE b	B
Perceived higher price	-.27	.11	-.21 *	-.20	.13	.15 *
Perceived lower quality	.24	.10	.22 *	.16	.12	.14
Perceived * utility	.10	.16	.09	.41	.19	.33
Perceived consumer effectiveness	-.20	.11	-.22	-.19	.13	-.19
Skepticism toward green marketing	.48	.14	.36 **	.41	.16	.28 *

Proud of being green consumers	.06	.09	.08	.03	.10	.04
	Attitudes toward green products			Attitudes toward buying green products		
	b	SE b	B	b	SE b	B
Perceived higher price	-.09	.10	-.07	-.17	.09	-.14 *
Perceived lower quality	-.20	.09	-.20 *	-.19	.08	-.19 *
Perceived utility	.30	.13	.26 *	.32	.12	.28 *
Perceived consumer effectiveness	.01	.09	.01	-.04	.08	-.04
Skepticism toward green marketing	-.02	.12	-.01	-.01	.11	-.01
Proud of being green consumers	.30	.07	.39 **	.33	.07	.45 *

Note: SE = standard error.

* $p < .05$; ** $p < .01$.