Green Eco-seals and Advertising Persuasion

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Although advertisers present assurance or certification cues to burnish their “green” credentials, the impact of such “eco-seals” on persuasion is not well understood. We examine consumer characteristics (environmental concern and brand familiarity) and advertiser-controlled characteristics (the seal and advertising appeal) to understand conditions under which eco-seals are more or less persuasive including effects on attitudes and intentions. Based on the Persuasion Knowledge Model, we hypothesize and present experimental results showing that consumers with high versus low environmental concern perceive eco-seals differently, depending on brand familiarity, eco-seal source, and ad appeal. Our findings have theoretical and practical implications for green marketing strategy and messaging.
As firms shift business models toward sustainability concerns, consumers are increasingly presented with cues regarding the environmental and social impact of products (Mintel 2011, 2012). For example, Coca-Cola is engaged in a multi-year, multimillion-dollar campaign touting its environmental sustainability efforts (Zmuda 2010), and Clorox recently doubled its annual ad budget to promote GreenWorks™ cleaning products that are positioned as better for the environment (Neff 2009). These types of initiatives are aimed at bolstering consumer perceptions of brands on the basis of “green” marketing. However, some of these marketing communications efforts have been criticized as “greenwashing” because they are ambiguous, confusing, and/or lack evidence about environmental impact (Chang 2011; Cone 2011; Mintel 2011). Even supporters of firms’ environmental initiatives complain that “the resulting ‘eco-babble’ [is] of little practical use” to consumers (Bustillo 2009, p. B1).

Marketers are attempting to cut through the ambiguity by incorporating assurance cues regarding the environmental impact of products (Cone 2011). For example, Wal-Mart is developing a “sustainability index” that signals the environmental impact of products in their assortment (Rockwood 2010; Rosenbloom 2009). SC Johnson (2012) has developed the Greenlist™ classification program and label that is applied to their brands that qualify such as Fantastik® cleaning products. Government seals, such as the Environmental Protection Agency’s EnergyStar® program, are available to brands that apply for and meet or exceed standards for energy efficiency. Variously referred to as certification, assurance, or verification seals, these classification programs and labels are cues regarding the product’s performance on an important characteristic, such as environmental attributes and impact.

The purpose of our research is to investigate conditions under which environmentally
oriented assurance or certification cues, which we refer to as “eco-seals,” are more or less persuasive including effects on attitudes and purchase intentions. While eco-seals are proliferating (Bounds 2009), there are important gaps in knowledge about their persuasiveness. For example, while consumers’ environmental knowledge and concern has grown in recent years (Cone 2011), we do not yet fully understand how eco-seals are processed by consumers with high compared to low concern about environmental issues, two very different target markets.

In addition to consumer characteristics, some advertiser-controlled characteristics may affect consumer processing of eco-seals. For example, advertisers may use eco-seals that are created by the firm itself or by a third party such as a government entity (Arquitt and Cornwell 2007). Research shows that the source of a third-party seal affects comprehension (Beltramini and Stafford 1993) and perceptions of product quality (Dean and Biswas 2001). Yet we do not know how persuasion is affected by the use of a third-party eco-seal versus one developed and bestowed by the firm. This gap in research is important given that third-party seals are perceived as relatively independent and unbiased compared to other endorsements (Dean and Biswas 2001) such as the firm itself. In addition, advertisers recognize that their choice of ad appeals affects persuasion (Kees, Burton and Tangari 2010; Sung and Choi 2011). While consumers who are not highly concerned about environmental issues would appear to be an unattractive target market for green products, perhaps an ad appeal that heightens vigilance about environmental issues would affect the persuasiveness of eco-seals.

To address these gaps, we draw on the Persuasion Knowledge Model as a theoretical foundation to develop hypotheses regarding consumer response to eco-seals. Persuasion knowledge is an appropriate theoretical foundation because it is based on the notion that consumer beliefs about marketers’ tactics shape consumer persuasion and because it can account
for the role of consumer skepticism, here about environmental claims and cues (Chang 2011). We highlight the role of a consumer characteristic – level of environmental concern (Mohr, Eroglu, and Ellen 1998; Obermiller 1995) – because of the importance of motivation and knowledge in shaping persuasion (Petty and Cacioppo 1986). We hypothesize and show how environmental concern shapes persuasion depending on brand familiarity, the presence vs. absence of an eco-seal, and whether the source of the seal is a manufacturer or government entity. We also address how ad appeals framed toward the consumer’s prevention or promotion goals affect the persuasive impact of eco-seals, depending on the consumer’s level of concern.

In presenting our theory and findings, we make two primary contributions. First, we show that two factors – brand familiarity and eco-seal sponsor – differentially affect the persuasive impact of eco-seals for consumers who vary in their environmental concern. With the Persuasion Knowledge Model as our theoretical foundation, we describe how these differences are attributable to varying assumptions held about eco-seal sponsors by high versus low concern consumers. Second, we show how choice of advertising appeal can increase or reduce the persuasiveness of eco-seals for high versus low environmental concern consumers, two segments that are readily identifiable and accessible (Cone 2011; Mintel 2011). Our findings have implications for advertising theory and practice with respect to developing eco-seals and advertising messages that will persuade consumers who vary in environmental concern.

ENVIRONMENTAL CLAIMS AND PERSUASION

Eco-seals provide some information regarding environmental attributes and impact. For example, SC Johnson’s Greenlist™ products not only meet legal and regulatory requirements for the product category, but the Greenlist cue also signifies that the product has a low impact on the environment and human health. Yet, consumers may lack knowledge of the organization making
the certification or criteria for the certification decision (Cone 2011; Dean and Biswas 2001).

In general, advertising claims that are difficult for consumers to verify are likely to prompt skepticism, consumer distrust, or disbelief of marketer actions (Forehand and Grier 2003). Not surprisingly, environmental claims are oftentimes viewed skeptically and are miscomprehended (Beltramini and Stafford 1993; Cone 2011; Carlson, Grove and Kangun 1993; Shrum, McCarty and Lowrey 1995). For example, research by Miller and Sinclair (2009) suggests that consumer response to green-oriented advocacy advertising (e.g., by a coal company) elicits questions about the advertiser’s intentions, consistent with the persuasion knowledge model. Accordingly, we believe eco-seals such as “Green Seal √ Certified™” also may be susceptible to persuasion knowledge processing because of the ambiguity of the cue and/or the consumer’s lack of knowledge or ability to verify the seal certification process.

The Persuasion Knowledge Model (PKM) suggests that consumers hold intuitive theories about how marketers try to influence (Friestad and Wright 1994). Active “in virtually all interactions with marketers,” persuasion knowledge allows consumers to “recognize, analyze, interpret [and] evaluate…persuasion attempts” and to form attitudes on that basis (Friestad and Wright 1994, p. 3). Consistent with the elaboration likelihood model (Petty and Cacioppo 1986; see also Chaiken and Trope 1999), the PKM acknowledges that consumers bring motivation and knowledge of the topic to bear on persuasion attempts. In the context of green advertising, the consumer’s level of environmental concern is an important individual difference variable that relates to knowledge and motivation with respect to environmental issues (Mohr, Eroglu, and Ellen 1998; Obermiller 1995). Consistent with other motivation and ability individual difference characteristics (Petty and Cacioppo 1986), we expect that the consumer’s level of environmental concern may moderate the impact of the eco-seal on persuasion.
Figure 1 summarizes our conceptual model of the impact of eco-seals on persuasion. We propose that the eco-seal is interpreted in light of contextual cues, such as brand familiarity, and is moderated by the consumer’s concern for the environment, which in turn affects attitudes toward the ad and brand and purchase intentions in sequence (Mackenzie and Spreng 1992). We elaborate on these relationships in the next sections.

**INSERT FIGURE 1 HERE**

While proliferating, eco-seals are used by some but not all brands. Thus, an important question concerns how consumers respond to the presence versus absence of an eco-seal in advertising. We expect that low environmental concern (LEC) consumers will be indifferent to the presence versus absence of an eco-seal because environmental issues are not important to them. Thus, unless there is a reason to question the brand’s effectiveness, the presence or absence of a cue about this unimportant issue is expected to have little effect on attitude formation.

On the other hand, because high environmental concern (HEC) consumers care about environmental issues, the presence or absence of an eco-seal is expected to influence persuasion. HEC consumers are vigilant about environmental information, but eco-seals are ambiguous cues. As a result, HEC consumers are likely to assess the presence of this ambiguous cue in light of a more reliable contextual cue, such as brand familiarity (e.g., Simmons, Bickart and Buchanan 2003). In general, familiar brands are evaluated more favorably than unfamiliar brands (e.g., Hoyer and Brown 1990). Thus, among HEC consumers, the signal value of the presence of an eco-seal will depend on brand familiarity, with that value being more favorable for familiar brands. In fact, whereas the presence of an eco-seal for an unfamiliar brand may increase skepticism among HEC consumers, the absence of an eco-seal will not tap into their concern and
will not heighten an impact of brand familiarity. Thus, among HEC consumers, we expect that the presence of an eco-seal will yield the most favorable attitudes and intentions when presented by a high familiarity brand, and the most unfavorable impact when presented by a low familiarity brand.

In sum, we expect a three-way interaction between environmental concern, eco-seal, and brand familiarity as follows:

**H1**: When environmental concern is low, the presence or absence of an eco-seal by a high or low familiarity brand will not affect (a) ad attitudes, (b) brand attitudes, or (c) purchase intentions.

In contrast:

**H2**: When environmental concern is high, (a) ad attitudes, (b) brand attitudes and (c) purchase intentions will be more favorable for a familiar (an unfamiliar) brand when the eco-seal is present (absent).

We also expect that, consistent with Mackenzie and Spreng (1992), attitudes toward the ad and brand will mediate effects of the eco-seal on purchase intentions. Thus, we propose:

**H3**: The impact of eco-seal, brand familiarity, and environmental concern on purchase intentions will be mediated by (a) attitudes toward the ad and (b) brand attitudes.

**STUDY 1**

The objective of this study was to determine if consumer environmental concern moderates persuasion in the presence or absence of an eco-seal. In addition, we examine the role of brand familiarity. We used a 2 (Eco-seal: present vs. absent) x 2 (Brand Familiarity: known brand vs. unknown brand) experimental design and environmental concern was measured. Participants were 197 students in an introductory statistics class, who completed the experiment for course credit. The majority of participants were between the ages of 19 and 21 (94%) and 48% were female.

Participants were told that they were completing an advertising study. They first saw a
control ad (for packaged lunch meat), followed by the target ad for an all-purpose household cleaner. A survey shows that nearly 30% of household cleaners introduced in 2011 were promoted with green claims, and that 50% of U.S. adults 18 years of age or older report always or sometimes purchase “green” household cleaners (Mintel 2012). Thus, this product is an apt stimulus for study. We created four versions of the all-purpose cleaner ad, which varied on two dimensions (see Appendix 1). First, the brand was either an actual, known brand (409) or a fictional, unknown brand (Grip). We selected 409 because it did not have a “green” product on the market at the time of the study. Second, the package shown in the ad either did or did not include an eco-seal. The eco-seal was “Green Seal Certified™” and was fictitious.

After viewing the filler and target ads, participants were told they would evaluate one ad selected at random. All participants then viewed the target ad for a second time and completed the dependent measures including brand attitudes, brand purchase intentions, attitude toward the ad and environmental concern (see Appendix 2 for measures and reliability). Participants were then debriefed.

**Results**

*Manipulation Checks*

Participants were asked to rate their familiarity with both 409 and Grip household cleaners on 7-point scales (1 = “not at all familiar” and 7 = “very familiar”). As expected, familiarity was higher for the 409 brand ($M = 3.36$) compared to the Grip brand ($M = 1.68$; $F (1, 196) = 86.63, p < .01$). No other effects were significant.

To test the eco-seal manipulation, participants were asked whether the product in the ad had an eco-seal on the container (yes/no). Overall, 57% of participants answered this question correctly. Consistent with the manipulation, 50% of participants in the eco-seal condition said
that the package had a seal compared to 36% in the no seal condition ($\chi^2 (1) = 3.50, p < .06$).

This effect did not vary across brands. Because the effect of this manipulation was weak, we also ran the analyses including only those participants who correctly identified their eco-seal condition (n = 112) and the results were similar to those reported below.

**Findings**

We expected that the effect of eco-seal and brand familiarity on the dependent variables would be moderated by environmental concern. Since environmental concern is a continuous variable that should not be dichotomized (Fitzsimons 2008), we used regression analysis. Because we expected that attitudes toward the ad and brand would mediate effects of the independent variables on purchase intentions, we examine this variable first. Purchase intent was regressed on dummy variables representing eco-seal (-1 = absent; 1 = present) and brand familiarity (-1 = unknown brand; 1 = known brand), environmental concern (mean centered, $M = 5.03$, $STD = 1.29$), and the interactions of these variables. Interest in household cleaners was included as a covariate and was significant ($B = .14$, $SE = .07$, $t = 2.10$, $p < .05$).

Descriptive results for all dependent measures are shown in Table 1 and regression results are shown in Table 2. There was a significant effect of brand familiarity ($B = .44$ $SE = .11$, $t = 4.17$, $p < .01$), indicating that purchase intentions were more favorable for the familiar brand. More important, consistent with H1 and H2 and shown in Figure 2, the three-way interaction between familiarity, eco-seal, and environmental concern on purchase intentions was significant ($B = .17$, $SE = .08$, $t = 2.05$, $p < .05$).

**PLACE TABLE 1, TABLE 2, AND FIGURE 2 ABOUT HERE**

Because we hypothesized environmental concern as a moderator, we examined the significance of the brand familiarity x eco-seal interaction at low and high levels of
environmental concern using the PROCESS macro (Hayes 2012). This macro allowed us to estimate simple slopes and regions of significance for the three-way interaction using OLS regression using the procedure described by Aiken and West (1991). Consistent with H1, for participants low in environmental concern (one SD below the mean; SD = 1.29), the brand familiarity x eco-seal interaction was not significant ($p > .36$). As shown in the top panel of Figure 2, LEC participants’ intentions were more positive when the brand was familiar, regardless of whether or not the package included a seal, supporting H1. For HEC participants (one SD above the mean), the brand familiarity x eco-seal interaction was significant ($B = .31$, $SE = .15$, $t = 2.06$, $p < .05$). As shown in the bottom panel of Figure 2, for HEC participants, when the package did not include an eco-seal, there was no effect of brand familiarity on purchase intentions ($p > .69$); in contrast, when the package included an eco-seal, intentions were more favorable for the familiar brand ($B = .70$, $SE = .20$, $t = 3.47$, $p < .01$). Interestingly, the eco-seal appears to hurt evaluations of an unfamiliar brand for HEC consumers. Intentions to purchase the unfamiliar brand were significantly lower when an eco-seal was present than when it was not ($B = -.49$, $SE = .21$, $t = 2.36$, $p < .05$), while the presence of the seal did not affect intentions to purchase the familiar brand ($p > .56$). These findings provide support for H2.

To test whether attitudes toward the ad (Aad) and brand (AttBr) are mediators, we first ran two regression models with Aad and AttBr as dependent variables, and the dummy variables representing eco-seal, brand familiarity, and environmental concern and their interactions as the independent variables, with interest in household cleaners as a covariate. These results are shown in Table 2. To test the significance of the omnibus indirect effects of the proposed mediators we used the MEDIATE macro (Hayes and Preacher 2011). This macro provides bootstrap confidence interval estimates for the indirect effect of the independent variables on the
dependent variable through each mediator (see Zhao, Lynch and Chen 2010 for a description of this approach). As shown in the middle columns of Table 2, the three-way interaction of eco-seal, brand familiarity and environmental concern was significant or marginally significant for Aad and AttBr, and the patterns of means and effects were similar to those on purchase intentions. In addition, bootstrapping techniques employed to test indirect effects confirmed the mediating role of Aad (95% confidence intervals excluding zero; .0075 to .0802) and AttBr (95% confidence interval excluding zero; .0178 to .1562; Preacher, Rucker and Hayes 2007; Zhao, Lynch and Chen 2010). Thus, H3a and H3b are supported.

These results suggest that HEC consumers’ inferences about the eco-seal are affected by brand familiarity. One possibility is that HEC consumers make different inferences about the eco-seal source depending on brand familiarity. We asked participants in the eco-seal condition who they thought was the “certification organization.” Response options included the manufacturer, a government agency, a non-government third party, and “other.” We compared the proportion saying that the eco-seal source was the manufacturer (coded 1) versus all other options (coded 0) using a logistic regression, with a dummy variable representing brand familiarity (coded 0 = familiar brand, 1 = unfamiliar brand), environmental concern (mean-centered) and their interaction as predictors. The results show a marginally significant brand familiarity x environmental concern interaction ($B = .31$, $SE = .18$, $Z = 1.63$, $p < .10$). Using the PROCESS macro (Hayes 2012), we examined the effect of brand familiarity at low and high levels of environmental concern. At low levels of concern (one SD below the mean, SD = 1.37), brand familiarity did not affect beliefs about the eco-seal source ($p > .53$). In contrast, at high levels of environmental concern (one SD above the mean), participants were more likely to identify the manufacturer as the source when brand familiarity was high (estimated proportion =
versus low (estimated proportion = .15; $B = .63, SE = .35, Z = 1.79, p < .07$).

**Summary and Discussion**

The results of this study suggest that environmental concern affects consumer response to eco-seals. Consistent with our hypotheses, when concern is low, the presence or absence of an eco-seal on a package does not affect purchase intentions generated through an ad, regardless of consumer familiarity with the brand. However, when the consumer’s environmental concern is high, eco-seals generate more favorable intentions for familiar brands and less favorable intentions for unfamiliar brands. These effects are mediated through attitudes toward the ad and brand. In addition, we provide some evidence suggesting that these differences may be due to the inferences HEC consumers make about the eco-seal source. Specifically, we find that when environmental concern is high, consumers appear to be more likely to infer that the manufacturer is the eco-seal source when brands are familiar versus unfamiliar.

These results suggest the possibility that the source may have an impact on how consumers respond to eco-seals. We examine this possibility directly in study 2, where we provide information about the eco-seal source. The results of study 1 suggest that when environmental concern is high, consumers will have more favorable attitudes and intentions perhaps under an inference that the manufacturer sponsors the eco-seal. High concern consumers may be eager to find products that have green attributes and so seek out brands that voluntarily provide affirming information about their green credentials. In this way, high concern consumers may make positive attributions about the behavior of firms that have developed green eco-seals, attributing the development of the eco-seal and products labeled with it to the firm’s ability and effort (i.e., internal locus of causality) rather than chance or task requirements (i.e., external locus of causality). On balance, attributions are more favorable when causes for behavior are
attributed to internal versus external sources (Weiner 1986). Accordingly, we expect that high environmental concern consumers will hold favorable attitudes and intentions towards firms that have developed their own eco-seals rather than “borrowing” the eco-seal from another source, such as the government.

In contrast, it is possible that low concern consumers may react more favorably to a seal sponsored by a third party or government agency because this source is less biased than the manufacturer (Beltramini and Stafford 1993; Dean and Biswas 2001). Following the persuasion knowledge model, low concern consumers may have less nuanced knowledge structures and may rely on an automatic assumption that government seals are more independent and thus may become suspicious when the manufacturer is identified as the eco-seal source.

In addition, it is possible that different ways of framing the advertising appeal might affect the persuasiveness of the eco-seal through fostering greater message vigilance. MacInnis, Moorman, and Jaworski (1991) propose that ad executions can influence consumers’ motivation to process ads, in line with the impact of consumer environmental concern. In this study we examine whether advertising appeals oriented toward the consumer’s prevention or promotion goals affect the persuasiveness of eco-seals. According to regulatory focus theory (Higgins 1997), individuals can attain goals through focus on promotion (e.g., achieving positive outcomes and aspirations) or prevention (e.g., avoiding negative outcomes and ensuring security). Research shows differential impact of prevention versus promotion oriented ads (Aaker and Lee 2001; Kees et al. 2010; Sung and Choi 2011) and that consumers holding prevention compared to promotion goals are more likely to process ads in a persuasion-knowledge mindset (Kirmani and Zhu 2007).

By application, we expect that a prevention-oriented ad appeal will heighten the salience
of the ambiguous eco-seal cue because of the salience of avoiding negative outcomes. We expect that when an ad appeal is oriented toward prevention, a potentially biased eco-seal source (the manufacturer) will have a negative influence on persuasion compared to a less biased source (government agency). We expect this pattern only for low-concern consumers, as these individuals are more likely to be influenced by peripheral cues in the ad (Petty and Cacioppo 1986). HEC consumers are likely to process the ad more thoroughly regardless of the ad appeal. In addition, based on the findings of study 1, it appears that HEC consumers may make different inferences regarding the source of the eco-seal. Specifically, rather than being skeptical about marketers’ tactics, HEC consumers may make positive attributions that the manufacturer is proactive in developing and communicating environmental information through an eco-seal. This reasoning is consistent with the signal value of cues, and that there are threats to the brand’s reputation if the signal is false (Boulding and Kirmani 1993). In contrast, for both consumer segments, a promotion appeal is not expected to heighten skepticism about marketers’ tactics and thus is not expected to moderate the impact of other variables. In other words, when a promotion appeal is used, the source of the eco-label is either not noticed or is not given weight in the brand evaluation process and thus will not differentially affect persuasion.

Thus, we hypothesize that participants’ concern with environmental issues will moderate the effects of eco-seal source and advertising appeal (prevention vs. promotion) on attitudes and purchase intentions, as follows:

**H4:** When a prevention appeal is used, a manufacturer (government) eco-seal will result in **more favorable** (a) ad attitudes, (b) brand attitudes and (c) purchase intentions when environmental concern is high (low).

In contrast:

**H5:** When a promotion appeal is used, the eco-seal sponsor will not affect (a) ad attitudes, (b) brand attitudes, and (c) purchase intentions.
Similar to study 2, we also expect that attitudes toward the ad and brand will mediate effects of eco-seal source, ad appeal, and environmental concern on purchase intentions. Thus, we propose:

**H6:** The impact of eco-seal, brand familiarity, and environmental concern on purchase intentions will be mediated by (a) attitudes toward the ad and (b) brand attitudes.

**STUDY 2**

The objective of this study was to determine if environmental concern moderates consumer response to eco-seal source and type of advertising appeal. Thus, we used a 2 (Eco-seal source: product manufacturer vs. government) x 2 (Ad Appeal: prevention vs. promotion) design. Environmental concern was measured, as in study 1.

The procedure was identical to that used for study 1, except that a fictitious eco-seal – SmartCheck™ – was used in all conditions and the target ad was for Clean Well hand sanitizer, a real brand that had limited distribution at the time of the study. Our participants were not familiar with the brand ($M = 1.37$ on a 7 point scale, where 7 = “very familiar”). Approximately 12% of personal care products introduced in 2011 were promoted with green claims, and 35% of U.S. adults 18 years of age or older report always or sometimes purchasing “green” personal care products (Mintel 2012). While hand sanitizers may be lower in “green-ness” in practice, the use of different eco-seals, product categories and brands across the two studies extends generalizability. The ad included a headline, four claims, and a description of the source of the eco-seal (see Appendix 3). We manipulated the ad appeal via the headline, which was prevention-oriented (*Protecting You from Illness the Natural Way*) or promotion-oriented (*Keeping You Healthy the Natural Way*). The eco-seal source was identified as either “Our Company” or the “U.S. Consumer Product Safety Commission.” In addition to measuring the same constructs as in study 1 (see Appendix 2), we measured agreement with five beliefs about
the hand sanitizer (maintains good health, effective in killing germs, prevents illness, is safe to use, and is good for the environment), each using a 7-point Likert scale.

Participants included 108 undergraduate students who participated in exchange for course credit and 36 graduate students who participated in exchange for a donation to their student organization (total = 144). The average age of participants was 23.2 years and 53% were female.

**Results**

*Manipulation Checks*

We expected that the government agency (U.S. Consumer Product Safety Commission) would be perceived as a less biased and more independent eco-seal source compared to a manufacturer. Participants evaluated the likelihood that certification programs developed by both the product manufacturer and the U.S. Consumer Product Safety Commission would be independent (vs. not independent) and not biased (vs. biased), both on 7-point semantic differential scales. The items were highly correlated ($r_{\text{manufacturer}} = .75$; $r_{\text{US Product Safety Commission}} = .82$) and therefore were averaged. As expected, certification programs developed by government agencies were seen as more independent than those developed by manufacturers ($M_s= 4.98$ vs. 2.57, $F (1, 140) = 186.05, p < .001$). These perceptions did not vary by manipulations ($p$’s > .43).

In addition, attitudes toward and trust in the SmartCheck certification were both higher when the source was the U.S. Consumer Product Safety Commission versus the manufacturer (attitudes: $M_s= 4.86$ vs. 4.34, $F (1, 140) = 6.07, p < .05$; trust: $M_s= 4.48$ vs. 3.89, $F (1, 140) = 6.95, p < .01$) and no other effects were significant ($p$’s > .10).

We assessed the success of the ad appeal manipulation based on regulatory focus goals. Following Kirmani and Zhu (2007), participants assessed agreement with the statement “before I saw the ad, I suspected it would contain undue persuasion” on a 7-point Likert scale. As
expected, agreement was higher in the prevention (\(M = 4.32\)) compared to promotion appeal condition (\(M = 3.88\); \(F(1, 140) = 5.27, p < .023\)). No other effects were significant.

Findings

To test our hypotheses that environmental concern, a continuous variable, moderates the effects of eco-seal source and ad appeal on Aad, AttBr, and purchase intentions, we used regression analysis. Dependent variables were regressed on dummy variables indicating eco-seal source (coded 1 = company and -1 = government), ad appeal (coded 1 = promotion and -1 = prevention), environmental concern (mean centered; \(M = 4.96, STD = 1.27\)) and their interactions, as well as product category interest as a covariate. Given our predictions that effects on purchase intentions would be mediated by Aad and AttBr, we first present results regarding purchase intentions. The descriptive statistics for dependent measures are shown in Table 3 and the regression results are presented in Table 4.

PLACE TABLES 3 AND 4 ABOUT HERE

Purchase intentions. H4 and H5 suggest a three-way interaction effect of eco-seal, ad appeal, and environmental concern on the dependent variables. For purchase intentions, the predicted three-way interaction was not significant (\(p > .89\)). However, there was a significant interaction between eco-seal source and environmental concern (\(B = .23, SE = .09, t = 2.53, p < .05\)). Using the PROCESS macro (Hayes 2012) and the procedure suggested by Aiken and West (1991), we examined this interaction for consumers at low and high levels of environmental concern (one SD above and below the mean, \(SD = 1.27\)). At low levels of concern, there was no effect of eco-seal source on intentions (\(p > .15\)). In contrast, at high levels of concern, intentions were more favorable when the eco-seal source was the manufacturer relative to a government agency (\(B = .34, SE = .15, t = 2.17, p < .05\); see Figure 3).
**Brand attitudes.** The predicted three-way interaction was significant ($B = -.18$, $SE = .08$, $t = 2.30$, $p < .05$; see Table 4). As hypothesized, the eco-seal source by environmental concern interaction effect on AttBr was significant when the appeal was framed in terms of prevention ($B = .40$, $SE = .10$, $t = 3.90$, $p < .01$) but not when framed in terms of promotion ($p > .64$). As shown in the top panel of Figure 4, when the appeal was promotion focused, eco-seal source did not affect AttBr. In contrast, as shown in the lower panel of Figure 4, when the appeal was prevention focused, the effects of eco-seal source on AttBr varied with environmental concern. For LEC consumers, brand attitudes were more favorable when the eco-seal source was a government agency ($B = -.50$, $SE = .20$, $t = 2.53$, $p < .01$); for HEC consumers, attitudes were more favorable when the source was the manufacturer ($B = .52$, $SE = .17$, $t = 3.02$, $p < .01$).

**Attitude toward the Ad.** There was a significant interaction between eco-seal source and environmental concern on Aad ($B = .16$, $SE = .08$, $t = 2.02$, $p < .05$; see Table 2). At low levels of concern (one SD below the mean), Aad was more favorable when the government agency was the eco-seal source ($B = -.36$, $SE = .15$, $t = 2.49$, $p < .01$), while at high levels of concern (one SD above the mean) the source did not affect Aad ($p > .69$).

**Mediation model.** The regression models used to test the mediation effects of Aad and AttBr on purchase intentions are shown in Table 4. As shown in the middle columns, the two-way interaction between eco-seal source and environmental concern was significant for both attitudes toward the ad and brand. We used the MEDIATE macro to test the significance of the omnibus indirect effects of the proposed mediators (Hayes and Preacher 2011). This macro conducts mediation analyses with multiple mediators and calculates confidence intervals for indirect effects of mediators using the bootstrapping techniques recommended by Zhao et al.
The bootstrapping techniques employed to test indirect effects confirmed the mediating role of Aad (95% confidence intervals excluding zero; .0050 to .1134) and AttBr (95% confidence interval excluding zero; .0122 to .1491; Preacher et al. 2007; Zhao et al. 2010).

Summary

Consistent with the results of study 1, environmental concern affects how consumers interpret eco-seal source cues presented in advertising. The results support H4b and H5b on brand attitudes and partially support H4a and H5a on attitudes toward the ad and H4c and H5c on purchase intentions. In general, HEC consumers have more favorable Aad, AttBr, and purchase intentions when the eco-seal source is the brand’s manufacturer, while these measures are more favorable for LEC consumers when the eco-seal source is a government agency. These results point to differences in underlying perceptions held by high and low environmental concern consumers, consistent with persuasion knowledge theorizing. As expected, these effects are mediated by Aad and AttBr, consistent with H6a and H6b.

We also found that ad appeal influences the impact of eco-seal source on brand attitudes. For both LEC and HEC consumers, a prevention appeal appears to increase vigilance, in that the effect of the eco-seal source cue was greater under these conditions. The nature of these effects varied, however, with the level of concern. When a prevention appeal is used, HEC consumers had more favorable brand attitudes when the manufacturer was the source, while the opposite pattern occurs for LEC consumers. We also measured beliefs that the brand prevents illness, as well as four related beliefs. An analysis using the MEDIATE macro (Hayes and Preacher 2011) showed that this brand belief mediates the effect of the three-way interaction on brand attitude (95% confidence intervals excluding zero: -.2091 to -.0221). Results were not significant for the other brand beliefs. Our results suggest that ad appeal can affect how consumers use green cues,
such as an eco-seal, in processing an ad for an environmentally friendly product.

**DISCUSSION**

Our theory and findings have important implications for advertisers who promote on the basis of green marketing including eco-seals. Given the history of U.S. certification and labeling of “organic” products – that there was a 20-year gap between recognizing a need for agreed-upon government standards for organic certification and the establishment of such a program (Bounds 2009) – it may be many years until government eco-certification programs are designed, agreed upon, and implemented in the United States. Until that time, firms may want or need to advertise their products and brands on the basis of the environmental and sustainability qualifications, and manufacturer-designed eco-seals are an option to be considered.

Our research provides a theoretical foundation for understanding how consumers process eco-seals and conditions under which certification cues will yield more or less favorable attitudes and purchase intentions. Moreover, because green marketing is viewed somewhat skeptically by consumers, our theory building provides insights that will be of use to researchers who seek to understand how green marketing messages affect persuasion, especially in light of advertisers’ strategic choice of message appeal. Our research also will be of interest to public policy makers who seek to understand how green advertising and eco-seals may affect consumer well-being.

**Impact of Eco-Seals Varies by High versus Low Concern Consumers**

One important implication of our findings is that the impact of eco-seals depends on the target market’s level of environmental concern. It appears that the types of inferences consumers make about the eco-seal source vary with environmental concern, which then differentially influence persuasion. Our results suggest that HEC consumers respond more favorably to eco-seals that are sponsored by the manufacturer, while LEC consumers respond more favorably to
eco-seals sponsored by an independent third party. This asymmetry in persuasion for high versus
low concern consumers is interesting in light of perceptions associated with manufacturer and
government eco-seal sources. High concern consumers appear to process in a way that reverses
the perception of the manufacturer as a biased certification source, instead rewarding the
manufacturer for efforts on an issue of concern. In this way, the persuasion knowledge model
can perhaps be extended to also accommodate consumers’ positive attributions about marketer
intentions and behaviors. That is, high concern consumers may infer increased levels of
commitment and better performance on environmental attributes by highly familiar
manufacturers that develop their own eco-seals. This interpretation is also consistent with the
finding that HEC consumers penalize low familiarity brands that present manufacturer eco-seals.

We also find that high compared to low concern consumers also differ in the persuasive
impact of an eco-seal whose source is unidentified. When consumer concern is high, an on-
package eco-seal shown in an ad helps familiar brands and hurts unfamiliar brands. In contrast,
when consumer concern is low, the presence of an ambiguous eco-seal seems to have little
persuasive impact. Still, post-hoc analysis suggests that the presence of the seal reduces the
difference in evaluations between familiar and unfamiliar brands. Specifically, when there is no
seal, LEC consumers evaluate the familiar brand more favorably than the unfamiliar brand (see
top panel of Figure 2, $B = .63, SE = .23, t = 2.72, p < .01$). In contrast, while when an eco-seal is
presented, the difference in persuasion for familiar and unfamiliar brands is no longer significant
($B = .34, SE = .21, t = 1.66, p < .10$). Thus, the results across the two studies suggest that while
low concern consumers appear to use the eco-seal as a cue to interpret the (unfamiliar) brand,
high concern consumers seem to use the brand as a cue to interpret the eco-seal. Taken together,
the findings provide insights into differential processing and persuasion for two important and
accessible consumer segments: high versus low environmental concern consumers.

**Implications for Green Advertising**

Our findings have implications for advertising theory and practice with respect to the persuasive impact of green advertising and eco-seals. First, advertisers and marketers should be very clear about their target, as the persuasive impact of advertiser-controlled content depends on consumer characteristics including level of environmental concern and familiarity with the brand. Second, advertisers may want to play up or play down the eco-seal sponsor, depending on the target audience. Third, the advertiser’s message appeal should be developed with care, since it appears that a message appeal framed around the consumer’s promotion goals has little differential impact on persuasion. On the other hand, our results show that prevention-oriented appeals can be persuasive under certain conditions. A prevention message appeal will be most persuasive if the brand presents a manufacturer eco-seal and is targeting high concern consumers, or if the brand presents a government eco-seal and is targeting low concern consumers. It also appears that prevention appeals may prompt greater vigilance with respect to the eco-seal and its implications for beliefs about the brand. As such, message appeals and eco-seals may hold promise for not just changing attitudes and intentions but also more granular aspects of the brand and its image.

**Public Policy Issues**

Concerns have been raised about the potential for consumer confusion from the use of eco-seals, particularly given that the source of the seals varies and is often not readily evident to consumers (Bustillo 2009). From a public policy perspective, our study 1 results suggest that different consumers may interpret an ambiguous eco-seal in different ways. Given the differential persuasive impact of government versus manufacturer eco-seals revealed in study 2,
policy makers may want to advocate that the eco-seal source is clearly identified on the package and/or in the advertisement. Although we did not investigate it directly, it is also likely that the conditions a brand must meet in order to receive the eco-seal would be of differential interest and persuasion for high versus low concern consumers. Not only is the number of eco-seals proliferating, there is important variations in sources and formats (e.g., industry association or retailer eco-seals) and such seals are used to signify standing in attributes beyond the environment such as inclusion/exclusion of ingredients (e.g., gluten free). Given that health, wellness, and consumer well-being are at stake with these seals and the consumer’s interpretation of them, public policy issues will only grow in importance.

Limitations and Future Research

Our research is limited in several ways. First, the manipulation of the presence versus absence of the eco-seal in study 1 was very subtle, given the eco-seal’s placement on the product’s package, and more than 40% of our participants did not correctly identify their condition in a manipulation check. Making the eco-seal more prominent, either on the package or in the ad itself may enhance the persuasive impact of this cue, and thus prominence is an important factor to be investigated in future studies. More generally, it seems likely that consumers with high levels of environmental concern would be more likely to notice an eco-seal. Consistent with this idea, in the study 1 manipulation check, we found a non-significant \( (p > .12) \) tendency for HEC participants to be more likely to correctly note the presence of an eco-seal. Thus, environmental concern could affect both attention to and evaluation of the eco-seal. In addition, we investigate two contextual cues – brand familiarity and ad appeal – that might affect how consumers interpret the eco-seal. Future research could examine the impact of other contextual variables, such as editorial content adjacent to the ad, price or retail outlet.
Second, in study 2 our explanation of the eco-seal source was more salient than in many naturally occurring advertising situations. Future research should investigate the impact of different depictions the eco-seal and its source, along with repeated exposure in different environments such as websites, news articles, and offline and online word-of-mouth communications. This will be especially important as consumers have increasingly easy access to product information at their fingertips with mobile devices, which may in some instances reduce ambiguity of environmental information or add to information overload.

Third, our studies also had low variability on product category involvement and demographic characteristics including age of study participants, who were undergraduate college students. Although the results are limited to low involvement products, we can speculate that the vigilance associated with persuasion knowledge might be even more evident when consumers process ads for high involvement products promoted on the basis of green attributes. Because some surveys show age-related differences in environmental attitudes and behaviors (see Mintel 2012), we can speculate that greater heterogeneity in demographic characteristics of study participants might widen the differences across high versus low environmental concern conditions. Generalizability will be increased by future studies on high involvement products that are promoted on the basis of green attributes and are evaluated by adult participants with greater variability in environmental concern and demographics such as age.

Given the effects of prevention-focused appeals, future research might extend prevention into appeals on the basis of fear versus more subtle or diffuse emotions such as anxiety, or fear of possible harm versus anger of actual (past) harm (e.g., Exxon Valdez oil spill, coal mining; Miller and Sinclair 2009). While we provide some evidence about consumer inference-making, the congruency or “fit” between the ad appeal and specific claims related to the product or the
brand’s image may play an important role in inference-making and attitude formation. Consumers often infer that green products are less effective (see Chang 2011), and so it will be important for future eco-seal research to investigate the impact of consistency in ad appeal, beliefs, and brand image on attitude formation. With the proliferation of eco-seals, these and other research questions will be of importance to advertising theory, practice, and public policy.
REFERENCES


Chaiken, Shelly and Yaacov Trope (1999), Dual-process Theories in Social Psychology. New


Kees, Jeremy, Scot Burton and Andrea Heintz Tangari (2010), “The Impact of Regulatory Focus,
Temporal Orientation, and Fit on Consumer Responses to Health-related Advertising,”
Journal of Advertising, 39(1), 19-34.


### TABLE 1

**STUDY 1: MEAN INTENTIONS AND ATTITUDES BY CONDITION**

<table>
<thead>
<tr>
<th></th>
<th>No Seal</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unfamiliar Brand</td>
<td>Familiar Brand</td>
</tr>
<tr>
<td>Low Environmental Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Brand Intentions</strong></td>
<td>2.97 (1.22)</td>
<td>4.35 (1.48)</td>
</tr>
<tr>
<td></td>
<td>3.30 (1.38)</td>
<td>4.17 (1.60)</td>
</tr>
<tr>
<td><strong>Brand Attitudes</strong></td>
<td>3.73 (.96)</td>
<td>4.63 (.84)</td>
</tr>
<tr>
<td></td>
<td>3.61 (.99)</td>
<td>4.40 (1.05)</td>
</tr>
<tr>
<td><strong>Ad Attitudes</strong></td>
<td>3.22 (1.44)</td>
<td>4.49 (1.13)</td>
</tr>
<tr>
<td></td>
<td>3.24 (1.22)</td>
<td>4.04 (1.42)</td>
</tr>
<tr>
<td>High Environmental Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Brand Intentions</strong></td>
<td>4.02 (1.40)</td>
<td>4.10 (1.84)</td>
</tr>
<tr>
<td></td>
<td>3.30 (1.59)</td>
<td>4.54 (1.07)</td>
</tr>
<tr>
<td><strong>Brand Attitudes</strong></td>
<td>4.44 (1.14)</td>
<td>4.65 (1.00)</td>
</tr>
<tr>
<td></td>
<td>3.99 (1.27)</td>
<td>4.72 (.82)</td>
</tr>
<tr>
<td><strong>Ad Attitudes</strong></td>
<td>4.09 (1.63)</td>
<td>4.45 (1.54)</td>
</tr>
<tr>
<td></td>
<td>3.58 (1.46)</td>
<td>4.35 (1.06)</td>
</tr>
</tbody>
</table>

Note: STD in parentheses; environmental concern based on median split.
<table>
<thead>
<tr>
<th></th>
<th>Dependent Variable Model</th>
<th>Mediator Variable Models</th>
<th>DV Model with Mediators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Purchase Intentions</td>
<td>Attitude toward the Ad</td>
<td>Brand Attitudes</td>
</tr>
<tr>
<td>Constant</td>
<td>3.47&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.67&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.91&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Eco-seal</td>
<td>-.03</td>
<td>-.13</td>
<td>-.10</td>
</tr>
<tr>
<td>Brand Fam.</td>
<td>.44&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.39&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.31&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Env. Concern</td>
<td>.08</td>
<td>.10</td>
<td>.08</td>
</tr>
<tr>
<td>Seal x Brand Fam.</td>
<td>.08</td>
<td>.01</td>
<td>.07</td>
</tr>
<tr>
<td>Seal x Env. Concern</td>
<td>-.12</td>
<td>-.01</td>
<td>-.05</td>
</tr>
<tr>
<td>Brand Fam. X Env. Concern</td>
<td>-.04</td>
<td>-.05</td>
<td>-.04</td>
</tr>
<tr>
<td>Seal x Brand Fam. X Env.</td>
<td>.17&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.16&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.10&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Interest in Category</td>
<td>.14&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.09</td>
<td>.13&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Attitude toward the Ad (Aad)</td>
<td></td>
<td></td>
<td>.33&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Brand Attitudes (AttBr)</td>
<td></td>
<td></td>
<td>.66&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Overall Model (F)</td>
<td>3.65&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.23&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.27&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: <sup>a</sup> p < .01, <sup>b</sup> p < .05, <sup>c</sup> p < .10
TABLE 3
STUDY 2: MEAN INTENTIONS AND ATTITUDES BY CONDITION

<table>
<thead>
<tr>
<th>Promotion Focus:</th>
<th>Low Environmental Concern</th>
<th>High Environmental Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manufacturer</td>
<td>Government Agency</td>
</tr>
<tr>
<td>Brand Intentions</td>
<td>2.73</td>
<td>3.03</td>
</tr>
<tr>
<td></td>
<td>(1.39)</td>
<td>(1.39)</td>
</tr>
<tr>
<td>Brand Attitudes</td>
<td>4.30</td>
<td>4.21</td>
</tr>
<tr>
<td></td>
<td>(1.14)</td>
<td>(1.07)</td>
</tr>
<tr>
<td>Ad Attitudes</td>
<td>3.22</td>
<td>3.80</td>
</tr>
<tr>
<td></td>
<td>(1.07)</td>
<td>(1.30)</td>
</tr>
<tr>
<td>Prevention Focus:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand Intentions</td>
<td>2.73</td>
<td>3.07</td>
</tr>
<tr>
<td></td>
<td>(1.43)</td>
<td>(1.27)</td>
</tr>
<tr>
<td>Brand Attitudes</td>
<td>3.68</td>
<td>4.44</td>
</tr>
<tr>
<td></td>
<td>(1.31)</td>
<td>(.83)</td>
</tr>
<tr>
<td>Ad Attitudes</td>
<td>3.18</td>
<td>3.83</td>
</tr>
<tr>
<td></td>
<td>(1.29)</td>
<td>(.86)</td>
</tr>
</tbody>
</table>

Note: STD in parentheses; environmental concern based on median split.
### TABLE 4

**STUDY 2: REGRESSION RESULTS (UNSTANDARDIZED COEFFICIENTS)**

<table>
<thead>
<tr>
<th>Dependent Variable Model</th>
<th>Mediator Variable Models</th>
<th>DV Model with Mediators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Intentions</td>
<td>Attitude toward the Ad</td>
<td>Brand Attitudes</td>
</tr>
<tr>
<td>Constant</td>
<td>1.83&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.20&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Eco-seal Source</td>
<td>.06</td>
<td>-.16</td>
</tr>
<tr>
<td>Ad Appeal</td>
<td>-.01</td>
<td>.03</td>
</tr>
<tr>
<td>Env. Concern</td>
<td>.15&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.28&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Source X Appeal</td>
<td>.04</td>
<td>-.01</td>
</tr>
<tr>
<td>Source X Concern</td>
<td>.23&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.16&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Appeal X Concern</td>
<td>.005</td>
<td>.06</td>
</tr>
<tr>
<td>Source X Appeal X Concern</td>
<td>-.01</td>
<td>-.07</td>
</tr>
<tr>
<td>Interest in Category</td>
<td>.43&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.17&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Attitude toward the Ad (Aad)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand Attitudes (AttBr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Model (F)</td>
<td>8.49&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.14&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: <sup>a</sup> p < .01, <sup>b</sup> p < .05, <sup>c</sup> p < .10
FIGURE 1

Conceptual Model for Study 1
FIGURE 2

Study 1: Purchase Intentions by Environment Concern, Brand Familiarity, and Eco-seal

**Low Environmental Concern**

![Graph showing purchase intentions for low environmental concern]

**High Environmental Concern**

![Graph showing purchase intentions for high environmental concern]
FIGURE 3

Study 2: Purchase Intentions by Environmental Concern and Eco-seal Source
FIGURE 4

Study 2: Brand Attitudes by Eco-seal Source, Environmental Concern and Message Appeal

Promotion Focus Message Appeal

Prevention Focus Message Appeal
APPENDIX 1

STUDY 1: EXAMPLES OF TARGET AD

A. Known Brand with Eco-seal (on bottle neck):

Give New Meaning to Cleaning

Cuts through grease and grime without leaving a smeary residue
Effective cleaning power for all surfaces

The easy way to clean!

B. Unknown Brand without Eco-seal:

Give New Meaning to Cleaning

Cuts through grease and grime without leaving a smeary residue
Effective cleaning power for all surfaces

The easy way to clean!
### APPENDIX 2

**MEASURES AND RELIABILITIES**

<table>
<thead>
<tr>
<th>Construct, Items and Source</th>
<th>Study 1 $\alpha$</th>
<th>Study 2 $\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude toward the Ad</strong> (3 Likert scale items):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>My overall attitude toward the advertisement for ____ is:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative/Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfavorable/Favorable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad/Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Brand Attitudes</strong> (6 semantic differential items):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Overall, Clean Well Hand Sanitizer is...</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low quality/High quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unappealing/Appealing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Something I dislike very much/Something I like very much</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpleasant/Pleasant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative/Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfavorable/Favorable</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Purchase Intentions</strong> (3 semantic differential items):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>How likely is it that you would purchase Clean Well Hand Sanitizer:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very unlikely/Very likely</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitely would not/Definitely would</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improbable/Probable</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental Concern</strong> (5 semantic differential items; Mohr, Eroglu, and Ellen 1998):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Environmental issues are:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unimportant/Important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Something that does not really matter to me/… really matters to me</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not personally relevant/Personally relevant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninvolving/Involving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of little concern to me/Of great concern to me</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manipulation Check: SmartCheck Attitudes</strong> (4 semantic differential items):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Overall, the SmartCheck$^{TM}$ Certification is:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfavorable/Favorable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative/Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One that I do not like very much/One that I like very much</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad/Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manipulation Check: SmartCheck Trust</strong> (4 semantic differential items):</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Overall, the SmartCheck$^{TM}$ Certification is:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biased/Not biased</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deceptive/Not deceptive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unbelievable/Believable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unconvincing/Convincing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All items were measured on 7-point scales
APPENDIX 3

STUDY 2: EXAMPLES OF TARGET AD

A. Promotion Appeal & Manufacturer Eco-seal:

Keeping You Healthy
The Natural Way
So you can continue to enjoy what life has to offer!

Kills germs to prevent illness
All natural and alcohol free
Great fresh fragrance

Easy-to-use spray bottle with no-mess flip-top cap

Our Company created the environmental criteria for the
SmartCheck™ program, so that you can feel good about what
you're buying. SmartCheck™ is our Company's assurance that this
product uses better ingredients for the environment and human health.

B. Prevention Appeal & Government Agency Eco-seal:

Protecting You From Illness
The Natural Way
So you can avoid missing out on what life has to offer!

Kills germs to prevent illness
All natural and alcohol free
Great fresh fragrance

Easy-to-use spray bottle with no-mess flip-top cap

The US Consumer Products Safety Commission created the
environmental criteria for the SmartCheck™ program, so that
you can feel good about what you're buying. SmartCheck™ is
the US Consumer Product Safety Commission's assurance that this
product uses better ingredients for the environment and human health.