The effects of congruency of environmental issue and product category and green reputation on consumer responses toward green advertising

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Abstract
Purpose – The purpose of this paper is to examine the congruence effect of the product and claimed environmental issue on green advertising on consumer responses as well as the moderation effect of the perceived green reputation of the product on the congruence effect.
Design/methodology/approach – A two-by-two designed experiment (high/low congruence × high/low green reputation) with a covariate (ad skepticism) was conducted via online survey recruiting 179 college students.
Findings – High congruence of green issue and product category generated positive ad attitude, sponsor attitude, behavioral intention (BI), sponsor credibility and message credibility. Low green reputation positively affected ad attitude and BI. An interaction effect of congruence and green reputation on BI occurred.
Originality/value – This study contributes to suggest a new approach to green reputation by examining a perception of a product category in terms of green reputation. The study findings recommend marketing communication managers to keep high congruence of their product category and claimed environmental issue to maximize communication effectiveness.
Keywords Sustainable development, Green issues, Attribution theory, Marketing communications, Halo effect, Congruency effect
Paper type Research paper

1. Introduction
Environmental issues have been a major concern across various groups, including corporations, governments, activists and consumers, resulting in a need for information on these issues. The US Department of Energy provides individuals with sustainability information regarding recycling and environmental conservation. In addition, corporations have actively participated in pro-environmental activities, such as joining social groups for green movements and launching eco-friendly products (Lunati, 2013). In the academic scholarship, Bamberg and Möser (2007) identified a dramatic increase in the number of published articles addressing the determinants of pro-environmental behavior during the period 2000–2007.

In the business realm, corporations use advertising as a tool to improve their green reputation, which can be simply defined as reputation related to environmental issues (Allen, 2016). In general, the reputation of an entity is formed through every represented behavior and communication practice (Gotsi and Wilson, 2001b). Strong and positive reputation plays an important role in reducing damage when the entity is in a reputational crisis situation (Coombs and Holladay, 2006), but ethical issues including environmental
problems can evoke more critical reputational damage to the entity (Sohn and Lariscy, 2014). In terms of green reputation, Arias-Bolzmann et al. (2000) argued that previous perception of a product category is an influential factor on responses to advertising.

While scholarly attention to green reputation has increased, the spectrum of green advertising research remains limited. The majority of green advertising research has focused on factors affecting advertising effectiveness, such as involvement with the environment (Chan et al., 2006), environmental claim (Chang, 2011) and environmental knowledge (Manrai et al., 1997). These studies have focused on consumer characteristics or advertising message attributes. However, studies on the effect of green reputation on ad effectiveness are scarce in the green advertising research. This study is intended to fill this gap.

Unlike previous studies investigating green reputation at the brand/organizational level (Bansal and Roth, 2000; Griskevicius et al., 2010), this study approached the topic at the product category level. Assuming consumers have a preexisting perception of product categories in terms of green reputation (e.g. oil refinery products vs bicycles), this study expected that perceived green reputation at the product category level might affect ad effectiveness at the brand level. To understand the mechanism, attitude transference from the product category level to the brand level, the halo effect is considered. The halo effect in advertising and marketing is the influence of overall impressions of an entity including brand, product and sponsor on consumers’ attitudes toward specific attributes of the entity (Leuthesser et al., 1995). This effect explains how environmental perception about a product category can be transferred to an affiliated brand, product and sponsor.

Congruence effect is a broadly accepted theory in advertising that explains that when ad elements are thematically matched (e.g. event and sponsor), more positive outcomes such as attitude toward the advertising (Kamins, 1990; Moorman et al., 2002) and the brand (Carrillat et al., 2013) and behavioral intention (BI) (Carrillat et al., 2013) are generated than when they are mismatched. This effect applies to the congruence of a product category and a claimed environmental issue in green advertising.

The primary purpose of this study was to examine the effectiveness of green advertising as it is influenced by the level of green reputation of a product category and the congruence of an environmental issue and the product category. Five variables of ad effectiveness are considered: attitude toward the ad ($A_{ad}$), attitude toward the sponsor ($A_{s}$), BI, credibility of the ad message ($C_{m}$) and credibility of the source ($C_{s}$). To achieve the research goal, this study utilized a 2 (high/low green reputation on product category) × 2 (high/low congruence of the product category and an environmental issue on green ad) experiment. The main effects of the two independent variables and their interaction effects on green ad effectiveness were analyzed.

This topic is worth investigating for several reasons. First, this study extends scholarly knowledge about how green reputation is influenced by advertising. Second, the findings of this study suggest a novel approach toward green ad research using perceived green reputation of the product category instead of individual products. Third, the results of this study show that the congruence effect is applicable to the green advertising context. Along with these intellectual contributions, practical suggestions are discussed.

2. Literature review and hypotheses

2.1 Congruence effect of environmental issue and product category

Scholars have studied environmental issues (Banerjee et al., 1995; Bortree et al., 2012; Peterson, 1991; Stafford et al., 1996) and product categories (Atkinson and Kim, 2015; Carlson et al., 1993) in green advertising. Iyer et al. (1994) indicated that there is a relationship between environmental issue and product category; for example, household...
products prominently appealed to land issues (55 percent) among 95 TV green advertisements in 1991 and 1992. However, only a few researchers have examined the association between environmental issue and product category in green advertising. To explain this relationship, this study adopted the theory of the congruence effect.

Congruence effect (also called match-up effect) explains how the congruence or incongruence of two elements in advertising could influence advertising effectiveness. Scholars have examined various relationships between the two elements in advertising – product and endorser (Carrillat et al., 2013), product and media (Moorman et al., 2002), media contents and ad appeal (De Pelsmacker et al., 2002) and sponsor and event (McDaniel, 1999). However, studies on congruence effects in the green advertising context are very rare. This study is intended to fill this gap.

Most of the studies about congruence effects in advertising demonstrate that congruence generates positive consequences in terms of advertising effectiveness. Theoretically, the congruence effect in advertising causes images to transfer easily from the event to a sponsor and yields a high recall rate among customers about the sponsor, thereby eliciting favorable attitudes toward the sponsor (Rifon et al., 2004). Congruence in advertising could lead to positive ad attitude (Kamins, 1990; Moorman et al., 2002), brand attitude (Carrillat et al., 2013), BI (Carrillat et al., 2013), brand recognition (Moorman et al., 2002) and sponsor credibility (Rifon et al., 2004). In green advertising, a hand soap advertisement highlighting water pollution is an example of high congruence between an environmental issue and a product category, whereas a hand soap ad highlighting wildlife protection could have low congruence.

Based on the theory of congruence effect and previous empirical studies in advertising, this study expected the congruence effect to be applicable to green advertising. Specifically, this study predicted that congruence of the product category and green issue might yield positive ad attitude, BI, sponsor attitude, sponsor credibility and message credibility. Based on this assumption, the following hypothesis is posed:

**H1.** In green advertising, the level of congruence between the product category and the environmental issue will positively affect the degree of ad effectiveness.

### 2.2 Green reputation

Green reputation refers to an entity’s reputation in relation to the environment. In the communication scholarship, green reputation has been studied in a limited scope, mostly focusing on corporate green reputation. Corporate green reputation is consumers’ evaluation of a company formed over time by direct experiences with the company and any communications providing information about the company’s actions related to the environment (Gotsi and Wilson, 2001b). A company that has been evaluated as environmentally friendly in the long term could achieve positive corporate green reputation. Positive corporate green reputation can play a role as insurance to protect against reputational damage in a crisis situation (Coombs and Holladay, 2006). In addition, high positive green reputation can influence economic performance in the long term (Tang et al., 2012). To improve green reputation, companies often send green messages using various communication strategies, including promotion, advertising, sponsorship and public relations, while changing business policy, marketing strategy, products and services to be more pro-environment (Dwyer et al., 2009).

Although scholars have studied reputation at the brand or organizational level, this study assumed that product categories initially had positive or negative green reputation to some degree. Positive product-categorical green reputation indicates that customers consider a product category to be relatively environmentally friendly, while a negative product-categorical green reputation indicates that the public perceives a product category
to have a relatively negative impact on the environment. For example, petroleum brands might be classified as having a negative green reputation due to the public perception that oil refineries produce air pollutants in the process of petroleum production. By contrast, organic food brands would be perceived as environmentally friendly by consumers. Neutral green reputation products could include financial services, media and entertainment and grocery stores, which do not demonstrate significant impacts, either positive or negative, on the environment.

This study extended the original meaning of green reputation in terms of two major factors: the scope of the term and stability. In this study, green reputation focused on a product category (e.g. automobile, retail, etc.), while general green reputation was based on an individual company or brand (Biloslav and Trnavcevic, 2009). Furthermore, corporate green reputation is influenced by all of a company’s everyday actions and communications (Gotsi and Wilson, 2001a), whereas product-categorical green reputation in this study remains relatively stable (e.g. consumers believe that cars release emissions that have contributed to air pollution both in the past and present).

The halo/horns effect refers to a cognitive process in which an individual’s overall impression of an entity, regardless of its size (e.g. person, company, or nation), influences the individual’s later attitude toward the entity’s specific character or properties (Balzer and Suls, 1992). This is called the halo effect when both the initial impression and the later evaluated attitude are positive and the horns effect when they are negative. Psychologists began studying this phenomenon in the 1920s (Pavitt, 2009). These initial studies focused on the impression of a person and his or her characteristics, but marketing researchers later extended the area of this theory to the impact of brand image on attitudes toward its characters (Beckwith et al., 1978). In the sustainability communication context, scholars indicated that knowing where a product was made could have a halo effect on consumer attitude toward the green product (Chan and Lau, 2004; Manrai et al., 1997).

The halo/horns effect may cause consumers to use their evaluation of the green reputation of the product category as an information cue to form attitude and belief toward an unfamiliar product, brand or sponsor in green advertising. In other words, a positive evaluation of a product category may positively influence attitude toward an individual brand under the product category (halo effect), while a negative evaluation of the product category may negatively affect the attitude (horns effect). The following hypothesis contends that positive green reputation generates high advertising effectiveness:

H2. A product category with a relatively positive green reputation will have greater positive effects on ad effectiveness than a counterpart with a relatively negative green reputation.

Based on the discussion about the congruence effect and green reputation, this study assumed that when the congruence between the environmental issue and the product category is high and the green reputation is high, the green advertising will lead to the most positive ad effectiveness. Specifically, when green reputation is low, consumers may attribute the green ad as a strategic tool to make the ad organization look environmentally friendly or as a pro-environmental social trend (external motivation), while when the green reputation is high, they may consider the green advertising to represent the sincere environmentalism of the organization creating the ad (internal motivation) (Kelley, 1971). Parguel et al. (2011) showed that consumers who determined a green ad to be internally motivated more positively evaluated the green ad and intention to purchase the advertised product. It is also possible that perceived external motivation leads consumers to consider the green ad as greenwashing. Some organizations have used green advertising unethically, such as by omitting critical information and using vague messages. This deceptive environmental communication is called greenwashing (Delmas and Burbano, 2011) and may
lead to an unfavorable attitude toward green ads and low trustfulness of green ads (Chang, 2011; Nyilasy et al., 2014). The perceived external motivation and negative attitude toward the green ad can evoke negative bias and hinder the congruence effect in relation to the green ad. In other words, when the green reputation is high, congruence may positively respond to the ad while when the green reputation is low, congruence may not influence ad evaluation. The following hypothesis is proposed:

**H3.** In green advertising, green reputation and congruence will interact. When green reputation is high, high congruence will positively affect the degree of ad effectiveness.

### 2.3 Advertising effectiveness

Advertising attitude ($A_{ad}$), ad sponsor attitude ($A_s$) and BI have been identified as the best indicators of advertising effectiveness (Brown and Stayman, 1992; Spears and Singh, 2004). $A_{ad}$ is defined as “a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion” (MacKenzie and Lutz, 1983). $A_s$ is defined as “a learned predisposition to respond in a consistently favorable or unfavorable manner toward the sponsoring organization” (MacKenzie and Lutz, 1983). BI refers to a personal and deliberate plan to engage in a certain behavior recommended by a particular advertising stimulus (Spears and Singh, 2004). $C_s$ is defined as the extent to which a consumer trusts and believes a sponsor in the advertisement and $C_m$ is the extent to which a consumer trusts and believes claims presented by the advertisement (MacKenzie and Lutz, 1983). In the context of green advertising, $C_s$ and $C_m$ have often been used to evaluate advertising effectiveness (Newell et al., 1998; Tucker et al., 2012). $A_{ad}$, $A_s$, BI, $C_s$ and $C_m$ are all interrelated (Goldsmith et al., 2000). These five ad effectiveness variables were tested for all hypotheses. Figure 1 provides a visual representation of the hypotheses to be tested in this study.

### 3. Methods

To test the aforementioned hypotheses, this study conducted an online experiment which utilized a $2 \times 2$ between-subjects design with a covariate: high/low congruence of environmental claim and product category (main predictor), high/low green reputation (moderator) and advertising skepticism (covariate). The main predictor and

Figure 1. Proposed MANCOVA model of the effect of green reputation, congruence and skepticism on ad effectiveness

Multiple outcome
- Ad attitude
- Sponsor attitude
- Behavioral intention
- Sponsor credibility
- Message credibility
moderator were manipulated with variables having two levels, and the covariate was a continuous and observed variable. The covariate was used as a control variable for the statistical analyses.

3.1 Material and manipulation check
An online experiment used four full-color ad stimuli that included traditional advertising factors: headline, copy, image and logo. Brands in the stimuli were fictional because advertised brand familiarity could influence advertising reactions (Kent and Allen, 1994). The stimuli were manipulated by green reputation and congruence. For green reputation manipulation, an automobile company (low green reputation) and a bottled water company (high green reputation) were chosen. We assumed that a car company was considered rather anti-environment because cars emit waste gases, while a bottled water company was perceived as pro-environmental because the company purifies water.

Another manipulated factor in the ad stimuli is congruence. For low congruence, the automobile company included an environmental claim about water pollution, and the bottled water company encouraged consumers to prevent air pollution. For high congruence, the automobile company recommended tips to protect the air from pollution, and the bottled water company included an environmental message about helping to keep water sources clean.

As every element in the ad was controlled, four types of ad stimulus were created by combinations of high/low green reputation and high/low congruence. Figure A1 shows the four advertisements. The researchers initially created all textual messages for the experiments, and an experienced advertising manager with a specialty in ad art guided the creation of each ad’s visual elements, including color, layout and size of visual contents.

For the pretest, 53 undergraduate students in the USA were recruited. A seven-point Likert scale (1 = strongly disagree; 7 = strongly agree) was used to answer questions. In the pretest, the levels of green reputation and congruence were manipulated. To check the manipulation of high/low perceived green reputation, the following questions were utilized: “When I looked at the advertisement, I recognized that the advertiser was an automobile company (or a water company)” ($t(25) = 8.37, p < 0.001$) for the automobile company; ($t(26) = 12.281, p < 0.001$) for the water company and “I think automobile companies (water companies) have a negative influence on the environment” ($F(1, 51) = 6.11, p < 0.05$). For the manipulation check for the congruence of environmental claim and product category, this study utilized the following two questions: “I think automobile companies (or water companies) are more closely related to air pollution (or water pollution) than other kinds of pollution” ($F(1, 51) = 20.89, p < 0.001$) and “When I looked at the advertisement, I recognized that the ad message was talking about air pollution (or water pollution)” ($t(27) = 19.92, p < 0.001$) for air pollution; ($t(24) = 12.63, p < 0.001$) for water pollution. All results of the manipulation checks were statistically supported.

3.2 Participants and procedure
This recruitment and participation system described in this section was initiated following institutional review board approval. A convenience sample of 179 college students was recruited from a major university in the southeast region of the USA to participate in this study. The participants were randomly assigned into one of four groups: low green reputation × low congruence, low green reputation × high congruence, high green reputation × low congruence and high green reputation × high congruence. Participating subjects were randomized into four groups numbering 42, 41, 48 and 48.

To recruit student participants, the researchers utilized a research participation pool operated by a research center within the university. The system enables researchers to examine anonymous human subjects conveniently, while also allowing student participants
to receive extra credit as compensation. Specifically, researchers initially uploaded a note
with information about this study to an online bulletin board in the system, and students
could then opt to participate in the study voluntarily by following a hyperlink within the
recruiting note. The hyperlink connects participants to an online survey site, Qualtrics.
This online experiment measured advertising skepticism first, then showed one
manipulated advertisement, which was followed by a measures of attitude toward
advertising, attitude toward company, BI, ad sponsor credibility, message credibility,
advertising manipulation and demographic information.

3.3 Measurement
This study used a seven-point semantic scale to measure most of the variables. Advertising
skepticism was measured with a seven-point Likert scale (1 = strongly agree and
7 = strongly disagree). To measure reliability of all measurement scales, Cronbach’s α tests
were conducted.

Advertising skepticism. This variable was defined as subjects’ disbelief of general
advertising. Advertising skepticism was treated as a covariate. Previous studies have
shown the effects of ad skepticism on ad effectiveness (Chang, 2011; Obermiller
and Spangenberg, 1998); thus, this study controlled this variable. Nine statements adopted
from Obermiller and Spangenberg (1998) were used to measure this variable. Example
statements include “Advertising’s aim is to inform the consumer,” “Advertising is
generally truthful” and “I feel I have been accurately informed after viewing most
advertisements” (α = 0.895).

Attitude toward the advertising. This variable was defined as subjects’ thoughts and
feelings about the advertisement observed during the test. Attitude toward advertising was
measured with the following four semantic items adopted from Bruner and Kumar (2000)
and ranked on a seven-point scale: good/bad, like/dislike, not irritating/irritating and
interesting/boring (α = 0.857).

Attitude toward the sponsor. This study refers to subjects’ attitudes toward the sponsor
and includes their thoughts and feelings about the advertiser during the test. This variable
was measured with five items ranked on a seven-point scale: bad/good, unfavorable/favorable,
unsatisfactory/satisfactory, negative/positive and disliked/liked (Becker-Olsen, 2003)
(α = 0.939).

Behavioral intention. This variable was operationalized as subjects’ intention to engage in
behaviors recommended in the advertising stimulus (i.e. environmentally friendly actions).
Three items ranked on a seven-point scale were used to measure this variable: unlikely/likely,
improbable/probable and impossible/possible (Gotlieb and Sarel, 1992) (α = 0.896).

Credibility of the sponsor. This variable explains subjects’ assessment of the trustworthiness
of the advertiser viewed during the test. This study used the following three items adopted from
Goldsmith et al. (2000) and ranked on a seven-point scale to measure sponsor credibility:
dishonest/honest, not trustworthy/trustworthy and untruthful/truthful (α = 0.938).

Credibility of the message. This variable was operationalized as subjects’ trust of the
advertised message viewed during the test. This study used five questions adopted from
Lichtenstein and Bearden (1989) and ranked on a seven-point scale to measure message
credibility: insincere/sincere, dishonest/honest, not dependable/dependable, not
trustworthy/trustworthy and unreliable/reliable (α = 0.939).

4. Results
4.1 Descriptive statistics
The mean age of participants was 21.24 years (SD = 3.0), ranging from 18 to 35.
The majority of participants were female (77.1 percent, n = 138 vs 22.9 percent, n = 41 male).
Several ethnic groups were represented: 52 (29.1 percent) white, 24 (13.4 percent) Asian, 29 (16.2 percent) black, 60 (33.5 percent) Hispanic, 4 (2.2 percent) American Indian and 7 (3.9 percent) other. The proportions of ethnic groups in this study were different from those of the US population, which is 76.9 percent white, 13.3 percent black, 5.7 percent Asian, 17.8 percent Hispanic and 1.3 percent American Indian (US Census Bureau, 2016).

To test all the proposed hypotheses, a multivariate analysis of covariance (MANCOVA) was conducted using SPSS (ver. 21). The independent variables included green reputation and congruence of environmental claim and product category, and the covariate was skepticism toward advertising ($M = 4.04, SD = 1.05$). The dependent variables were $A_{ad}$ ($M = 4.47, SD = 1.29$), $A_s$ ($M = 4.75, SD = 1.29$), $BI$ ($M = 4.73, SD = 1.31$), $C_s$ ($M = 5.12$, $SD = 1.81$) and $C_m$ ($M = 5.01, SD = 1.21$). The result of correlations among the five ad effectiveness variables indicated that all factors are significantly (all $p < 0.001$), positively and at least moderately correlated with each other. Ad attitude and sponsor attitude were especially strongly correlated ($r = 0.80$), and sponsor credibility was strongly correlated with message credibility ($r = 0.87$).

Multivariate analysis showed a significant multivariate effect for the five dependent variables in relation to ad skepticism ($p < 0.001$), green reputation ($p < 0.01$) and the interaction of congruence and green reputation ($p < 0.01$). However, the multivariate effect of congruence was not significant. The univariate analyses of the effects of green reputation, congruence and ad skepticism on the dependent variables are addressed in the following sections to confirm the proposed hypotheses.

4.2 Covariate test

The relationships between ad skepticism and each outcome variable were statistically tested to confirm whether the covariate significantly affects outcome variables. The findings indicated that ad skepticism negatively affected all outcomes. Specifically, ad skepticism was negatively associated with $A_{ad}$ ($p < 0.05$), $A_s$ ($p < 0.01$), $BI$ ($p < 0.1$), $C_s$ ($p < 0.001$) and $C_m$ ($p < 0.001$).

4.3 Hypothesis tests

$H1$ tested whether congruence between the advertised environmental issue and product category positively affected advertising effectiveness. As shown in Table I, the effects of congruence were significant for all outcome variables: $A_{ad}$ ($F(1, 172) = 6.21, p < 0.05$), $A_s$ ($F(1, 172) = 7.51, p < 0.05$), $BI$ ($F(1, 172) = 7.46, p < 0.05$), $C_s$ ($F(1, 172) = 5.65, p < 0.05$) and $C_m$ ($F(1, 172) = 10.41, p < 0.01$). Therefore, the first set of hypotheses was supported.

$H2$ posited that high green reputation might positively impact advertising effectiveness. As Table I indicates, green reputation significantly influenced $A_{ad}$ ($F(1, 172) = 19.47, p < 0.001$) and $BI$ ($F(1, 172) = 8.55, p < 0.05$) and marginally significantly affected $A_s$ ($F(1, 172) = 4.66, p < 0.1$). However, the difference in green reputation did not demonstrate any significant effect on $C_s$ and $C_m$. Although there were significant differences in ad effectiveness between high/low

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$A_{ad}$</th>
<th>$A_s$</th>
<th>$BI$</th>
<th>$C_s$</th>
<th>$C_m$</th>
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<tbody>
<tr>
<td></td>
<td>$F(1,172)$</td>
<td>$F(1,172)$</td>
<td>$F(1,172)$</td>
<td>$F(1,172)$</td>
<td>$F(1,172)$</td>
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<tr>
<td>Ad skepticism</td>
<td>10.132**</td>
<td>13.872**</td>
<td>6.011****</td>
<td>5.650*</td>
<td>30.858***</td>
</tr>
<tr>
<td>Green reputation</td>
<td>19.468***</td>
<td>4.655****</td>
<td>8.548*</td>
<td>0.758</td>
<td>2.878</td>
</tr>
<tr>
<td>Congruence $\times$ green reputation</td>
<td>2.270</td>
<td>1.802</td>
<td>6.821*</td>
<td>0.644</td>
<td>1.818</td>
</tr>
</tbody>
</table>

Notes: $A_{ad}$, attitude toward the ad; $A_s$, attitude toward the ad sponsor; $BI$, behavioral intention; $C_s$, credibility of the ad sponsor; $C_m$, credibility of the ad message. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ****$p < 0.1$
green reputation levels, the direction of the effectiveness was opposite to that of our initial expectation. Low green reputation positively affected $A_{ad}$, $A_s$ and BI. Thus, the second set of hypotheses was not supported.

$H3$ proposed an interaction effect of green reputation and congruence on advertising effectiveness. Across the five outcome variables, only BI exhibited an interaction effect ($F(1, 169) = 6.82, p < 0.05$). When green reputation was high and congruence was high, BI was the highest ($M = 4.99$, $SD = 1.31$). Regarding BI, when green reputation was low, congruence did not make a difference, while when green reputation was high, the mean difference of high/low congruence levels was significant. There was no interaction effect found on advertising attitude, ad sponsor attitude, sponsor credibility and message credibility. Thus, the third set of hypotheses was partially supported (Figure 2).

To see multiple comparisons of green reputation and congruence on BI, post hoc tests were conducted using Bonferroni adjusted $\alpha$ levels of 0.00625 per test (0.05/8). When green reputation was low, high congruence positively affected sponsor attitude. When green reputation was high, high congruence positively influenced BI, $C_s$ and $C_m$. In addition, when congruence was low, low green reputation positively impacted BI. Finally, when congruence was high, low green reputation had a positive influence on $A_{ad}$.

5. Discussion
This study was designed to investigate the effects of congruence between the claimed environmental issue and product category, green reputation at the product category level and their interactions on $A_{ad}$, $A_s$, BI, $C_s$ and $C_m$ in green advertising. The analysis provided several major findings regarding the effectiveness of green advertising. First, high congruence positively influenced all ad effectiveness outcomes. Second, lower green reputation more positively affected participants’ $A_{ad}$ and BI. Third, there was an interaction effect of congruence and green reputation on BI, with the highest mean when congruence was high and green reputation was low. These outcomes revealed that thoughtful combining of product category and claimed environmental issue can significantly increase the effectiveness of green advertising.

Strong associations between an environmental issue and a product category in green advertising positively affected all ad outcomes. This finding was consistent with those of previous studies examining the congruence effect (McDaniel, 1999; Rifon et al., 2004; Solomon et al., 1992).

![Figure 2](image-url)
The findings showed that lower green reputation at the product category level affects $A_{ad}$, $A_s$ and $B_I$ more positively than higher green reputation. These results were statistically supported, but the directions of ad effectiveness were the opposite of our expectation. A possible explanation for this counterintuitive outcome can be elucidated from product involvement. Differing levels of product involvement between the car and water industries may have influenced the responses of the participants (Ratchford, 1987). A car is considered a high-involvement product, whereas drinking water is a low-involvement product (Ratchford, 1987). A high-involvement product can positively affect ad effectiveness (Krugman, 1966). In other words, the sample in this study might be more involved with cars than with bottled water. This high involvement with cars might have generated the finding that a low green reputation product category positively influenced ad effectiveness.

In light of the halo effect, different degrees of ad effectiveness were assumed for participant groups exposed to two distinct product categories having different green reputation levels. Although the method used in this study did not measure whether a respondent used the green reputation of a product category as a cue to evaluate ad effectiveness, it can be inferred that the halo effect of green reputation influenced ad effectiveness. The rationale for this is that all elements in the advertising stimuli in the experiment except the product category were controlled. Thus, the findings of this study reveal that the halo effect is supported in the context of green reputation at the product category level. This result is consistent with previous literature that adopted the halo effect to explain the mechanism in green advertising effectiveness (Chan and Lau, 2004; Manrai et al., 1997).

The results indicated that when a company in a low green reputation product category makes a green advertisement that includes highly congruent environmental claims, the ad might effectively encourage consumers to engage in a pro-environmental behavior. A practical example of this combination is the Yuhan Kimberly Corporation, a Kleenex® company in South Korea. As a paper manufacturer, this company is known to consume a large number of trees annually in its papermaking process and thus can be categorized in the low green reputation group. However, the core message of Yuhan Kimberly’s green advertising campaign has been “protect our forests.” This advertising campaign demonstrates a combination of low green reputation and high congruent environmental claim and has helped Yuhan Kimberly to improve its reputation while also informing consumers of the importance of environmental protection (Cho and Chang, 2007).

The negative influence of general advertising skepticism was demonstrated in the green advertising context. The findings in this study revealed that ad skepticism decreased $A_{ad}$, $A_s$, $B_I$, $C_s$ and $C_m$. These findings were consistent with those of Chang (2011), who concluded that skepticism about green advertising is positively associated with ambivalent attitudes toward the advertising. He added that high levels of ambivalence led to high levels of discomfort as well as lower ad believability, lower green claim believability and lower brand attitude.

5.1 Contributions
This study provides three major academic contributions. The most critical and unique point of this study is its approach to green reputation at the product category level rather than the brand level. Although this concept is in an initial stage of development and still rather abstract, it can be elaborated further through future research that builds on the current findings. For example, it is possible to make a green reputation index through a series of surveys on perceived green reputation about a variety of product categories. In addition, studies on the interaction of the green reputation index and green communication will help to clarify this new concept.
Second, this study extended the congruence effect to new areas. Previous studies examined the congruency between a brand’s own characteristics and advertising factors (e.g. endorser, ad appeal, sponsored event), but the present study applied the congruence effect to the intersection between a product category’s characteristics and ad factors and found that this application was valid.

Third, this study filled a gap in the literature of ad studies on green reputation. By revealing the influence of the perception of greenness in terms of a product category on ad effectiveness, this study extended the knowledge of green reputation in advertising.

The study findings can be applied to the industry setting. High-congruency ads resulted in higher degrees of all ad outcome variables compared to low-congruency ads. A basic but important recommendation to practitioners is that when they execute a green ad campaign, they should match up their product category and environmental issue claimed in the ad in order to generate positive ad outcomes.

In addition, the findings indicated that a low green reputation sponsor had higher $A_{ad}$ and $A_{c}$. Although this finding did not correspond with expectations, it can be beneficial for practitioners. Industries which are considered to have a negative environmental influence might need to deliver more actively pro-environmental messages to consumers to earn higher levels of advertising effectiveness. Specifically, green advertising messages presented by companies with low green reputation are more likely to be effective in positively influencing public attitudes toward the ad sponsor. Moreover, the finding of the post hoc test explained that advertising with environmental claims could offer an important chance for companies in the low green reputation product category to better consumers’ $A_{ad}$. An important thing to note is that companies with low green reputation need to keep their environmental ads claims congruent with their product category.

5.2 Limitations and future studies
As with all empirical research, this study has limitations. First, this study did not control for all of the possible factors influencing advertising effectiveness. For example, social norms (Stern et al., 1985) and involvement with the environment (Schuhwerk and Lefkoff-Hagius, 1995) are oriented in consumers’ characteristics and could impact green advertising effectiveness. Second, this study used different visual images between the car ad and the bottled water ad. One ad is possibly more creative and striking than the other, and this difference may have influenced the ad effectiveness outcomes. Third, the sample in this study was 179 college students. Although they were randomly assigned into four different experimental groups, it is difficult to generalize the findings to the wider public because of the small sample size and limited socio-demographic cluster.

We suggest several future studies to build on this one. First, this study applied the green reputation concept only to car and bottled water companies. More and various combinations of product categories remain to be tested. Repeated applications to various situations can be an effective way to understand and strengthen the concept of green reputation at the product category level. Second, one of the variables in this study was skepticism toward general advertising, not green advertising. General ad skepticism and green ad skepticism can have different impacts on ad effectiveness (e.g. one may be highly skeptical of green ads but not of general ads). Specifically measuring green ad skepticism instead of or in addition to general ad skepticism may be valuable. Third, the skepticism variable was controlled in this study but could be used as a mediator in future research to investigate whether and how the effects of congruence and green reputation are influenced by ad skepticism.

6. Conclusion
This study reveals that consumers can positively evaluate an ad in which the claimed environmental issue is highly related to the advertised product category. In particular, this
study emphasizes that green ads for products with low green reputation should keep high congruence between the environmental issue and the product category to avoid a loss of positive ad effectiveness. The findings of this study show that perceived green reputation of a product category can influence green ad evaluation, and the halo effect is applicable to the green advertising context. Advertisers should consider the congruence issue in the design of their green ads. In addition, scholars should conduct repeated studies which supplement the limitations of this study. Future researchers need to recruit a larger number of participants with various socio-demographic characteristics and replicate the study design to confirm if the findings in this study are generalizable. In addition, further studies are required to add more consumer characteristic variables and explore other interactions that affect green ad effectiveness.

References


Figure A1.
Advertising stimuli

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