

EXAMINING THE EFFECT OF HUMOR IN ENVIRONMENTALLY-FRIENDLY ADVERTISING

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Environmentally-friendly advertising encourages consumers to act in ways that preserve the environment. Despite substantial efforts, this advertising has resulted in limited success, resulting in the need to develop new insights about how to promote environmentally friendly behaviors. This paper proposes an approach to environmental promotion through humor. Based on recent research in humorous threat persuasion theory, we examine the effect of humor in pro-environmental advertising. Hypotheses were tested with subjects in China, Germany and The United States of America. Results indicate humorous ads lead to more positive ad attitude and ad engagement than non-humorous ads. Moreover, pro-environmental humorous ads still evoke fear, albeit humor and fear operate differently. Humor increases ad attitude, which subsequently affects ad engagement. Fear, on the other hand, tends to affect ad engagement directly. Based on the research findings, we conclude that humor has a high potential for use in environmentally-friendly advertising.

INTRODUCTION

Green economy aims to ensure that economic growth is achieved without sacrificing the environment (Brand 2012; Ekins 2002), and its main goal is to avoid environmental degradation. Although efforts to establish a Green economy are substantial (Cf. OECD 2009/2010/2011), the expected changes have not been achieved (The World Bank 2012), and the market of Green products remains fairly small (EU 2015). Green economy is partly encouraged through economic and policy-related tactics. Green economy is also encouraged through advertising that presents negative-consequence reasons to be concerned about the environment, thus hoping to change consumption habits (Lorek and Spangenberg 2014). Such advertising has been used with some success as measured by increased priorities consumers attach to environmental issues when making decisions, and by increased attitudes towards ads that entail environmental themes (Haytko and Matulich 2008; Saahar et al. 2012; Delafrooz et al. 2014). On the practical side, some environmentally friendly ads have been used over decades (e.g., the popular 1960's through 1980s tagline "Give a Hoot; Don't Pollute"). However, effects of this

advertising have failed to achieve the desired potential to encourage green sentiments and behaviors, and researchers have called for the development of supplemental approaches that engage more consumers and that increase the salience of engaging in environmentally protective behaviors (Kronrod, Grinstein, and Wathieu 2012). As environmental concerns continue to mount, developing and testing different approaches to environmental advertising is becoming more important.

One approach that has yet to be considered in promoting a Green economy is humor. In marketing, the positive effect of humor has long been recognized for increasing attention, and increasing brand attitude (Weinberger and Gulas 1992; Eisend 2009). The effect of humor can be particularly high when consumers view humor as being aligned with a product category, brand, or the context of the consumption experience. Perhaps humor has not been yet considered for environmental advertising because humor is somewhat incongruous with environmental degradation. However, a recent stream of research has emerged, called humorous threat persuasion (HTP) theory. This research demonstrates that humor can also have a persuasive effect when dealing with threatening and fear-evoking topics (Conway and Dubé 2002; Yoon 2015; Yoon and Tinkham 2013). Humor can help lower the defensive responses induced by fear

and thus increase the effect of the message (Mukherjee and Dubé 2012). Drawing on this research, we examine the application of humor to environmental advertising. For many consumers, environmental concerns have reached a level of high concern. Given the research noted above, a humor approach may be plausible, given it addresses the fear of environmental degradation, which entails large and world-wide negative implications.

To our knowledge, this study is among the first to empirically test the effect of humor in environmentally-friendly advertising. In non-empirical research, Frame and Newton (2007) identified specific cases where humor was used in environmentally-friendly advertising, and Peattie and Peattie (2009) suggested that when it comes to limiting undesirable behavior through social marketing (e.g., smoking), people react more favorably to ads that include humor to deliver the message. For their smoking example, consider smokers who see “quit smoking” advertising that uses fear alone as a persuasion mechanism. The idea is that smokers tune out this advertising in a defensive manner. In contrast, smokers may be more responsive to similar advertising that also involves humor, which may diffuse immediate negative attitudinal reactions to the ad, leading to a higher success of the ad. The ideas advanced in these prior studies suggest empirical testing is a worthwhile next step. The scope of testing in our study is modest, but we hope to contribute to the literature in two ways. First, within the pro-environment context, we test whether humorous ads result in more positive ad attitude and engagement compared to non-humorous ads. Second, in the context of humorous threat persuasion, we compare the effects of humor and fear on ad attitude and engagement, to determine whether humor and fear motivate reactions to ads through similar versus different psychological processes. The effect of fear is considered in addition to that of humor because, although the treatment is humorous, the main goal is avoiding a threat, which naturally leads to fear associations. To briefly summarize results, we find that adding humor does result in more favorable reactions, and that humor and fear operate in different ways. Based on the results, we also provide managerial recommendations for marketing practitioners.

LITERATURE REVIEW

Challenges for Environmental Advertising

Slow acceptance of a Green economy has been attributed to different reasons, (Thøgersen 2014; Wheeler, Sharp, and Nenycz-Thiel 2013), and two are particularly relevant to this study. First, in aiming to change individual lifestyles and culture (Abideen and Saleem 2011), environmental advertising primarily focuses on limitation and avoidance; reminding consumers about the negative effects of consumption, and prescribing behaviors that are more environmentally-friendly (Osbaldiston and Schott 2012). Usually, environmental advertising prescribes lowering consumption of resources (Gatersleben et al., 2010), and sacrificing on an individual level (Gifford and Comeau 2011). When this avoidance approach in advertising is combined with the fact that the consequences of consumption on the environment generally are difficult to see, and people rarely notice any rewarding results from their behavior (Warde and Southerton 2012), it is easy to understand why the effectiveness of the environmental message is low.

Another reason for the slow acceptance of a Green economy is the overwhelming use of fear, especially in topics like climate change. Fear might not be the most efficient approach for promoting pro-environmental behavior, and some scholars openly call for its substitution with positive reinforcements (O’Neill and Nicholson-Cole 2009; Hastings, Stead, and Webb 2004). For example, O’Neill and Nicholson-Cole (2009, 355) found that fear appeals fail to produce the desired results, and recommend the use of imagery and information related to people’s “everyday emotion and concern.” The predominant use of fear in social marketing has also been criticized as producing short-term effects, and leading to ethical issues, for example, the development of maladaptive responses like heightened anxiety or complacency among those unaffected (Hastings, Stead, and Webb 2004). Thus, while fear is important, leveraging fear in a strictly-negative way is often less productive than using fear in some way that involves positive reinforcement.

Humor in Advertising

Scientific study of humor in advertising can be traced back to the 1960s (Kazecki 2012). Sternthal and Craig (1973) first examined humor in advertising, and concluded that humor increases attention. According to an estimate by Weinberger and Gulas (1992), during the early 1980s, humorous elements already were embedded in over 24.4% of prime-time television advertisements in the U.S. Humor has become a prevailing tool for product promotion in order to draw the attention of consumers (Chang and Chang 2014), and to increase product liking and brand preference (Greyser 1973; Gelb and Pickett 1983; Weinberger and Gulas 1992).

The effect of humor in advertising is well researched, and the literature provides ample evidence for its effect and operation. Humor can be processed affectively and cognitively (Alden, Hoyer, and Lee 1993). When processed affectively, humor enhances positive feelings and suppresses negative affect (Eisend 2011). When processed cognitively, humor leads to deeper information elaboration by attracting the attention of the consumer (McGuire 1978). The cognitive processing of humor can outweigh negative cognitions and can induce a positive influence on attitude toward the ad, and toward the brand (Eisend 2011). Humor also discourages scrutinizing the ad message and expressing counter-arguments (Krishnan and Chakravarti 2003). This distracting effect of humor can positively impact the attitude toward both the ad and the brand. However, when the attention to humor exceeds the cognitive response of the underlying brand message, a vampire effect may emerge (i.e., sucking attention away from the focal ad message), which can result in an impaired memorization of the ad message and a deferred delivery of the brand benefits (Eisend 2011).

Humorous Threat Persuasion

Recent results demonstrate that humor can be used successfully for promoting behaviors that avoid or partly diminish negative outcomes. For example, public service announcements related to social topics have increasingly used humor to promote behaviors associated with contexts where fear exists (Yoon 2015). This practice is

labeled “humorous threat persuasion” (Yoon and Tinkham 2013, 30), where threat persuasion often relates to health or environmental issues (Freimuth et al. 1990). Specific to environmental friendliness, Audi’s 2010 Green Car of the Year was advertised during the 44th Super Bowl with a humorous “Green Police” ad that featured music and lyrics sung by Robin Zander from the Cheap Trick band that performed the 1980s-music hit, “Dream Police” (Cruger 2010). The introduction of humor in threat persuasion leads to increased supportive argumentation and fewer rejections of the promoted preventive behavior (Voss 2009). Using fear alone in threat persuasion can lead to defensive responses and reduce the persuasiveness of the ad, and using humor can mitigate such defensive reactions (Mukherjee and Dubé 2012).

As might be expected, effects of humor in threat persuasion are often moderated by other variables. Humor tends to be more persuasive than fear when the threat is high and the involvement with the issue is low (Voss 2009; Yoon and Tinkham 2013). Humor is also more effective in promoting social behaviors when the prior attitudes are less firmly established (Jäger and Eisend 2013). The latter findings make humor a good candidate for the promotion of Green economy products because, in general, people have low involvement with environmental issues, despite the potential high importance of such issues. In the same way, humor may be more effective in introducing environmentally-friendly advertising to people unfamiliar with the topic. Another finding of humorous threat persuasion is that people with low need for cognition on the topic are affected more by humorous persuasion than by fear threat persuasion (Yoon and Mayer 2014). Bearing in mind that many facts supporting environmental changes are scientific, and people may be unable or unwilling to understand them, humor might be used to more gently introduce the Green economy, particularly to people who are not motivated to gain knowledge on the topic.

Research Hypotheses

We approach the effects of humor in environmentally-friendly advertising with two

research questions. First, we experimentally test whether humor (i.e., humorous threat persuasion) works in environmentally-friendly advertising, comparing effects of humorous ads to non-humorous ads on ad attitude and ad engagement (Hypotheses 1 and 2).

Next, upon a successful answer to the first research question, we seek to understand how people process humorous environmentally-friendly advertising. Specifically, in addition to the humorous message, fear still plays a role. In humorous threat persuasion, humor is a vehicle for delivering a message in a manner that will be well received, but fear is still present, reflecting the negative effect to be avoided (Yoon and Tinkham 2013). For example, a person may laugh at a humorous message about quitting smoking, but the potential negative outcome of not quitting is part of the cognitive process. Therefore, the second research questions examine the processing of humorous ads where an environmental threat exists, to see whether humor and fear components trigger psychological reactions that are similar or distinct.

For the context of our study, we focus on the form of social media advertising. As a practical consideration, social media has emerged as a main platform used by companies to communicate with their customers (Evans 2010; Cvijikj and Michahelles 2013). Also, behaviors exhibited in social media have been found to strongly correlate to real-life behaviors, such as with purchase intentions (Kim and Ko 2012). To clarify, we are not suggesting that social media is an advertising medium that should be preferred for testing humor effects over other advertising mediums. We have simply selected social media as a useful and manageable context for testing purposes.

Effectiveness of advertising is usually measured by the effect of an ad on psychological or behavioral variables. For example, new product advertising may seek to impact brand familiarity, purchase intentions, or actual purchases (Büschken 2007; Pergelova, Prior, and Rialp 2010). Ultimately, efficacy of environmental friendly advertising will hinge on how well it drives willingness to engage in green behaviors, and word-of-mouth that

encourages others to engage in green behaviors. For this study, we focus on two intermediate psychological measures that drive subsequent behaviors and thus overall ad effectiveness, and that receive substantial attention in advertising research: attitude toward the ad and ad engagement (Verhoef, Reinartz, and Krafft 2010; Van Doorn et al. 2010; Brodie et al. 2011).

Considering the broad scope of environmental advertising, attitudes toward messages and engagement with messages on social media are very suitable ways to measure ad effectiveness. On a social network platform like Facebook, or the Chinese substitute RenRen (Dong, Wu, and Gu 2012), attitudes and engagement with ads lead to user activities such as rating (liking), commenting, and sharing ad messages, as well as linking or posting ads on personal profiles.

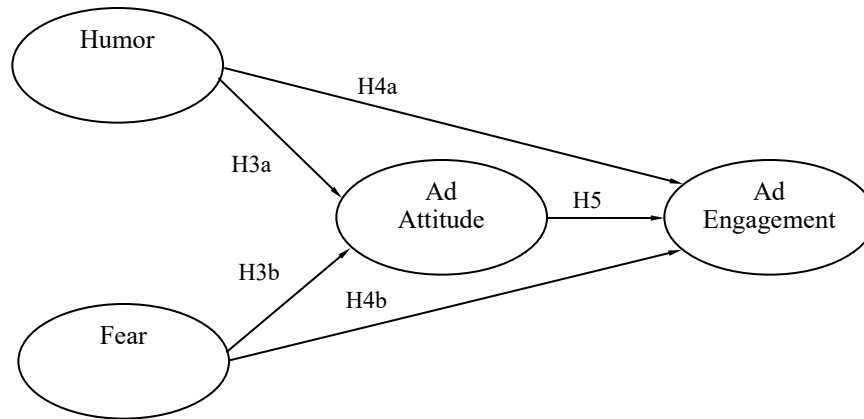
Ads that include humor may also engender more positive attitudes and engagement on social media because people use social media largely for emotionally positive purposes, including entertainment, passing time, expressing opinion, etc. (Reyes, Rosso, and Buscaldi 2012), and these positive purposes align well with consumption of humor. As evidence of this alignment, humorous messages spread more than other messages in social media (Molyneux 2014). Although environmentally-concerning topics may be associated with fear (O'Neill and Nicholson-Cole 2009; Whiteman 1999; Chen 2016), when humor is introduced in a tense situation, it has a relaxing and positive effect (Forester 2004). Where fear exists, the presence of humor in advertising results in a more positive brand attitude (Mukherjee and Dubé 2012). Therefore, we hypothesize, that for environmentally friendly ads:

H₁: Humorous ads result in a more positive attitude toward the ad than non-humorous ads.

H₂: Humorous ads result in a higher level of ad engagement than non-humorous ads.

Hypotheses 1 and 2 address the first research question. To answer the second research question, which addresses how humor and fear operate in humorous threat persuasion, we test the research model on Figure 1.

FIGURE 1:
Research Model for H₃ through H₅



The classical understanding of how humor operates has been discussed in other studies, and in a meta-analysis, Eisend (2009) summarizes that humor draws people's attention, positively affecting their attitudes. The positive nature of humor has also received attention with respect to the psychological process of attitude development (Greysier 1973; Gelb and Pickett 1983; Weinberger and Gulas 1992, Eisend 2011), and this positive aspect of humor distinguishes it from fear. In advertising, fear has been shown to have effects on attitude that may be either positive or even negative. Some studies report that fear has positive effects in advertising (Lewis et al. 2007). Strong and Dubas (1993), LaTour, Snipes, and Bliss (1996), LaTour and Rotfeld (1997) and De Hoog, Stroebe, and de Wit (2007) all found that fear has a positive effect on ad attitude and purchase intentions. Other studies, however, have found that fear can have negative effects on attitude (Brooker 1981; Moore and Harris 1996), which was attributed to self-protection responses inhibiting persuasion (Brennan and Binney 2010; Kok 2014). Overall, the literature reveals that humor has a positive effect on ad attitude, but fear may have mixed effects. Thus, for environmentally friendly advertising in the context of humorous threat persuasion, we expect both humor and fear to have effects on ad attitude, but the effect of humor to be more positive.

H₃: Humor (a) and fear (b) have positive effects on the attitude toward the ad, and (c) the effect of humor is more positive than the effect of fear.

In the context of social media, arguments can be advanced to support effects of both humor and fear on ad engagement. The importance of humor in social media is recognized even by Facebook, which created a series of video tutorials called "Just in Case Studies" used to educate Facebook advertisers about how to use humor to engage their audiences (Geoff 2014). According to Pew Research, social media is often consumed when people wish to view humorous content (Smith 2014). Turning to fear, fear has been shown to have some positive effects on engagement in advertising (Lewis et al. 2007). Supporting this notion, Strong and Dubas (1993), LaTour, Snipes, and Bliss (1996), and LaTour and Rotfeld (1997) found that fear has a positive effect on purchase intentions. Specific to environmentally friendliness, Chen (2016) has shown that fear can impact pro-environmental behaviors. With regard to the relative impact of humor on engagement, versus fear on engagement, extant literature on environmental friendliness does not suggest a strong conclusion. Some authors suggest that fear messages generate more interest than humor messages (Lee and Shin 2011). This could be related to basic work in

psychology indicating that negative consequences weigh more heavily than positive consequences, and lead to greater elaboration and greater impact on behavior (i.e., from seminal “losses loom larger than gains” work by Khaneman and Tversky, 1979). Based on the literature review, we expect that in the context of humorous threat persuasion for pro-environmental advertising, both humor and fear to have a positive effect on ad engagement, but the effect of fear to be more positive.

H₄: Humor (a) and fear (b) have positive effects on ad engagement, and (c) the effect of fear is more positive than the effect of humor.

Finally, based on the classical theory of reasoned action, we connect the overall effect of ad attitude to ad engagement. The more positive the ad attitude, the stronger the behavioral intentions to engage with the ad will be (Ajzen 1991). In relation to a Green economy, similar conclusions are provided by (Atkinson and Rosenthal 2014).

H₅: Ad attitude positively affects ad engagement.

METHODOLOGY

Data Collection

Data was collected from undergraduate students who voluntarily participated in the study, and was gathered in three countries (China, Germany, and the U.S.). All materials were presented in English, which was normally used in the university settings across data collection locations. Inter-country differences were not hypothesized, but we recognize environmental norms and practices vary across countries, and so results are presented with some breakdowns by country. The motivation to test the hypotheses in different countries was not to search or explain inter-country differences, but to look for broader support of the main proposition for the use of humor in pro-environmental advertising.











To test the research hypotheses, we used multiple ads, humorous and non-humorous. The data collection process consisted of pretesting and subsequent main data collection. For the pretest, we designed 12 ads, intended to be humorous or non-humorous. The ads were

pretested to determine those with the highest and the lowest humorous content. The corresponding pretesting sample sizes for China, Germany and the U.S. were 21, 58 and 45 respectively. For consistency, all ads represented the same fictitious company called “The Green Company,” and their designs were similar. Each ad was rated on its level of humor, and measured on whether respondents understood its meaning. The final selection included ads that were understood by respondents and achieved the most discrepancy between humor levels (ensuring higher perceived humor for ads with humor versus ads without humor). Ads are shown in tables 1a and 1b.





We kept the three most humorous ads and the two non-humorous ads for each country, to make sure the categories are not represented by a single ad. Although the partial difference for humorous ads in the different countries could be interpreted as lowering the internal validity of the study, it is a viable approach for two reasons. First, in international context, humor may vary in content, but the underlying cognitive processes are similar (Alden, Hoyer, and Lee 1993). Humor arises mostly from messages with unexpected or impossible claims. Second, humor can be perceived differently not only among countries, but also among individuals. A message is more humorous not only when it is more unexpected, but also when it is more relevant to the respondents (Lee and Mason 1999). Therefore, asking respondents to select the most humorous message in a pretest increases the relevance of the message and therefore its funniness, which is the goal of the treatment. A similar approach to data collection utilizing customization on an individual level was done by Alexandrov, Lilly, and Babakus (2013), who measured the drivers of positive and negative word-of-mouth, where respondents listed a brand with which they had experience, drawing conclusions for word-of-mouth based on multiple brands. Such customization of surveys to achieve relevance increases external validity because the results are not tied to a single brand or ad.

For the main data collection, respondents saw a series of humorous and non-humorous ads (within-subjects design), and answered the same series of questions for each ad. The

**TABLE 1a:
Humor Ads**

Prestested Ads	U.S.	Germany	China
 <p>Let them talk about climate change. It won't affect me anyways!</p> <p>Inform yourself on energy-efficient modernization for your home.</p>  <p>The Green Company Together for a sustainable future.</p>			✓
 <p>How would you feel if somebody just turned you on and left?</p> <p>Inform yourself on energy-efficient modernization for your home.</p>  <p>The Green Company Together for a sustainable future.</p>	✓		✓
 <p>Talk about climate change. It's a real icebreaker.</p> <p>Inform yourself on energy-efficient modernization for your home.</p>  <p>The Green Company Together for a sustainable future.</p>	✓	✓	✓
 <p>Not happy with your heating system?</p> <p>Inform yourself on energy-efficient modernization for your home.</p>  <p>The Green Company Together for a sustainable future.</p>		✓	
 <p>You want your home to become greener?</p> <p>Inform yourself on energy-efficient modernization for your home.</p>  <p>The Green Company Together for a sustainable future.</p>	✓	✓	

**TABLE 1b:
Non-Humor Ads**

Pretested Ads	U.S.	Germany	China
 <p data-bbox="760 407 922 470">Renewable energy – the best for the future of your family</p> <p data-bbox="743 541 938 573">Inform yourself on energy-efficient modernization for your home.</p>  <p data-bbox="776 653 922 678">The Green Company Together for a sustainable future.</p>	✓	✓	✓
 <p data-bbox="760 728 979 760">Save up to 30% on energy costs with a new solar system.</p> <p data-bbox="760 852 938 884">Inform yourself on energy-efficient modernization for your home.</p>  <p data-bbox="792 963 922 989">The Green Company Together for a sustainable future.</p>	✓	✓	✓

presentation order of the ads was randomized to avoid order effects. The usable sample sizes for the main data collection from China, Germany and the U.S. were 110, 127 and 178, respectively.

Measurement

All measures in the study were in a Likert scale format ranging from “1-*I Totally Disagree*” to “7-*I Totally Agree*”. (Table 2). For each ad, we measured: the degree of understanding of the ad, the level of humor, the level of fear, the attitude toward the ad, and the intended engagement with the ad. The measure for ad attitude was based on Unger (1995). The measure for humor was based on Cline, Altesch, and Kellaris (2003) and Zhang and Zinkhan (2006). An appropriate measure of fear in the studied context was not identified, and fear was measured with a 3-item scale developed for the purpose of the study. Engagement with the ad was operationalized in a manner that mirrors common social media behaviors used in practice; specifically, activities people could do if they saw the ad on

social media like Facebook, and include: liking an ad, commenting on it, liking the publisher profile, posting it on a friend’s wall, and sharing the image. Further, we viewed these specific engagement indicators to be useful because they are similar to indicators of engagement in the Word of Mouth literature, where subjects are often asked about the likelihood of making positive (or negative) comments about a brand or ad to another person.

RESULTS

Measurement Results

To evaluate cumulatively the results of the humorous and non-humorous ads (non-humorous ads being used solely to test Hypothesis 1 and Hypothesis 2), we averaged each scale’s items, for humorous and non-humorous ads, which resulted in two overall measurement models (humorous and non-humorous), and six measurement models when we explored effects by country (i.e., humorous and non-humorous for China, Germany, and the

U.S.). The dimensionality, convergent, and discriminant validity of the measures were assessed initially via a series of exploratory factor analyses for the six samples. The maximum likelihood exploratory factor analysis (EFA) of the 14 items designated to measure the four constructs in the model (i.e., humor, fear, attitude, and ad engagement) produced four factors. For the six samples, the factors collectively accounted for between 72% and 83% of the variance, and the direct oblimin rotated results indicated that the majority of items loaded heavily on the expected factors. For the non-humorous sample in the U.S., three items (one from humor, one from fear, and one from ad engagement) did not load as expected. For each sample, the 14 items were subjected to a confirmatory factor analysis with a four-factor measurement model using the sample

covariance matrices. The fit statistics indicate that the measurement models are acceptable (Table 2). The reliability coefficients (Cronbach's alpha) for all measures are above the .70 level suggested by Nunnally (1978). The three items for the non-humorous U.S. sample mentioned above, which did not load as expected during the EFA, extracted substantially less variance and were removed. The remaining factor loadings were significant, suggesting convergence of the indicators with the appropriate underlying factors (Anderson and Gerbing, 1988). The average variance extracted (AVE) by each underlying construct for all samples was above .50, and none of the shared variances between pairs of constructs was larger than the AVE by each construct (Fornell and Larcker 1981). The item associated with liking an ad on Facebook for

TABLE 2:
Confirmatory Factor Analysis and Measurement Properties of the Scales

Items	U.S.		Germany		China	
	Humor	Non-Humor	Humor	Non-Humor	Humor	Non-Humor
<i>Humor</i>						
1. I had fun seeing the ad.	.79	-	.93	.78	.70	.65
2. The ad is humorous.	.96	.98	.99	.98	.74	.86
3. The ad is funny.	.91	.97	.97	.98	.79	.90
<i>Fear</i>						
1. The ad is frightening.	.96	-	.90	.97	.85	.87
2. The ad is scary.	.95	.98	.93	.96	.98	.98
3. I was afraid when I saw the ad.	.89	.86	.91	.82	.79	.87
<i>Attitude toward ad</i>						
1. I like the ad.	.95	.90	.93	.94	.89	.93
2. I would enjoy seeing this ad again.	.95	.91	.93	.94	.93	.97
3. The ad is likable.	.93	.91	.93	.85	.79	.90
<i>Ad Engagement</i>						
If you saw this ad on Facebook/RenRen:						
1. I would click "Like."	.65	-	.71	.77	.77	.79
2. I would comment on this image.	.88	.89	.85	.97	.70	.88
3. I would like the publishing profile.	.88	.93	.78	.82	.77	.83
4. I would post this image on my friends' wall.	.91	.89	.85	.98	.84	.91
5. I would share this image.	.90	.94	.87	.91	.92	.91
Chi-square (df = 71)	218.09	91.98	129.6	176.1	160.8	182.1
RMSEA	.10	0.09	.08	.10	.10	.10
NFI	.92	.96	.95	.94	.91	.92
NNFI	.93	.96	.97	.94	.92	.94
CFI	.95	.97	.98	.96	.94	.95
All factor loadings are significant at 99% confidence level, $t > 2.57$						

the U.S. extracted less than .50 variance (46%), and we kept this item due to its conceptual importance and compatibility with the ad engagement in the other countries. Overall, the results show that the measures are unidimensional and reliable, and exhibit convergent and discriminant validity. The descriptive statistics of the measures are in Table 3.

Tests of the Hypotheses

Before testing Hypotheses 1 and Hypothesis 2, we tested if the humorous – non-humorous treatment was successful by comparing the

levels of humor between the two groups of ads for China, Germany and the U.S. A paired samples t-test for each country demonstrated that the humorous ads were perceived as significantly funnier than the non-humorous ads. In China, the respective averages were 3.83 vs. 3.00 (t=5.10, df=112, p<.000); in Germany the respective averages were 4.68 vs. 1.98 (t=18.53, df=126, p<.000); and in the U.S., the respective averages were 4.54 vs. 2.75 (t=17.04, df=176, p<.000), which demonstrated that ad manipulation was successful.

Next, we tested the first two hypotheses by comparing the averages of ad attitude and ad

**TABLE 3:
Descriptive Statistics**

	Humor Ads						Non-Humor Ads					
	Mean	St.d.	Correlations				Mean	St.d.	Correlations			
<i>U.S.</i>												
			Humor	Fear	Attitude	Ad Engagement			Humor	Fear	Attitude	Ad Engagement
Humor	4.53	1.05	1.00				2.75	1.10	1.00			
Fear	1.67	0.94	-0.14	1.00			1.65	1.04	0.46*	1.00		
Attitude	4.39	1.15	0.74*	-0.09	1.00		4.10	1.16	0.40*	0.05	1.00	
Ad Engagement	2.18	1.10	0.35*	0.20*	0.51*	1.00	1.80	1.14	0.62*	0.35*	0.51*	1.00
<i>Germany</i>												
			Humor	Fear	Attitude	Ad Engagement			Humor	Fear	Attitude	Ad Engagement
Humor	4.67	1.34	1.00				1.97	1.10	1.00			
Fear	1.70	0.89	0.09	1.00			1.55	0.97	0.55	1.00		
Attitude	4.09	1.43	0.75*	0.13	1.00		2.97	1.54	0.45	0.31*	1.00	
Ad Engagement	1.86	1.17	0.41*	0.51*	0.54*	1.00	1.44	1.02	0.45	0.59*	0.41*	1.00
<i>China</i>												
			Humor	Fear	Attitude	Ad Engagement			Humor	Fear	Attitude	Ad Engagement
Humor	3.85	1.22	1.00				3.00	1.50	1.00			
Fear	2.38	1.26	-0.15	1.00			1.76	1.31	0.35*	1.00		
Attitude	4.90	1.20	0.35*	-0.33*	1.00		4.65	1.69	0.39*	-0.16	1.00	
Ad Engagement	4.19	1.29	0.24*	-0.07	0.59*	1.00	3.55	1.67	0.48*	0.14	0.62*	1.00
* Significant correlations at the 0.01 level												

engagement between the humorous and non-humorous ads in the three countries, again using paired samples t-test. In China, attitude toward the ad was higher in the expected direction, but was not significantly different between the two types of ads: 4.90 vs. 4.65 ($t=1.56$, $df=112$, $p=0.120$), while engagement with the humorous ads was significantly higher than the engagement with the non-humorous ads: 4.19 vs. 3.55 ($t=4.38$, $df=112$, $p<.001$). In Germany, attitude toward the ad was significantly higher for humorous than for non-humorous ads: 4.09 vs. 2.97 ($t=7.66$, $df=126$, $p<.001$), and engagement with the humorous ads was significantly higher than the engagement with the non-humorous ads: 1.86 vs. 1.44 ($t=4.29$, $df=126$, $p<.001$). In the U.S., attitude toward the ad was significantly higher for humorous than for non-humorous ads: 4.39 vs. 4.10 ($t=2.90$, $df=176$, $p<.004$), and engagement with the humorous ads was significantly higher than the engagement with the non-humorous ads: 2.18 vs. 1.80 ($t=5.85$, $df=176$, $p<.001$). Therefore, Hypothesis 1 is supported in two countries and Hypothesis 2 is supported in all three countries.

To examine the second research question about the effects of humor and fear in humorous threat persuasion, we tested the research model in Figure 1 for humorous ads. The sample covariance matrices of the observed variables for the humorous samples were used as input to LISREL 9.20 (Jöreskog and Sörbom 1993). The initial results indicated that the model fits are acceptable (China: Chi-square=153.03, $df=71$, RMSEA=.09, NFI=.92, NNFI=.94, CFI=.96; Germany: Chi-square=129.61, $df=71$, RMSEA=.08, NFI=.95, NNFI=.97, CFI=.98; and U.S.: Chi-square=218.09, $df=71$, RMSEA=.10, NFI=.92, NNFI=.93, CFI=.95). A closer look at the path coefficients in Table 4 indicates that humor exerts a significant effect on the attitude toward the ad in all countries: U.S. ($\gamma=.73$, $t=10.54$), Germany ($\gamma=.76$, $t=9.39$), and China ($\gamma=.35$, $t=3.43$), thus lending support for Hypothesis 3a. However, fear affects ad attitude negatively only in China ($\gamma=-.36$, $t=3.82$), but has no effect on ad attitude in the U.S. ($\gamma=-.02$, $t=-.42$) or in Germany ($\gamma=.06$, $t=1.00$), which indicates that Hypothesis 3b is not supported. As expected, ad engagement is affected positively by ad attitude in all countries: China ($\beta=.73$, $t=6.12$), Germany

($\beta=.46$, $t=3.82$), and U.S. ($\beta=.53$, $t=4.59$), thus supporting Hypothesis 5. Humor does not affect ad engagement directly: China ($\beta=.02$, $t=.12$), Germany ($\beta=-.02$, $t=-.22$), and U.S. ($\beta=-.05$, $t=-.50$), therefore Hypothesis 4a is not supported, which means that humor's effect is mediated by ad attitude. The effect of fear on ad engagement is significant in all countries: China ($\beta=.17$, $t=1.87$), Germany ($\beta=.53$, $t=5.90$), U.S. ($\beta=.28$, $t=3.86$), thus lending support for Hypothesis 4b.

Hypothesis 3c and Hypothesis 4c were approached by testing the equality of path coefficients in the same model. We constrained the hypothesized paths to be equal, one at a time, and examined the change in the Chi-square compared to the gained one degree of freedom. If Chi-square increased by more than 3.84, that would indicate that the constrained path coefficients were not equal. The procedure is similar to testing for group differences, but in this case the constraints are imposed on a single group. We first fixed the paths from fear and humor to ad attitude to be equal, and then did the same for the paths from humor and fear to ad engagement. This was repeated for all countries, and in all cases, Chi-square increased ranging from 6.30 to 72.19, which showed that none of the fixed paths were equal. Therefore, considering the magnitude of the paths in Table 4, we can conclude that the effect of humor on ad attitude is more positive than the effect of fear on ad attitude, thus supporting Hypothesis 3c. Similarly, the effect of fear on ad engagement is more positive than the effect of humor on ad engagement, thus supporting Hypothesis 4c. Even more, fear is the only variable that has a direct effect on ad engagement, and the effect of humor is mediated through ad attitude.

DISCUSSION AND MANAGERIAL IMPLICATIONS

Overall, the results demonstrate that humor can play an important role in the communication of ecologically-friendly products. The support of Hypothesis 2 confirms that when compared to non-humorous ads, humorous ads are more efficient in eliciting a behavioral intention response. The finding that people are more willing to respond to a humorous ad in social media and engage with the message is supported in all three countries. An interesting

TABLE 4:
Test of the Structural Model

	Structural Model Parameter			U.S.		Germany		China	
				Coefficient (t-value)	R ²	Coefficient (t-value)	R ²	Coefficient (t-value)	R ²
H _{3a}	Humor	→	Ad Attitude	.73 (10.54)	.53	.76 (9.39)	.59	.35 (3.43)	.28
H _{3b}	Fear	→	Ad Attitude	-.02 (-.42)		.06 (1.00)		-.36 (-3.82)	
H _{4a}	Humor	→	Ad Engagement	-.05 (-.50)	.30	-.02 (-0.22)	.55	.02 (0.12)	.47
H _{4b}	Fear	→	Ad Engagement	.28 (3.86)		.53 (5.90)		.17 (1.87)	
H ₅	Ad Attitude	→	Ad Engagement	.53 (4.59)		.46 (3.82)		.73 (6.12)	
Note: All path coefficients are completely standardized. Based on one-tail t-test: t-values>1.3, p<.10; t-values>1.65, p<.05; t-values>2.33, p<.01 (Singh, 2000). Significant path coefficients at p<.05 are in bold									

fact is that subjects in China seem to be more willing to engage with social media than subjects from Western cultures. Perhaps part of the reason is that discussion of environmentally friendly behavior in the U.S. and Germany is not new, and people do not find it interesting; but in China, sustainability is a fairly new social topic, which people might be willing to engage with.

Additional support for the importance of humor is provided by Hypothesis 1. Humorous ads result in a more positive attitude toward the ad than non-humorous ads. The result was strongly supported in the U.S. and Germany, and although in the predicted direction, not significant in China. This indicates that people tend to like and enjoy more environmentally friendly ads based on humor, which is worth noting because it opens the possibility for a new way of discussion and creativity in environmentally-friendly advertising.

Importantly, we find evidence that in humorous threat persuasion, although the message is humorous, fear also plays a role in the processing of the ad. Examining the effects of humor and fear for humorous ads reveals that humor and fear tend to operate via different routes. The effect of humor on ad engagement is mediated through ad attitude, which is a

consistent finding for all countries. In contrast, fear affects ad engagement directly without mediation in the U.S. and Germany; but in China, its effect is mediated. This indicates that humor makes people process the ad, like it, and then engage with it. Fear, however, seems to affect ad engagement directly, without people forming attitudes toward the ad.

In conclusion, the results can be summarized as follows. First, in the context of environmental advertising, humor results in higher ad engagement than non-humorous ads. This is good news because it means that humor can increase pro-environmental behaviors. Second, humor increases the attitude toward the ad, which means people enjoy seeing it. Third, in humorous threat persuasion, both humor and fear play a role in processing humorous ads, albeit with different effects. Humor leads to forming a positive ad attitude, which subsequently affects ad engagement; fear tends to effect ad engagement directly. Humorous content is processed in fairly similar fashion across the three countries studied, which may be used as evidence to create universal global environmental campaigns.

Overall, the results support the fact that humor can leverage emotions effectively in environmentally-friendly advertising. Humor

can make the discussion on Green products pleasant, not based solely on fear, but also on positive emotions, which can help keep it on top of people's minds in their everyday lives. Considering the results of the positive humor effects and its similar operation in different countries, global managerial opportunities exist to communicate the benefit of Green products. In conclusion, we suggest that humor in environmentally-friendly advertising has merit and should be pursued globally.

LIMITATIONS AND FUTURE RESEARCH

Although the results are encouraging, the study has limitations. First, the collected data was from student samples, which could be interpreted as a limitation. On the plus side, students represent the millennial generation and typically are avid social media users. Engaging via social media is natural for them, and provides a good context for measuring the effectiveness of environmentally-friendly advertising. In addition, millennials are the generation that likely will face the problems and consequences if the world fails to move to a Green economy. Of all generations, millennials across the world share the most common characteristics, and on average, 53% find the climate change to be a very pressing issue (Telefónica Global Millennial Survey 2016), which makes them a suitable global study group. Despite the encouraging results for millennials, testing the effect of humor in pro-environmental advertising for other generations is warranted.

The use of different humorous ads in different countries also could be viewed as a limitation, because it could be interpreted as weak internal validity, and any difference in the results could be due to the different ad content. However, ads were selected due to eliciting a desired humorous reaction, and the primary testing goal was to focus on the humor reaction rather than specific brands. Results of the pretest indicate the manipulation was successful, with humorous ads being perceived as funnier than non-humorous ads. Also, different humorous ads per country were averaged, helping to combat against a spurious result that could exist if humor was strongly content dependent. Most importantly, the similar results across

countries demonstrate the highest level of support for our approach.

In terms of future research, actual green behaviors should be examined, such as whether consumers purchase projects with a preference toward sustainability (e.g., choosing energy efficient appliances for reasons beyond cost), and whether consumers recycle when given the opportunity. The study here stopped short of these behaviors, looking only at immediate reactions to advertising. Now that the effect of humor has been substantiated in the environmental context, looking at product oriented behaviors is an important next step. In spite of the findings reported here, if green behaviors fail to emerge when consumers face product decisions, then little has been gained.

Another future research idea is based on recognizing that inter-country differences could play a role in ways we did not investigate. For example, perhaps quest for harmony in the Eastern culture affects how fear is processed, which could explain the negative effect of fear on ad attitude. More inter-cultural research is needed to reveal the potential differences in the processing of humorous threat persuasion, and which factors (e.g., collectivism vs. individualism, etc.) affect them. Such an effort would require strong measurement invariance to guarantee meaningful comparisons among the countries. Our study focused only on within-country tests of the hypothesized effects.

In conclusion, this paper provides encouraging findings about the importance of humor in sustainability and environmentally-friendly advertising, which to the authors' knowledge has not been done before. We hope that our efforts are an important step in welcoming humor on the path to a Green economy.

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