Résumé :  
Cette recherche propose de nouvelles pistes pour identifier la manière dont les pouvoirs publics doivent communiquer pour promouvoir des comportements écologiques de façon optimale. S'appuyant sur la littérature sur les appels émotionnels en publicité, trois études ont été menées afin d'identifier le processus et les conditions dans lesquelles l'humour et la menace affectent les réponses des consommateurs à une annonce gouvernementale dont l'objectif est de promouvoir l’évitement du suremballage. Notre première étude souligne l'impact ambivalent de l'humour dans les communications étatiques pro-environnementales. L'humour améliore l'attitude vis-à-vis de l'annonce, mais diminue par ailleurs la crédibilité de l'annonce et réduit la gravité perçue de la menace environnementale. L'étude 2 confirme le rôle médiateur des réactions affectives. Cependant, seules les réactions affectives négatives semblent influencer l'intention d'adopter le comportement écologique et la gravité perçue. L'étude 3 montre enfin que les réponses des consommateurs dépendent à la fois des caractéristiques individuelles et de facteurs contextuels. Les consommateurs répondent plus favorablement à l'humour lorsque le contexte environnemental général est optimiste.

Mots-clés : communication des pouvoirs publics ; comportements écologiques ; humour ; contexte, suremballage.

NEW INSIGHTS ON THE EFFECTIVENESS OF PRO-ENVIRONMENTAL PUBLIC SERVICE ADVERTISING USING HUMOR VS THREAT APPEALS: THE ROLE OF ENVIRONMENTAL CONTEXT

Abstract:  
This research provides new insights on how public policy makers should communicate in order to promote green behavior optimally. Building on the literature on emotional appeals in advertising, three studies were conducted to identify the process and conditions under which humor and threat affect consumers’ responses to a public service ad (PSA) promoting avoidance of overpackaged products. Our first study emphasizes the ambivalent impact of the use of humor in pro-environmental PSA. Humor improves attitude toward the ad but also decreases ad credibility and reduces the perceived severity of the environmental threat. Study 2 confirms the mediating role of affective reactions. However, only negative affective reactions appear to influence intention to adopt green behavior and perceived severity of the environmental threat. Study 3 shows that consumers’ responses to emotional appeals in pro-environmental PSAs depend both on individual characteristics and contextual factors. Consumers respond more favorably to humor when the general environmental context is optimistic.

Keywords: public service ads; pro-environmental behavior; humor appeals; context valence; overpackaging.
In order to reduce society’s environmental footprint, public policy makers can either adopt compulsory measures constraining the behavior of consumers and companies; or they can try to raise awareness and convince individuals and organizations to adopt sustainable practices without using coercion. In this perspective, public service advertising plays a crucial role. The question is how should public policy makers communicate in order to promote environmentally friendly behavior optimally? There have been calls, for instance, to dedramatize environmental issues through the use of humor (e.g. Irvin, 2015). Is humor truly a relevant strategy for PSAs promoting sustainability? What are the persuasion mechanisms of humor appeals in this specific context?

The use of humor in advertising has been the subject of a rich literature over the past decades and the mechanisms through which it operates have raised significant interest among researchers. However, most of these studies focus on the for-profit sector and examine mainly the effects of humor to promote specific brands, products or services (e.g. Eisend et al., 2014). As a consequence, little is known about the potential impact of humor to promote sustainable behavior and most importantly, a limited number of studies examined the impact of humor in the context of public service advertising. In practice, the use of humor to communicate threatening information is a common strategy (Yoon and Tinkham, 2013). In the United States as well as in other industrialized countries, a number of PSAs have indeed been using humor to raise awareness about very serious issues such as colon cancer prevention, obesity prevention, or even suicide prevention. In the case of environmental PSAs, it seems that communications mostly rely on threat or fear appeals. For that reason, we chose to oppose humor and threat appeals. Based on three studies, our research seeks to better understand the mechanisms and conditions under which humor (vs. threat) positively influences green behavior intent.

**Emotional Appeals in Public Service Advertising**

Emotional appeals are a common practice in commercial advertisements and their impact on attitudes and behavior is generally recognized to be effective (e.g. Moore and Harris, 1996; Taute, McQuitty and Sautter, 2011). Royne and Levy (2015) claim that if commercial marketers use such strategies to promote sometimes unhealthy products, public health officials should be able to counter them with similar tactics. In practice, when they communicate, governments seem more likely to use fear appeals rather than humor appeals, which can be easily explained by the very nature of the issues tackled (disease prevention, road safety, domestic violence, etc.). Public service advertisements indeed often resort to threat persuasion (Yoon, 2015). Yet, little is known about the persuasion mechanisms of such strategies and their comparative effects in a public service context. This research focuses on the impact of emotional appeals in public service advertising promoting sustainable behavior.

**The Ambivalent Impact of Humor in Green Advertising**

Previous works on environmental advertising have examined the effectiveness of several types of strategies (framing effects, assertive vs. nonassertive message etc.). However, little research has focused on the effect of emotional appeals. Over the past decades, a number of scholars have tried to identify the mechanisms activated by the presence of humor in advertising. According to Sternthal and Craig (1973), although it may alter comprehension, humor has many advantages since it attracts attention, distracts the audience, reduces counter-argumentation, enhances source credibility and liking and increases persuasion. There is evidence that humor positively influences attitude towards the ad (Eisend, 2009). Overall, positive ads seem indeed to generate more favorable attitudes than negative ones (Reardon and Miller, 2008). As a consequence, PSAs promoting green behavior are ex-
pected to produce a more favorable attitude toward the ad when they use humor rather than threat appeals. However, at the same time, “humor reduces negative cognitions related to the ad because it serves as a distraction from counter-argumentation” (Eisen, 2011). It is thus expected that humor will attenuate the perceived severity of the environmental threat. H1: Humor (vs threat) has a positive impact on attitude toward the ad (H1a) and a negative impact on perceived severity of the environmental threat (H1b).

The Mediating Role of Affective Reactions

Previous research underlines the significant effect of emotional ads on consumers’ affective reactions (e.g. Eisen, 2009; 2011; Moore and Harris, 1996). In turn, affective reactions generated by the ad have been widely identified as determinants of attitude toward the ad (e.g. Derbaix, 1995; Holbrook and Batra, 1987, Stayman and Aaker, 1988). In a meta-analysis, Eisen (2011) compares three models: a cognitive model, an affective model and a mixed model. The results show that humor exerts its greatest impact through the affective path, nevertheless affect and cognition interact congruently: humor generates positive emotional reactions that activate positive cognitions, which in turn positively influence the attitude toward the ad. Emotions have indeed been identified as mediators of consumer responses to advertising for a long time (Holbrook and Batra, 1987). In line with previous findings we expect emotional appeals to influence cognitive responses indirectly through affective reactions. More specifically we suggest that affective reactions mediate the impact of humor vs threat appeals on consumers’ attitude, beliefs about the severity of the environmental threat and behavior intention. H2: Humor vs threat influences attitude (H2a) perceived severity of threat (H2b) and intention (H2c) indirectly through affective reactions.

The Role of Context and its Valence

Extant research on the conditions of effectiveness of emotional appeals in advertising, and humor appeals in particular, highlights the effect of two main categories of variables, namely: (1) the type of execution technique used (e.g. Alden et al., 2000; Swani, Weinberger and Gulas, 2013), (2) recipient’s individual characteristics and predispositions (e.g. Eisen et al., 2014; Yoon and Tinkham, 2013; Taute et al., 2011). Few studies, however, examined the potential effects of contextual factors to understand the conditions under which humor is most likely to generate positive responses. In the present research, we investigate the effect of environmental context and more specifically its valence (optimistic vs. pessimistic) on consumers’ reactions to humor vs threat appeals in pro-environmental advertising. Peter and Honea (2012) highlight the importance of optimism to motivate individuals to adopt and maintain pro-environmental behavior over time. The authors underline the lack of research on the role of optimism in social marketing campaigns and stress the relevance of this concept. However, in their research Peter and Honea (2012) examined the effect of optimism as an individual variable. We define environmental context as the general state of the natural environment and its current evolving process. The valence of the environmental context refers to the degree to which the overall ecological situation is positive (optimistic) or negative (pessimistic). A negative context implies serious environmental degradation and/or pessimistic forecasts about its future evolution whereas a positive context implies a reduction in environmental degradation and/or optimistic projections. In this case, we hypothesize that consumer responses to humor and threat appeals in pro-environmental PSAs are moderated by the valence of the general environmental context. More specifically, we expect individuals to react less favorably to humor when the context is pessimistic. H3: Context valence (optimistic vs pessimistic) moderates the impact of humor vs. threat appeals on affective reactions (H3a) and intention to adopt non-overpackaged products (H3b).
The Role of Environmental Concern

The effect of context is also likely to vary depending on individual characteristics. Previous studies emphasized the moderator effect of personal involvement. Yoon and Tinkham (2013) for instance examined the reactions generated by a public service announcement aimed at raising awareness about deforestation. Their findings reveal an interaction between humor and the level of involvement related to the problem. People with low involvement evaluated humorous messages more favorably while highly involved individuals expressed a more favorable judgment regarding the non-humorous message. This actually suggests that being concerned about an issue makes it more difficult to laugh about it. In the current situation, involvement in the cause can be assimilated with consumers’ level of environmental consciousness. In the literature on environmental behavior, the concept of environmental concern particularly raised significant attention.

H4. The effect of humor vs. threat appeals on affective reactions (H4a) and intention to avoid overpackaged products (H4b) is moderated simultaneously by context and environmental concern (double interaction).

Study 1: Effects of Humor vs. Threat

Method. This research focuses on a specific type of pro-environmental behavior, namely waste reduction through overpackaging avoidance. Study 1 uses a two-condition experimental design (Humor vs Threat). Two public service ads were created, taking inspiration from current PSAs by the French ministry of sustainable development (appendix 1 and 2). Data collection was conducted online among a diversified sample of the French population (n=250). Average age is 40 (min=18; max=64; sd=13), 49.6% of the respondents are females. Attitude toward the ad is measured with three items (Cronbach’s α =0.895). Perceived severity of environmental consequences is measured with five items (Cronbach’s α =0.955). Intention to avoid over-packaged products is measured with a single item. Ad credibility included as a control variable is measured with three items (Cronbach’s α = 0.921). All answers are collected on a 7-point Likert scale.

Results. Even though both ads benefit from acceptable levels of perceived credibility, it is worth noting that ad credibility is higher when the message is threatening rather than humorous ($M_{\text{threat}} = 5.66$ vs $M_{\text{humor}} = 5.28$, $t=-2.44$; $p<0.05$). As expected, our results show that attitude toward the ad is significantly higher when the ad uses humor vs threat ($M_{\text{humor}} = 5.28$ vs $M_{\text{threat}} = 4.80$, $t=-2.64$; $p<0.01$). On the contrary, perceived severity of the environmental threat is significantly lower when the message is humorous ($M_{\text{humor}} = 5.75$ vs $M_{\text{threat}} = 6.12$, $t=2.51$; $p<0.05$). Attitude toward the ad and perceived severity of the threat in turn affect intention to purchase non-overpackaged products. A test of mediation (Process model 4) indeed shows that the use of humor vs threat does not influence behavior intention directly ($b=-0.07$; $p>0.05$) but rather indirectly through these two variables. The indirect effect of humor through Aad is significant and positive ($b=0.136$; 95%CI : 0.044; 0.255) while the indirect effect of humor through perceived severity of the threat is significant and negative ($b=-0.147$; 95%CI: -0.288 ;-0.038).

Study 2: Testing the Mediator Role of Affective Responses

Method. Our second study relies on the same methodology as the first study. Data collection was conducted online among a diversified sample of the French population (n=219). Women account for 51.1% of the total sample; average age is 42.7 (min=19; max=65; sd=14.2).
Affective reactions were measured with 18 items adapted from Derbaix (1995). Attitude toward the ad, perceived severity and intention to avoid overpackaged products were measured as in study one.

**Results.** Overall, the levels of self-reported affective reactions activated by the ad are of relatively low intensity. Still, significant differences are observed depending on the type of message respondents were exposed to. Negative reactions are obviously higher when the ad is threatening ($M_{\text{threat}} = 4.14$ vs $M_{\text{humor}} = 2.12$; $t=11.53; \ p=0.000$) while positive reactions are higher when the ad is humorous ($M_{\text{humor}} =3.37$ vs $M_{\text{threat}} =1.82$; $t=-10.86; \ p=0.000$). In order to test H2 a, b and c three mediation analyses were conducted. The results show that the type of ad (coded 0 and 1 for threat and humor appeals, respectively) significantly influences affective reactions. In turn, both positive and negative affective reactions influence attitude toward the ad positively. However, only negative affective reactions have a significant impact on perceived severity of the threat and intention to avoid overpackaged products. Indirect effects reveal that positive affective reactions mediate the relationship between the type of ad appeals and $Aad$ ((coeff=0.48; 95%CI= 0.104; 0.894), while negative affective reactions mediate the relationship between the type of ad appeals and perceived severity of the environmental threat (coeff=-0.35; 95%CI= -0.637; -0.101) and intention (coeff=-.35; 95%CI=-0.689; -0.047).

**Study 3: Testing the Moderator Role of Environmental Concern and Context Valence**

**Method.** The study relies on a 2 (humorous vs threatening ad) by 2 (optimistic vs pessimistic context) experimental design. Humor and threat were primed using the same visuals as in study 1 and 2. The environmental context was primed using a short text that participants were asked to read before filling in the questionnaire. The text was presented as an excerpt from an article published in a major national newspaper. Using a similar structure and phrasing, the first version reports experts’ optimistic conclusions and forecasts regarding the environmental situation while the second depicts a gloomy situation. Both texts were pre-tested to make sure they are judged equally credible. Data collection was carried out online among a diversified sample of the French population (n=449). 53.9% of the sample are females, average age is 43.4 years (min=18; Max=65; SD=13.2). Environmental concern was measured with a 6-item scale by Kilbourne and Pickett (2008).

**Results.** We first conducted a univariate analysis of variance with negative affective reactions as the dependent variable and humor vs threat appeals, context valence and environmental concern as independent variables. Our results confirm that the effect of humor vs. threat on negative affective reactions is moderated by context valence ($F=9.137; \ p<0.01$). The negative impact of humor on negative affective reactions is even stronger when the context is optimistic. The effect of emotional appeal on negative affect is also moderated by individual environmental concern ($F=3.515; \ p<0.01$). When the message uses humor, negative affective reactions are low, regardless of respondents’ environmental concern. However, when the message uses threat, the intensity of negative emotions varies significantly depending on respondent’s level of environmental concern. The double interaction between emotional appeals, context and environmental context is not significant ($F=0.831; \ p=0.669$). No significant interaction is observed for positive affective reactions and attitude towards the ad. Regarding the impact on behavior intent, when environmental concern is not taken into account, our results reveal a marginally significant moderating effect of context valence in the relationship between humor vs threat appeals and intention to avoid overpackaged products ($F=3.72; \ P=0.054$). In an optimistic context, behavior intent tends to increase when humor is used. However this positive effect of humor on intention is not observed when the context is pessimistic. When environmental concern is included in the analysis, none of the simple interactions are significant. Nevertheless the double interaction (ad*context*environmental concern) does affect behavior intent significantly ($F=1.883; \ P<0.05$). As shown on figure 1,
the use of humor vs threat does not have a significant direct influence on intention to avoid overpackaged products when the context is pessimistic. However humor does influence intention positively when the context is optimistic but only for individuals with a low or average level of environmental concern. The positive impact of humor on intention when the context is optimistic is only marginally significant among highly environmentally concerned individuals (p=0.075; 95%CI= -0.0339; 0.7027).

**Figure 1. Effect of humor vs threat appeals moderated by context valence and environmental concern**

**Discussion & Conclusion**

This research provides new insights to better understand the mechanisms and conditions under which humorous public service ads are likely to influence pro-environmental consumer behavior. Testing the effect of humor and threat appeals in the specific case of PSAs promoting environmentally friendly behavior is one of the contributions of this research. Another major contribution is related to the examination of the effects of the general environmental context in which the communication occurs. While many studies on the persuasion mechanisms of humor appeals assessed the effects of a list of execution techniques as well as the role of individual predispositions, contextual factors have not attracted significant attention. Finally, our research also highlights an interaction between individual and contextual factors. Our findings suggest indeed that both aspects result in combinatory effects and should be apprehended concurrently.

Overall, our findings suggest that public policy makers should think carefully before choosing to use humor to promote environmentally friendly behavior. Our results show indeed that humor attenuates the perceived severity of the environmental threat. Our research also suggests that humor is not a relevant strategy if the environmental context is pessimistic. However, if consumers are in a positive mindset, humor significantly increases behavior intent. That being said, our results confirm the positive impact of humor on positive affective reactions and attitude toward the ad. As a consequence, public policy makers or companies seeking to win support or to generate a positive affect toward an environmental cause may, at opportune moments, consider an advertising strategy based on humor. For humor to be effective, it is preferable to place the consumer in a positive state of mind regarding the environmental situation. Consumers need to be positively conditioned beforehand, so that they apprehend the humorous message with serenity and confidence. In line with previous research, our findings confirm that humor is less effective among highly concerned consumers. Public authorities should thus adapt the use of this communication strategy depending on the profile of the target audience.

Finally, in order to create variance and examine the relevance of two opposed tactics, this research contrasts the effects of humor and threat appeals. Future research could examine the impact of different levels of threat (low, medium, high) and different types of humor (satirical, ironic, anecdotal, situational, dark etc.).
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Appendix 1. Humor appeal condition

![Humor Appeal Example](image1)

Appendix 2. Threat appeal condition

![Threat Appeal Example](image2)