



**Humor In Social Movements: A Novel Take on  
Environmentalism**

by

**Eduardo Amadeus Molon Batista**

**Thesis Advisor: Professor Julia Lee**

A thesis submitted in fulfillment of the requirements of the  
Michigan Ross Senior Thesis Seminar (BA 380), 04/19/2019.

## Abstract

Humor is ubiquitous in human life and yet so little is understood of it. While studies on humor have largely centered on leadership and marketing, this paper seeks to understand the role of humor in advocacy for social movements. Literature on marketing suggests that using humor in communication efforts leads to several important benefits. For example, humorous information attracts more attention than non-humorous (Strick et. al, 2010). Humor also increases product liking by the mere association effect (Strick et al., 2009). Eisend (2011) argues that humor reduces negative cognitions related to the ad, because it serves as a distraction from counter-argumentation. Based on this body of research, the paper hypothesizes that humorous advocacy messages will lead to greater engagement with social movement causes than serious messages. This hypothesis is tested and validated in Study 1, using a subset of data from National Geographic's Instagram account in a Amazon Mechanical Turk study design.

As it currently stands, advocacy for environmental largely appeals to guilty and ethics instead of humor. Likewise, literature on environmentalism largely focuses on the ethics of humans harming the environment (Cox et al., 2013 & Janofsky, 2005 & Cantrill, 2015), or on people's moral duty to save the nature (Rogers, 1998). But if humor has positive effects on product marketing and leadership, why haven't social movement advocates been using it more often? Since advocacy efforts have historically appealed to guilt, ethics and self-sacrifice, advocates may think others would respond more to these appeals. This paper proposes that this "serious" deployment of advocacy efforts ultimately stems from people's mistaken predictions that serious messages will lead to greater engagement with social causes. In Study 2, we used a subset of data from National Geographic's #planetorplastic Instagram campaign in a Amazon Mechanical Turk experiment to show that people mistakenly predict others will donate more to serious messages.

In that same study, we asked participants to design their own advocacy message for a Plastic Pollution non-profit in the form of a tweet, with a limit of 280 characters. The majority of messages designed by participants (over 80%) did not include humor. Aligned with participants' intuitions, this paper does not believe humor is always appropriate in advocacy. Weinberg & Gulas (1992) argue that the relation of humor, attention and sales is complex, and that a greater understanding of humor can be enhanced with a greater understanding of the audience, situational context, and type of humor. Thus, while humor may not always be appropriate, it may thrive in certain contexts. Different types of humor are likely to work better depending on the advocate's intended goal. In a closing section, we propose future directions for research on humor and social movements. In doing so, we add a needed nuance to the aforementioned studies and hopefully contribute to the scarce yet growing literature on this fascinating topic.

## **Contents**

Introduction & Literature Review.....	04
Overview of Current Work.....	05
Study 1.....	06
Methods.....	08
Results.....	08
Discussion.....	09
Study 2.....	10
Methods.....	11
Results.....	12
Discussion.....	14
Future Studies.....	16
References.....	18
Appendix.....	25

## **Humor in Social Movements**

### **Introduction and Literature Review**

Until the twenty-first century, most humor studies focused on three explanations of humor: the superiority theory, the relief theory, and the incongruity theory. Forming the early foundations of the superiority theory, Aristotle and Plato suggested that humans tend to laugh at what they perceive as inferior. According to Plato, laughter is morally objectionable because it stems from a human delight in something evil, or, as he puts it, “the ridiculous is a certain kind of evil, specifically a vice”. The German term “schadenfreude” would come to signify a pleasure in seeing another person’s pain. In the 18th century, Francis Hutcheson published a sharp rebuke of the superiority theory, by showing that a feeling of superiority is not a necessary condition for laughter. To motivate his point, Hutcheson pointed to the case of humans feeling superior to other animals without laughing, such as when “the duller actions of dogs and monkeys are no matter of jest at all”. At the same time, he proposed that we can laugh without feeling superior to animals, as when “dogs and monkeys express ingenuity that comes near to some of our own arts”. In a nutshell, Hutcheson believed that we laugh at things we find incongruous, and that remained the central tenet of the incongruity theory. The relief theory, first developed by Lord Shaftesbury in 1709, provides an alternative to the previous two theories in stating that laughter arises as a release of nervous energy and anxiety. According to this account, we laugh when nervous, or when uncertain of how to respond to a situation that evokes social tension.

In 2010, the Benign Violation Theory would add a fourth explanation of humor to this triumvirate of theories. Peter McGraw’s and Caleb Warren’s study “Benign Violations: Making Immoral Behavior Funny” provides evidence that laughter happens when a joke violates some

sort of norm (e.g., cultural, political, social), and in a benign, rather than malign, manner. The Benign Violation Theory is important for understanding humor because it draws from elements of each of the three other theories of humor: superiority is accounted for within the opposing concept of “evil”, namely, “benign”; incongruity is accounted for in the violation of an expectation or norm; relief comes when this violation is deemed benign. The Appendix contains an illustration of the Benign Violation Theory (McGraw and Warner, 2014, Appendix A).

Previous literature on humor has to some extent leveraged the Benign Violation Theory, but has also focused extensively on the use of humor by leaders (Avolio, Howell, & Sosik, 1999; Cooper, 2005, 2008; Cooper, Kong; Cooper & Sosik, 2012; Crossley, 2018; Decker & Rotondo, 2001; Huang, Gino, Galinsky, 2015; Hughes & Avey, 2009; Vecchio, Justin, & Pearce, 2009). Leaders’ use of humor is relevant to social engagement in terms of rallying people behind social causes, building followership, and maintaining organizational effectiveness of social movements. Humor can also lead to the demise of otherwise solidified organizational structures and power dynamics. By laughing together at the same joke, people achieve greater proximity, and the hierarchical distance is reduced. Further, humor has been shown to facilitate the development of social relationships, by fostering positive affect and reducing social anxiety (Reilly, 2006). These findings inform a broader discussion of the complex associations between humor and leadership. On the one hand, humor can lead to organizational cohesiveness and greater engagement within teams. Conversely, humor can also deconstruct power relationships and lead to some form of organizational chaos (Reilly, 2006).

These complex associations of humor, leadership, and persuasiveness are further highlighted by studies on humor and attention. For instance, the distraction theory (Markiewicz, 1974) proposes that humor can distract the audience from elaborating counter-arguments to

messages that they would otherwise not be receptive to; the implication, then, is that humor helps the message become more persuasive. The learning theory, on the other hand, claims that humor has an operant learning explanation on a message's persuasive effect (Sternthal & Craig, 1973). If an agent likes a message, and this liking is reinforced by the reward of humor, then the agent will like the message even more. In association with these previous studies, an important body of literature has focused on the intersection of humor and marketing. For example, Strick et al. (2009) shows that humor increases product liking by the mere association effect. Eisend (2011) argues that humor reduces negative cognitions related to the ad, because it serves as a distraction from counter-argumentation, which is in alignment with Markiewicz (1974). Strick et al. (2010) uses sophisticated eye-tracking techniques to show the greater effects of humorous information on attention, compared to non-humorous and neutral messages. This paper hypothesizes that since humorous information attracts more attention than non-humorous (Strick et. al, 2010), humorous messages lead to greater engagement with social movement causes.

Further, in the context of social movements, specifically with environmental causes, humor has given space to the rhetorical appeals of guilt and sacrifice (Cox et al., 2013 & Janofsky, 2005 & Cantrill, 2015). Much of the literature on communication and engagement with environmental causes has centered on the human causes of ecological collapse, in an attempt to revert nature's demise. This literature is coupled with ethical analyses that attempt to explain the importance of ecology to otherwise indifferent audiences (Rogers, 1998). In that sense, the literature on conservation and communication has largely focused on the ways that nature can be saved by propagation of ethical theories, academic explanations of the current state of ecology, and daunting statistics regarding the environment. While these discussions are important and may be convincing, they do not incorporate humor, and are also easy for anthropocentric-

resourcist ideology agendas to counter (Fisher, 2009). The branch of eco-comedy is one of the few attempts of environmentalists to employ humor in communication messages, specifically through performance, as a means of advancing conservation causes (Fischer, 2009). In this paper, we hypothesize that people will predict that serious messages work better than humorous ones, which is why advocacy for environmental causes largely appeals to guilt and sacrifice instead of humor. If that's the case, we believe people will likely be mistaken in their predictions.

In summary, based on this body of research, two hypotheses were generated to understand the effects of humor in engagement of social movements:

*Hypothesis 1:* Given that humorous information attracts more attention than non-humorous (Strick et. al, 2010), humorous messages will lead to greater engagement with social movement causes.

*Hypothesis 2:* People will mistakenly predict that serious messages work better than humorous ones. "To work better" is understood as leading to significantly greater donation levels towards an environmental cause, as measured in an experimental setting.

### **Overview of Current Work**

The primary goal in the present research was to test these hypotheses through two Amazon Mechanical Turk (M-Turk) studies. Amazon Mechanical Turk is a web-based human intelligence task market, where workers are paid for completing online surveys and experiments. These studies were based on a subset of social media data (Instagram) associated with #planetorplastic.

“Planet or Plastic” is a multiyear initiative aimed at raising awareness of environmental causes and reducing the amount of single-use plastic that enters into the world's oceans. The “Planet or Plastic” initiative was selected among a set of options for three main reasons. First, “Planet or Plastic” leverages the power of National Geographic's media portfolio around the world, and is thus linked to thousands of posts on social media. Second, this initiative has been active for over a year, meaning that it is an accessible and tangible project, even if not yet fully mature. Given that our study seeks to provide practical recommendations for social movements, it is helpful that we analyze a study that has already been implemented. Lastly, the use of humor in relation to social movements has gained traction in environmental causes, specifically with “Eco-Comedy,” as previously discussed. Therefore, the “Planet or Plastic” initiative directly informs a discussion on humor and social movements through a promising and yet fairly unexplored angle.

### **Study 1**

Study 1 sought to validate the hypothesis that humorous messages will lead to greater social media engagement with social movement causes than non-humorous messages.

### **Methods**

For this study, we selected 300 Instagram posts linked to National Geographic’s #planetorplastic initiative (from March 4th to March 12th) as a subset body of data. This data was manually selected and extracted, without the aid of any softwares. The data tracked a set of variables deemed as relevant measures of social media engagement. Specifically, with each post we extracted the number of likes, number of comments, post date, follower count of respective



Instagram user's account and media type (video or image). This subset of data is available to the reader (Appendix B).

Given that we had no a priori hypotheses regarding gender, race, or age, no demographic information was collected from participants in order to protect their privacy. Amazon Mechanical Turk (MTurk) workers participated in this short study in exchange for \$0.10 per reply. Each participant saw a screenshot of a randomly selected Instagram post. Each post had two independent participants, which resulted in a total of 300 responses. The Appendix contains sample pictures of the Instagram posts used for this study (Appendix C, Appendix D).

In total, we asked participants to answer five questions regarding the 300 different Instagram posts from the #planetorplastic initiative:

1. Relevance: How relevant is this post to the goal #planetorplastic (1=not relevant at all, 5=very relevant)
2. Quote: Were inspirational quotes used in the image (1=yes, 0=no)
3. Commercial intent: Is the post selling any product (1=yes, 0=no)
4. Funny: How humorous/funny is the post (1=not funny at all, 5=very funny)
5. Seriousness: How serious is the post (1=not funny at all, 5=very funny)

Our primary dependent measures were the number of likes and the number of comments in an Instagram post, which are indicators for levels of social engagement (Bakhshi et al., 2014). Instagram users with a high number of followers are more likely to get greater engagement with their posts, by virtue of having a larger audience (i.e., followers). Thus, for our analyses, we divided each of our dependent measures by the number of followers that the hashtag had and multiplied the fraction by 100 (e.g., number of likes \*100 / number of followers).

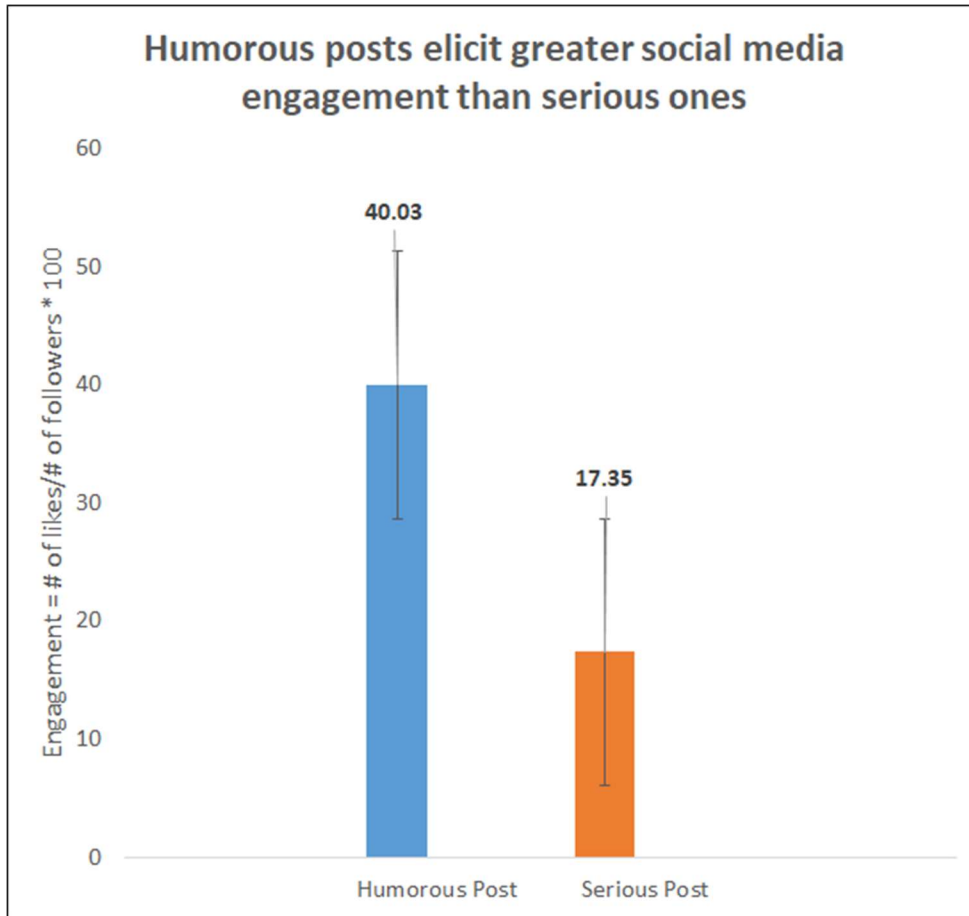
## Results

We find that the degree to which a post was rated as funny by MTurk participants significantly predicts the number of likes and the number of comments the post received on Instagram. For each of our analyses, we conducted Ordinary Least Squares (OLS) regressions.

First, we examined the number of likes a post received on Instagram as a function of the “funny” ratings from MTurk participants. Controlling for if the post contained inspirational quotes, the relevance of the post, whether the post contained commercial intent, and the seriousness of the post, we find that the “funny” ratings were found to significantly predict the number of likes,  $\beta = 6.95, p = .014$ .

Next, we examined the number of comments a post received on Instagram as a function of the “funny” ratings from MTurk participants. Controlling for if the post contained inspirational quotes, the relevance of the post, whether the post contained commercial intent, and the seriousness of the post, we find that the regression of the “funny” ratings significantly predict the number of comments,  $\beta = 6.95, p = .014$ .

**Figure 1: Bar chart: Humorous posts significantly elicit greater social media engagement than serious posts**



Additional results are also summarized in an output table in the appendix (Appendix E).

## Discussion

These results lend credibility to the hypothesis that humorous messages elicit greater engagement with social causes, as measured by “likes” and “comments” on Instagram. The relationship between “funny” and “engagement” becomes even stronger when relevant messages (“relevance =1) are excluded. This finding suggests that people may predict that serious messages will work better, but in reality funny messages elicit greater social engagement.

One limitation in the design of Study 1 is that participants were able to see the caption and number of likes in the randomly selected Instagram post assigned to them (Appendix J). In that way, their perceptions and attitudes towards the post as measured by our five questions may

have been biased. For example, participants who see a post with a great number of likes may perceive the post as more relevant to the #planetorplastic initiative. Likewise, participants may be more or less inclined to rate a post funny according to the number of likes present in an image. This is because the display of likes in the post may serve as social proof to participants that a post is likeable or not. Given previous findings that humor may correlate strongly with liking (Strick et al., 2009), the display of liking may have enticed people to rate a message as funnier.

At the same time, future studies may attempt to replicate these findings by addressing the potential limitation. As previously mentioned, current literature on marketing suggests that using humor in communication efforts leads to several important benefits. Thus, it is reasonable to expect that funny messages elicit greater social media engagement than serious ones.

## **Study 2**

Study 2 sought to validate hypothesis 2 by using a hypothetical Instagram post as a stimulus for measurement of relevant variables. Specifically, the study tested whether people mistakenly predict that serious messages elicit greater engagement than humorous ones. Since advocacy efforts have historically appealed to guilt, ethics and self-sacrifice, advocates may think others would respond more to “serious” appeals instead of humorous ones. Further, Study 2 also allowed participants to craft their own advocacy messages in the form of a tweet (280 characters limit). Through the free-response question, we attempted to understand if participants would employ humor in advocacy efforts. Further, we were interested in how humor would manifest itself, if at all. By understanding the type of humor participants employed, we would be able to propose future directions for research on types of humor that may work best in advocacy.

## Methods

For this study, we conducted a randomized between-subjects experiment asking 303 participants on M-Turk to self-report their engagement level after seeing serious or humorous images. Participants were only able to see one of the images, regardless of which condition they were in. After seeing the image, participants were asked how likely they would be to: (1) “Like” the image on Instagram; (2) Share the image on their own Instagram accounts; (3) Change their behavior and use fewer-single use plastics. The different pictures used for the control and treatment groups are included in the Appendix (Appendix F, Appendix G).

The study sought to contrast participants’ self-reported behavior with actual behavior. To that end, we collected data on how much participants would be willing to donate to a nonprofit organization dedicated to reducing plastic pollution. Through this question, we sought to verify if individuals have a self-reported preference for the serious post, but end up donating more to the funny one. The Appendix contains a picture of the donation question in greater details (Appendix H).

Lastly, the study asked participants to create their own Tweet, consisting of a maximum 280 characters, to be posted on their Twitter account to advocate for the Plastic or Planet campaign. Through this question, the study gave participants an opportunity to express their own ideas on how environmental causes can communicate their ideas on social media. We were particularly interested in how ubiquitous humor would be used on a free-response question.

61.7% of participants identified as males, and 38.3% identified as females. Most participants were white (71.3%) with some college education or completed college education (combined of 75.2%). This subset of data is available to the reader (Appendix I).

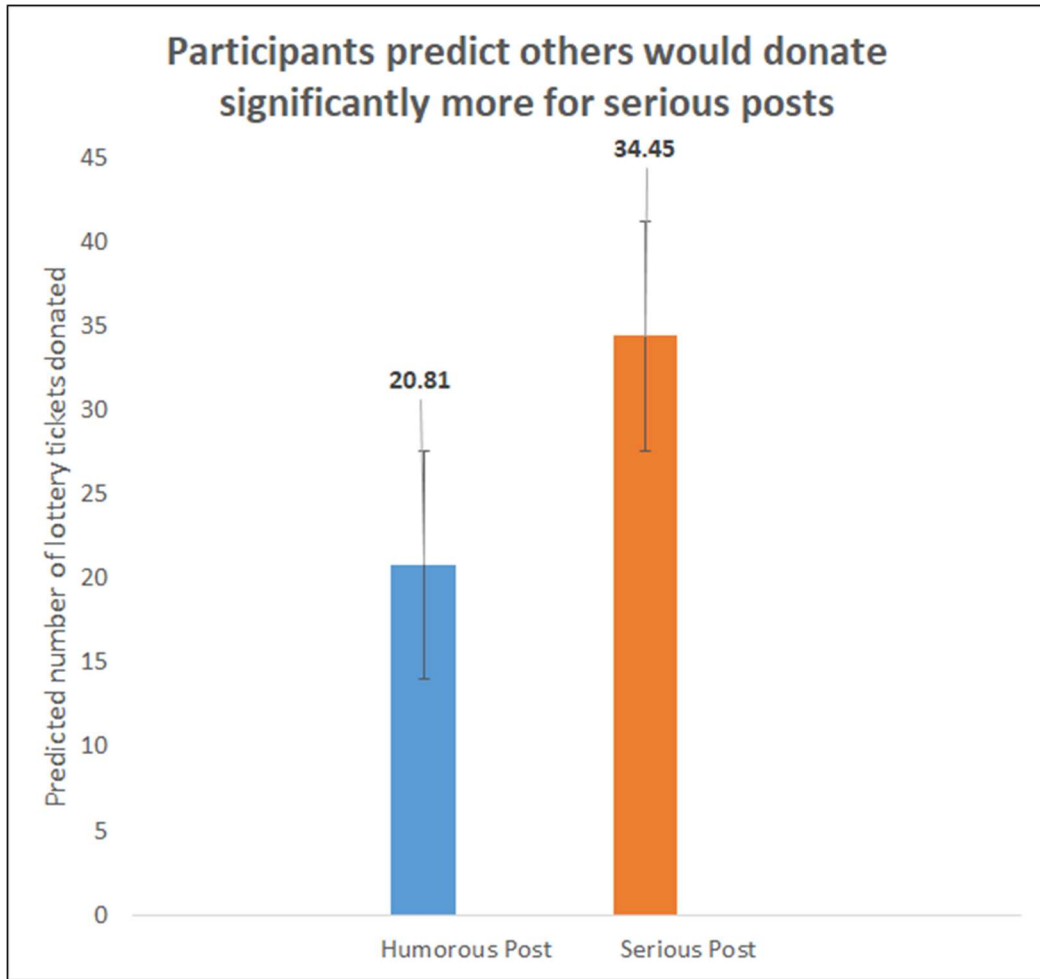
## Results

We find significant evidence to support the hypothesis that people mistakenly predict that others will donate more to serious messages. For each of our analyses, we conducted T-tests, given that people were randomly assigned to different groups in the between-subjects design.

First, we examined how people would predict others' donation levels would change depending on whether the stimulus was “funny” or “serious”. We found that people assume others donate significantly more for serious posts,  $t = -3.1066$ ,  $p\text{-value} = 0.002264$ . Further, in a donation scale of 0 to 100 lottery tickets (as seen in Figure 5), people predicted serious posts would have mean donation of 34.45, while funny posts would have a mean donation of 20.81. Controlling for outliers (high amount of donation levels of 0, for example) did not change the significance of these results.

Next, we examined if participants had correctly predicted how much people would be willing to donate based on the humorous vs serious post. We found that the difference in donation levels of the two conditions was not significant,  $t = -0.37472$ ,  $p\text{-value} = 0.7085$ .

**Figure 2: Bar chart: Participants predict that others will donate significantly more to #planetorplastic initiative when exposed to serious stimulus**



These findings lend further credibility to the hypothesis that people mistakenly predict how much others will donate based on whether a message is serious or humorous.

Additionally, an analysis of the short answer question (write a Tweet of your own in 280 characters) provides evidence for the idea that people predict serious messages will be effective in eliciting greater engagement with the Planet or Plastic initiative. Most free-response questions (more than 80%) advocate for the Planet or Plastic campaign by writing non-humorous posts. In alignment with (Fischer, 2009), these posts mostly appealed to guilt, sense of urgency, self sacrifice, or to broader humanistic principles that saving the planet is each person's moral duty. A sample of these posts is included below, based on these categories.

1. This is important, and we don't have much time left! Think about this! #planetorplastic
2. Plastic consumption is devastating our oceans and marine wildlife. Cut down on plastic!  
#planetorplastic
3. Our oceans are important. Care about something bigger than you. #planetorplastic
4. Is having a straw that important for you that you'd hurt so many innocent fish and other animals in the ocean? #planetorplastic

Of the posts that included some attempt at humor (10-15%), the majority of them appeared to be primarily *sarcastic*, with the exception of few posts with humorous puns. A sample of these posts is shown below:

1. If one straw could break a camels back think of what could happen if each of us stop using straws...Amazing!
2. Plastic in the option is no bueno amigos. Stop it. Stop it right now. #planetorplastic or die

## **Discussion**

Both the quantitative and qualitative analyses herein employed suggest that people mistakenly predict that serious messages will elicit greater engagement with and donation towards environmental causes. The quantitative study showed that people predict serious messages will receive greater donation levels, but this prediction did not significantly correspond to our experiment's findings. The qualitative analysis strengthens the notion that social agents think of advocating for social movements by appealing to guilt, sacrifice, morality or sense of urgency. Both Study 1 and Study 2 showed that humorous messages may elicit greater social media engagement and donation levels. Altogether, these findings suggests that while humor plays an



important role in helping social movements gain traction, this importance is often be overlooked by social agents.

The assumption by participants may be that, given the gravity of these issues, it may be inappropriate to joke about them. Thus, employing humor in these messages is seen as detrimental to the purpose the messages seek to advance. At the same time, the benign violation theory tells us that humor arises particularly in the inappropriate, through the benign violation of a perceived social norm (Figure 1). If the perceived norm is that environmental causes ought to be treated seriously, then humor can only arise as an effect of challenging this perception. In spite of the positive effects of humor, this perception was not challenge. Thus, humor was largely not employed as a rhetorical tool for advocating for the Planet or Plastic initiative in our studies.

In terms of limitations, one area for scientific improvements is in our analysis of the free-response questions. This analysis relied on the researchers' judgement of what is humorous and is not. In the future, researchers can use the same set of data (available in Appendix I) to rigorously identify whether a free-response message is humorous or not. For example, previous studies have used sophisticated machine learning techniques to identify humor in messages (Mihalcea & Strapparava, 2006).

Further, the free-response question also provides a window into which kinds of humor may be more ubiquitous and possibly effective in advocacy efforts. Based on the researchers' judgements, the free-response questions that employed humor were largely sarcastic. Sarcasm is also ubiquitous in social media (Riloff et al., 2013) and its use increases creativity and abstract thinking (Huang, Gino, Galinsky, 2015). Research on sarcasm suggests that it can enhance the audience's receptivity towards criticism, by making the message more humorous and less aggressive (Boylan & Katz, 2013; Bowes & Katz, 2011). Coupled with that, Oscar Wilde labeled

sarcasm as the lowest form of wit and the highest form of intelligence. Indeed, the deployment of sarcasm in tweets requires complex judgements of others' intentions, juxtaposition of meaning and integration of context in a brief communicative message of 280 characters or less (per Twitter's word limit). Riloff et al. (2013) shows that sarcastic tweets often include a positive sentiment, such as "love", contrasted by an undesirable state ("being ignored", "taking exams"). In the context of the benign violation theory, this juxtaposition may be expressed through sarcasm as a way of both signaling that a message is benign (through the positive sentiment) and that the message violating this benign expectation (with an undesirable state). Thus, the deployment of sarcasm in advocating for environmental causes may be a promising, complex, and yet largely unexplored tool. Future studies may seek to validate this hypothesis.

## **Conclusion & Future Studies**

Our proposal for future studies is to explore which types of humor would work best for contextually different environmental causes. Weinberg & Gulas (1992) argue that the relation of humor, attention and sales is complex, and that a greater understanding of humor can be enhanced with a greater understanding of the audience, situational context, and type of humor. Given the inherently interactional and contextual nature of humor, previous studies have also attempted to categorize humor and specify the conditions under which different types of humor are more or less likely to elicit a desired effect. The scarce literature linking humor to analysis of social movements is primarily based on case studies and generalizable frameworks of humor (Kutz-Flamenbaun, 2014; Hiller, 1983). For instance, Hiller (1983) proposes a four-cell model of conflict humor generated from and applied to a brief case study of the Western Canadian separatist movement.

Humors are also categorized by Hiller as self-depreciating, diversionist, retaliatory or aggressive, based on their instrumentality and overtness (Hiller, 1983). Kutz-Flamenbaun (2014) discusses employment of humor in several case studies related to politics, without presenting a broader framework of typologies. Weinberg & Gulas (1992) argue that the relation of humor, attention and product sales is complex, and that a greater understanding of humor can be enhanced with a greater understanding of the audience, situational context, and type of humor. Studies have also shown that political leaders often utilize different humor styles. For example, the use of self-enhancing and self-defeating humor styles trigger strong appeal to the public (Hampes, 2013). Martin et al. (2003) distinguish between four types of humor: self-enhancing, self-defeating, affiliative, and aggressive. If humor generally leads to greater engagement with social movements, then, it appears that certain types of humor are likely to work better than others in different contexts. Future research may build upon these frameworks to specify the contexts and types of humor likely to work better for advocacy of environmental causes.

In closure, communication messages have largely focused on the concerning and aggravating state of the environment in our planet. This focus may ultimately stem from people's mistaken predictions that serious messages will lead to greater donation levels, as evidenced in Study 2. However, as Study 1 shows, funny messages may elicit greater engagement than serious ones. While advocacy efforts may benefit from using humor, humor has been sparingly employed so far. We suggest that under specific contexts, humor may not hurt environmental causes when taken lightly. At the same time, it may very much help social movements when taken as a serious scientific avenue of study.

## REFERENCES

- Avolio, B. J., Howell, J. M., & Sosik, J. J. (1999). A Funny Thing Happened on the Way to the Bottom Line: Humor as a Moderator of Leadership Style Effects. *Academy of Management Journal*, 42(2), 219-227.
- Bakhshi, S., Shamma, D. A., & Gilbert, E. (2014, April). Faces engage us: Photos with faces attract more likes and comments on instagram. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 965-974). ACM.
- Berger, J., & Milkman, K. L. (2012). What makes online content viral?. *Journal of marketing research*, 49(2), 192-205.
- Boylan, J., & Katz, A. N. (2013). Ironic expression can simultaneously enhance and dilute perception of criticism. *Discourse Processes*, 50(3), 187-209.
- Bowes, A., & Katz, A. (2011). When sarcasm stings. *Discourse Processes*, 48(4), 215-236.
- Cannon, P. R., Schnall, S., & White, M. (2011). Transgressions and expressions: Affective facial muscle activity predicts moral judgments. *Social psychological and personality science*, 2(3), 325-331.
- Cantrill, J. G., & Oravec, C. L. (Eds.). (2015). *The symbolic earth: Discourse and our creation of the environment*. University Press of Kentucky.

Christiano, A., & Neimand, A. (n.d.). The Science of What Makes People Care (SSIR).

Retrieved from [https://ssir.org/articles/entry/the\\_science\\_of\\_what\\_makes\\_people\\_care#](https://ssir.org/articles/entry/the_science_of_what_makes_people_care#)

Cooper, C. D. (2005). Just Joking Around? Employee Humor Expression As An Ingratious Behavior. *Academy of Management Review*, 30(4), 765-776.

Cooper, C. (2008). Elucidating the bonds of workplace humor: A relational process model. *Human Relations*, 61(8), 1087-1115.

Cooper, C. D., & Sosik, J. J. (2012). The Laughter Advantage: Cultivating High-quality Connections and Workplace Outcomes Through Humor. In *The Oxford Handbook of Positive Organizational Scholarship* Oxford University Press.

Cooper, C. D., Kong, D. T., & Crossley, C. D. (2018). Leader Humor as an Interpersonal Resource: Integrating Three Theoretical Perspectives. *Academy of Management Journal*, 61(2), 769-796.

Cox, R. (2013). *Environmental communication and the public sphere*. Sage.

Decker, W., & Rotondo, D. (2001). Relationships Among Gender, Type Of Humor, And Perceived Leader Effectiveness. *Journal of Managerial Issues*, 13(4), 450-465.

Eisend, M. (2010). How humor in advertising works: A meta-analytic test of alternative models. *Marketing Letters*, 22(2), 115-132.

Fisher, A. A. (2009). *Roasting on earth: A rhetorical analysis of eco-comedy* (Order No. 3390896). Available from ProQuest Dissertations & Theses Global. (304999606). Retrieved from <http://proxy.lib.umich.edu/login?url=https://search.proquest.com/docview/304999606?accountid=14667>

Gervais, M., & Wilson, D. (2005). The Evolution And Functions Of Laughter And Humor: A Synthetic Approach. *The Quarterly Review of Biology*, 80(4), 395-430.

Hampes, W. (2013). A Pilot Study of the Relation between Humor Styles and the Past-Positive and Past-Negative Time Perspectives. *Psychological Reports*, 113(1), 345-351.

Hiller, H. H. (1983). Humor and hostility: A neglected aspect of social movement analysis. *Qualitative Sociology*, 6(3), 255-265.

Hinde, R. A., & Van Hooff, J. A. (1972). *Non-verbal communication*. Cambridge: University Press.

Huang, L., Gino, F., & Galinsky, A. D. (2015). The highest form of intelligence: Sarcasm increases creativity for both expressers and recipients. *Organizational Behavior and Human Decision Processes*, 131, 162-177.

Hughes, L. W., & Avey, J. B. (2009). Transforming with levity: Humor, leadership, and follower attitudes. *Leadership & Organization Development Journal*, 30(6), 540-562.

Janofsky, M. (2005, November 19). Preserving the Earth, One Joke at a Time. Retrieved from <https://www.nytimes.com/2005/11/19/arts/television/preserving-the-earth-one-joke-at-a-time.html>

Kutz-Flamenbaum, R. V. (2014). Humor and social movements. *Sociology Compass*, 8(3), 294-304.

Markiewicz, D. (1974). Effects of Humor on Persuasion. *Sociometry*, 37(3), 407-422.

Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of research in personality*, 37(1), 48-75.

Martin, R. A., & Ford, T. (2018). *The psychology of humor: An integrative approach*. Academic press.

McDonald, S. (2000). Neuropsychological studies of sarcasm. *Metaphor and Symbol, 15*(1-2), 85-98.

McGraw, A. P., & Warren, C. (2010). Benign violations: Making immoral behavior funny. *PsycEXTRA Dataset*.

McGraw, A. P., Warren, C., Williams, L. E., & Leonard, B. (2012). Too close for comfort, or too far to care? Finding humor in distant tragedies and close mishaps. *Psychological Science, 23*(10), 1215-1223.

McGraw, A. P., Warren, C., & Kan, C. (2014). Humorous complaining. *Journal of Consumer Research, 41*(5), 1153-1171.

McGraw, P., & Warner, J. (2015). *The humor code: A global search for what makes things funny*. NY, NY: Simon & Schuster Paperbacks, an imprint of Simon & Schuster.

Mihalcea, R., & Strapparava, C. (2006). Learning to laugh (automatically): Computational models for humor recognition. *Computational Intelligence, 22*(2), 126-142.

Mosleh, M., Pennycook, G., & Rand, D. (2019). Self-reported willingness to share political news articles in online surveys correlates with actual sharing on Twitter.



Provine, R. R. (2004). Laughing, Tickling, and the Evolution of Speech and Self. *Current Directions in Psychological Science*, 13(6), 215-218.

Reilly, R. C. (2006). Humor as a Social Lubricant in an Expert Thinking System. *The International Journal of Learning*, 13(2), 149-158.

Riloff, E., Qadir, A., Surve, P., De Silva, L., Gilbert, N., & Huang, R. (2013). Sarcasm as contrast between a positive sentiment and negative situation. In *Proceedings of the 2013 Conference on Empirical Methods in Natural Language Processing* (pp. 704-714).

Rogers, R. A. (1998). Overcoming the objectification of nature in constitutive theories: Toward a transhuman, materialist theory of communication. *Western Journal of Communication (includes Communication Reports)*, 62(3), 244-272.

Shamay-Tsoory, S. G., Tomer, R., & Aharon-Peretz, J. (2005). The neuroanatomical basis of understanding sarcasm and its relationship to social cognition. *Neuropsychology*, 19(3), 288.

Sternthal, B., & Craig, C. (1973). Humor in Advertising. *Journal of Marketing*, 37(4), 12-18.

Strick, M., Baaren, R. B., Holland, R. W., & Knippenberg, A. V. (2011). Humor in advertisements enhances product liking by mere association. *Psychology of Popular Media Culture*, 1(S), 16-31.

Strick, M., Holland, R. W., Baaren, R. B., & Knippenberg, A. V. (2009). The puzzle of joking: Disentangling the cognitive and affective components of humorous distraction. *European Journal of Social Psychology*.

Vecchio, R., Justin, J., & Pearce, C. (2009). The Influence of Leader Humor on Relationships between Leader Behavior and Follower Outcomes. *Journal of Managerial Issues*, 21(2), 171-194.

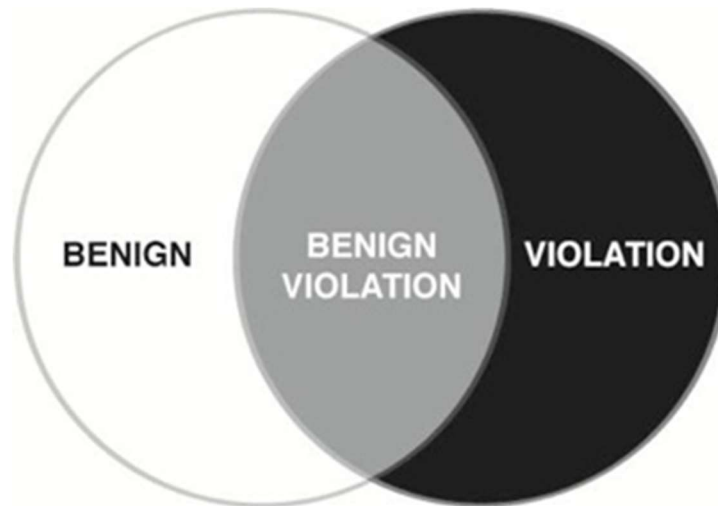
Warren, C., & McGraw, A. P. (2013). When humor backfires: revisiting the relationship between humorous marketing and brand attitude. *Marketing Science Institute Reports*, 1(1), 13-124.

Weinberger, M. G., & Gulas, C. S. (1992). The impact of humor in advertising: A review. *Journal of advertising*, 21(4), 35-59.

## APPENDIX

### Appendix A: The Benign Violation Theory

Illustration of the Benign Violation Theory, from “The Humor Code” (McGraw and Warner, 2014).



### Appendix B: Access to subset of #planetorplastic Instagram data

300 Instagram posts linked to National Geographic’s #planetorplastic initiative, accessible at

[https://drive.google.com/open?id=1RtVGHQHVI\\_nfqyZoTkjWP57QXIu1hfWG](https://drive.google.com/open?id=1RtVGHQHVI_nfqyZoTkjWP57QXIu1hfWG)

### Appendix C: Sample Instagram post (high ratings on humorous) for Study 1



**Appendix D: Sample Instagram post (high ratings on serious) for Study 1**



**Appendix E: Output table Study 1**

. reg likep funny

Source	SS	df	MS	Number of obs	=	596
Model	22064.9741	1	22064.9741	F(1, 594)	=	6.08
Residual	2156260.66	594	3630.06846	Prob > F	=	0.0140
Total	2178325.64	595	3661.05149	R-squared	=	0.0101
				Adj R-squared	=	0.0085
				Root MSE	=	60.25

likep	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
funny	6.946399	2.81751	2.47	0.014	1.412906 12.47989
_cons	9.294983	4.764058	1.95	0.052	-.0614641 18.65143

. reg commentsp funny

Source	SS	df	MS	Number of obs	=	596
Model	22064.9741	1	22064.9741	F(1, 594)	=	6.08
Residual	2156260.66	594	3630.06846	Prob > F	=	0.0140
Total	2178325.64	595	3661.05149	R-squared	=	0.0101
				Adj R-squared	=	0.0085
				Root MSE	=	60.25

commentsp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
funny	6.946399	2.81751	2.47	0.014	1.412906 12.47989
_cons	9.294983	4.764058	1.95	0.052	-.0614641 18.65143

Syntax: gen likep = likes/followercount \* 100; gen commentp = comments/followercount \* 100

### Appendix F: Sample question Study 2 control (serious) condition



### Appendix G: Sample question Study 2 treatment (humorous) condition



### Appendix G: Sample question Study 2 donation measurement

A good news: In addition to the promised compensation of \$0.50, we are offering a lottery for a bonus prize. You are awarded 100 lottery tickets. All participants have a 10% chance to win with their lottery tickets in this study, which will award an extra \$5.00 distributed as an MTurk bonus if you win.

You may choose to:

- enter all your lottery tickets, or
- donate part or all of them to Plastic Pollution Coalition

The donation will be made to Plastic Pollution Coalition, which is a nonprofit organization. Your donation will be used to help reduce pollution caused by single-use plastics.

Please slide the bar below to indicate the amount of tickets you would like to donate (from 0 to 100 lottery tickets). If a winning ticket was donated, we will donate the \$5.00 to Plastic Pollution Coalition directly; if the winning ticket was one you did not donate, you will receive the \$5.00 as a bonus through MTurk. If you do not want to donate, please just choose 0.

Please select the amount of lottery tickets you would like to donate by sliding the bar.

### Appendix I: Access to subset of data from Study 2

Amazon Mechanical Turk data results from Study, accessible at

<https://drive.google.com/open?id=1WXbf1LsPP6jX91RAULHwXrqkiKGx0FuO>

### Appendix J: Sample question display in Instagram post for Study 1

**swzle**  
1,016 followers

View Profile

View More on Instagram

104 likes

swzle

Consume responsibly. #SWZLEwithUS.

.

.

.

#healthiswealth #positivevibesonly #eatclean #fruitsandveggies  
 #goinggreen #zerowastelife #zerowastehome #lowinpack #passonplastic  
 #planetorplastic #siporswzle #swzlewithus #doyouswzle #caseforchange  
 #plasticfreeocean #plasticfreeiving #stopsuckingplastic  
 #byebyeplasticstraws #useyourownstraw #sustainability #ecoliving  
 #ecoloving #ecofriendly #saveetheplanet #saveouroceans #reusablestraw  
 #reusability #sustainableliving #sustainability #sustainabilitymatters

View all comments

Add a comment...

**How relevant is this post to the goal #planetorplastic?**

(1) Not at all relevant

(2)

(3)

(4)

(5) Very relevant

**Are inspirational quotes used in the image?**

Yes

No

**Is the post selling any product?**

Yes