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Cancel Culture on Twitter: The Effects of Information Source and Messaging on Post Shareability and Perceptions of Corporate Greenwashing

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Abstract

This paper is a mixed-method study divided into three parts. Part I provides an overview of the current literature on corporate greenwashing, social media marketing and the intersection of the two. The section concludes by developing a theoretical model and testable hypotheses that aim to explain how individuals might process tweets as it pertains to environmental messaging from external third-party commentators. Part II empirically tests the hypotheses through a 2x2 between-participants survey experiment (n=200) to measure the effects of information source (author of the tweet) and post message (positive versus negative) on two dependent variable constructs: post shareability and environmental authenticity. The empirical study finds that (1) positive posts have a higher likelihood of being liked/shared than negative posts, (2) that third-party commentary from more credible information sources are ranked more favourably in environmental authenticity for both positive and negative conditions compared to less credible information sources, and (3) that the credibility of an information source does not have a statistically significant effect on the likelihood of a post being shared or liked. Part III aims to provide colour into potential behavioural mechanisms behind the causal relationships tested in Part II. Part III is exploratory in nature and uses a series of qualitative in-depth individual case studies (n=10) to propose a set of future research questions that would develop a more nuanced understanding to complement the empirical findings.

Keywords

Greenwashing, Green Washing, Environmental Authenticity, Social Media, Twitter, Information Source

Disciplines

Business Administration, Management, and Operations | Environmental Studies | Marketing

CANCEL CULTURE ON TWITTER: THE EFFECTS OF INFORMATION SOURCE AND
MESSAGING ON POST SHAREABILITY AND PERCEPTIONS OF CORPORATE
GREENWASHING

By

Brandon Nguyen

An Undergraduate Thesis submitted in partial fulfillment of the requirements for the
WHARTON RESEARCH SCHOLARS

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MAY 2020

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Shareability and Perceptions of Corporate Greenwashing*

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May 4, 2020

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This paper is a mixed-method study divided into three parts. Part I provides an overview of the current literature on corporate greenwashing, social media marketing and the intersection of the two. The section concludes by developing a theoretical model and testable hypotheses that aim to explain how individuals might process tweets as it pertains to environmental messaging from external third-party commentators. Part II empirically tests the hypotheses through a 2x2 between-participants survey experiment (n=200) to measure the effects of information source (author of the tweet) and post message (positive versus negative) on two dependent variable constructs: post shareability and environmental authenticity. The empirical study finds that (1) positive posts have a higher likelihood of being liked/shared than negative posts, (2) that third-party commentary from more credible information sources are ranked more favourably in environmental authenticity for both positive and negative conditions compared to less credible information sources, and (3) that the credibility of an information source does not have a statistically significant effect on the likelihood of a post being shared or liked. Part III aims to provide colour into potential behavioural mechanisms behind the causal relationships tested in Part II. Part III is exploratory in nature and uses a series of qualitative in-depth individual case studies (n=10) to propose a set of future research questions that would develop a more nuanced understanding to complement the empirical findings.

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Introduction

Former United Nations Secretary-General Ban Ki-Moon is famous for stating that “we are the first generation to be able to end poverty, and the last generation that can take steps to avoid the worst impacts of climate change” (Ki-Moon, 2015). From rising sea levels to increasing flooding and incidences of natural disasters, the impacts of climate change are already being felt around the globe (Suzuki, 2020).

However, there is some hope—more and more companies are beginning to consider their responsibility to mitigate their environmental impact (although not yet nearly to the extent that is needed). In his famous annual “Letter to CEOs”, Blackrock Chairman & CEO Larry Fink stated at the beginning of 2020 that “climate change has become a defining factor in companies’ long-term prospects. Last September, when millions of people took to the streets to demand action on climate change, many of them emphasized the significant and lasting impact that it will have on economic growth and prosperity” (Fink, 2020).

With increases in corporate environmental action, have come increases in accusations of greenwashing—when companies fail to meet symbolic environmental action with substantive environmental action—which has drastic financial implications for companies (Orlitzky et al. 2003).

Given the rise of social media and the increasing democratization of commentary consumption and production, it is more important than ever for companies to understand how their actions will be perceived on digital platforms like Twitter. This paper aims to provide a theoretical framework, that is tested empirically and qualitatively, to understand how information source and post message of digital third-party commentary effects shareability and perceptions of corporate environmental authenticity.

This paper is a mixed-method study divided into three parts. Part I provides an overview of the current literature on corporate greenwashing, social media marketing and the intersection of the two. The section concludes by developing a theoretical model and testable hypotheses that aim to explain how individuals might process tweets as it pertains to environmental messaging from external third-party commentators.

Part II empirically tests the hypotheses through a 2x2 between-participants survey experiment (n=200) to measure the effects of information source (author of the tweet) and post message (positive versus negative) on two dependent variable constructs: post shareability and environmental authenticity. The empirical study finds that (1) positive posts have a higher likelihood of being liked/shared than negative posts, (2) that posts from more credible information sources are ranked more favourably in environmental authenticity for both the positive and negative message conditions compared to less credible information sources, and (3) that the credibility of an information source does not have a statistically significant effect on the likelihood of a post being shared or liked.

Part III aims to provide some colour into potential behavioural mechanisms behind the causal relationships tested in Part II. Part III is exploratory in nature and uses a series of qualitative in-depth individual case studies (n=10) to propose a set of future research questions that would develop a more nuanced understanding of the empirical findings.

PART I: Developing a Theoretical Model

Literature Review

This paper aims to bridge research from two distinct areas of business academia: greenwashing and social media marketing. There is significant literature looking at what aspects of a post (messaging, information source, etc.) make it more likeable or shareable, but not yet specifically in the context of environmental messaging and third-party commentary. On the other hand, there are many studies that explore how consumer perceptions are shaped by greenwashing, but not yet specifically in the context of an online social media platform like Twitter.

1) Greenwashing and Corporate Authenticity

Greenwashing is a highly documented and studied phenomenon that has been defined as the gap between symbolic and substantive actions a company takes with regard to environmental sustainability. For example, a company that purports sustainably sourced inputs in its marketing materials despite using palm oil (a highly unsustainable good) would be deemed as practicing greenwashing. For the purposes of this paper, it is important to make the distinction between a sustainable company, and a company that is practicing greenwashing. A company can be unsustainable but not partake in greenwashing (such as an oil and gas company that makes zero claims about being sustainable), while a sustainable company can partake in greenwashing (such as a renewable energy company that makes illegitimate claims about sustainable sourcing of rare metals in manufacturing).

Countless studies have highlighted the negative implications of greenwashing on the financial performance of companies in different settings. (Orlitzky et al. 2003; Margolis and

Walsh 2003; Russo and Fouts 1997). Some industries, particularly those that are visibly polluting, undergo heightened scrutiny from consumers (Stevens et al. 2005; Berrone and Gomez-Meija, 2009) largely due to a commonly accepted principle that they have a bare minimum moral obligation to partake in substantive environmental action (Kent and Wan, 2011). Despite small fluctuations across industry contexts, academic literature generally supports the existence of a negative correlation between greenwashing and financial performance. This decrease in financial performance is likely caused by lowering trust and purchasing intention among consumers (Leonidou and Skarmeas, 2017; Chen and Chang, 2013).

Participating in greenwashing has also been demonstrated to lead to lower perceived company performance (Nyilasy et al., 2014), perceived market value of the company (Du, 2015), and increased risk perception (Chen and Chang, 2013). These could all compound to produce negative implications on stock performance and capital availability for companies that partake in greenwashing. It is also important to note the moderating effect played by “ecological concern” on perceptions of greenwashing. Individuals who demonstrate a higher level of ecological concern are more affected (more of a decrease in purchase intent, brand equity, etc.) by instances of greenwashing (Rahman, Park & Chi, 2015).

However, many studies have also found that environmental advertising has negative implications on a company’s financial performance regardless of whether it is greenwashing (e.g., regardless of whether the environmental advertising is substantiated with legitimate environmental action). A possible explanation suggested is that claiming to be sustainable can draw more scrutiny and criticism from consumers and regulators regardless of actual performance (Easterling et al., 1996). Another study found that green advertising can hurt companies through lowering consumer brand attitudes and purchase intentions, regardless of the

level of corporate environmental performance (Nyilasy et al., 2014). The authors offer attribution theory as an explanation to these findings—that through constant exposure to greenwashing, many consumers may form negative attributions about the motives of companies that possess environmental messaging, regardless of where their environmental performance lies. Attribution theory as an explanation is corroborated by additional studies that find that a recent influx in greenwashing has produced cynical consumers that are suspicious of any type of environmental messaging (Johnstone and Tan, 2014; Self et al., 2010).

Despite this, researchers have posited several drivers behind why companies still engage in greenwashing, including: “external drivers such as pressures from non-market and market actors; organizational drivers such as firm incentive structure and ethical climate, effectiveness of intra-firm communication and organizational inertia; and individual-level drivers including narrow decision framing, hyperbolic intertemporal discounting, and optimistic bias” (Delmas and Burbano, 2011).

Others have used “decoupling” theories as a framework through which to understand greenwashing. Due to the heightened scrutiny of companies with environmental messaging and the increasingly active role consumers are playing in ensuring environmental compliance, it would be difficult for inconsistencies between substantive and symbolic actions to persist over long periods of time (Fiss and Zajac, 2006). Rather, discrepancies between symbolic and substantive actions may lead to “recoupling” as companies either increase their substantive actions to meet their symbolic claims or decrease their symbolic claims to meet their substantive actions (Bromley and Powell, 2012; Espeland, 1998; Sandholtz, 2012; Tilcsik, 2010).

In contrast with greenwashing, several studies document the unhelpful benefits of substantive action in itself, citing psychological prospect theories that explain how people value

gains and losses of the same amount differently (Brenner et al. 2007). In the context of greenwashing, “the results suggest that the pain/aversion people feel as a result of symbolic actions (a perceived loss) drives stakeholders to punish the firm more strongly than would be the drive to reward firms for substantive actions (a perceived gain)” (Kent and Wan, 2011).

It is also important to note that greenwashing is not always a discrete “yes or no” phenomenon, but that there is rather a spectrum upon which companies can lie between very minimal “stretching” of the truth, and blatant discrepancy between substantive and symbolic actions. A 2019 study found that both lies and half-lies had similar effects on company reputation among consumers, and that falsely taking credit for green behaviour beyond legal obligations produces negative reputational effects (de Jong, Huluba & Beldad, 2019). Other studies have had conflicting conclusions, finding that “different levels of greenwashing have significantly different influence on stakeholders’ perceptions of corporate environmental responsibility and stakeholders’ reactions to environmental scandals” (Torelli, Balluchi & Lazzini, 2019).

The connection between greenwashing and financial performance has been made clear. It would then make sense for companies to want to avoid being accused of practicing greenwashing in order to preserve brand value and financial performance. Therefore, it becomes more pertinent than ever for companies to understand what exactly constitutes greenwashing versus authenticity in the eyes of consumers. This can be challenging in light of recent scandals that have led to “increasing consumer skepticism about green products, leading to mistrust of the solutions meant to protect the environment in production, distribution, or commercialization processes.” (Braga, Merlo & Silva, 2016; Dahl, 2010)

Research has identified some initial drivers that signal greenwashing, including the lack of acknowledging economic motives when announcing sustainability initiatives (Vries et al., 2013), and the perceived functional fit between a company's business model and the type of CSR activity (Yoon et al., 2006; Alcaniz et al., 2010; Melo and Garrido-Morgado, 2012). However, there still lacks substantive research on what some of these drivers might be on digital platforms like Twitter.

2) Social Media Activism & Perception

The other major domain of literature that this paper intersects with is social media perception and digital marketing. Young people are increasingly using social media to redefine citizenship and activism (Bosch, 2015). Termed “callout culture” or “cancel culture”, this increasing phenomenon of social media activism has prompted many to promote the boycotting of different people, companies and systems for misalignment with social values. A 2019 study found that, “managers should be aware of their statements and behaviours specifically around issues that are strongly related to social values and beliefs. In this study, we found evidence that compromising these issues not only decreases perceived brand authenticity, but it also might lead to calls to boycott campaigns on social media” (Shiradastian, Laroche & Richard, 2019). This has significant managerial implications, as companies begin to invest more heavily in creating a robust social media community to bolster customer relationships and boost revenues (Kumar, Bezawada, Rishika, Janakiraman, & Kiannan, 2016).

While this rapid uptake in microblogging platforms has given companies new tools to engage with customers, it has also provided novel platforms for grassroots activists (Oranburg, 2015). A 2015 study found that “Twitter was central to youth participation during the [Rhodes

Must Fall] campaign [in South Africa], reflecting the politics and practices of counter-memory but also setting mainstream news agendas and shaping the public debate” (Bosch 2015).

There is extensive research breaking down how different characteristics alter engagement with posts on microblogging platforms (such as Twitter), finding that characteristics such as post readability, brand customer service, brand intimacy, inclusion of topic-related words, and consumer co-promotion intentions all influence post traction (Read, Robertson, McQuilken & Ferdous, 2019; Jalali & Papatla, 2019; Davis, Horvath, Gretry & Belei, 2019). However, there is a gap in robust literature focused specifically on how tweet characteristics influence engagement as it applies to corporate sustainability, digital activism and perceptions around greenwashing and authenticity.

Research has made it clear that certain characteristics of a tweet (such as message topic, username, user image, etc.) play a statistically significant role on the perceptions of tweets and author credibility (An, Li, Ji & Wang, 2013). A 2014 empirical study was also able to demonstrate the role that the number of followers has in increasing credibility of Tweets, as well as the role that electronic Word of Mouth (eWoM) played in increasing purchasing intention (Jin & Phua, 2014). Characteristics as seemingly intangible as the extent to which tweet authors are sentimental in discussing topics have also been linked to information source credibility (Alrubaian et al., 2016).

Another element that shapes information source credibility on online platforms is the relationship between the author and the individual. For example, users are more likely to perceive tweets as being credible if they come from sources that are closer to the author, such as a friend or an account that the user has opted into following (Castillo, Mendoza & Poblete, 2011; Castillo, Mendoza & Poblete, 2013). Furthermore, it has been demonstrated that individuals do

not see an issue as being less important if it is presented as a tweet versus a more formal long story on traditional forms of media (Schmierbach & Oeldorf-Hirsch). The importance of argument quality and source credibility has also been shown to play a major role in information sharing behaviour on Twitter (Ha & Ahn, 2011).

3) Intersection of Social Media and Greenwashing

Traditional forms of media are critical to helping companies communicate their environmental messaging, whether or not they are involved in greenwashing (Carroll and McCombs, 2003). Social media has also proven integral to consumers and activists, who now have a much more accessible platform to engage in symmetric two-way communications compared to “traditional hierarchical models” (Benkler, 2006). With the increase in autonomy of NGOs and stakeholders to voice their opinions through social media, it has become more important than ever for companies to understand how environmental messaging is perceived through digital platforms. The degree to which digital platforms can influence consumer perceptions is moderated, however, by their relative lack of perceived credibility compared to newspapers, websites and other traditional forms of media (Schmierbach & Oeldorf-Hirsch, 2012).

The previously mentioned literature on how companies with adequate environmental performance may want to avoid green messaging to avoid skepticism also extends to social media behavior. Researchers have posited that “the use of social media by external stakeholders will make firms with green reputations less likely to promote their environmental successes when they have mixed environmental records” (Lyon & Montgomery, 2013). Rather, firms with mixed environmental records are especially better off remaining silent in order to avoid

increased scrutiny and claims of being hypocritical on social media (Ashforth and Gibbs, 1990; Morsing et al., 2008). On the other hand, “the use of social media by external stakeholders will make firms with brown reputations more likely to fully disclose both their good and bad environmental outcomes when they have mixed environmental records” (Lyon & Montgomery, 2013; Reid and Toffel; 2009). This is due to the fact that companies with brown reputations may want to overcompensate and correct for any positive aspects of their mixed environmental record that may otherwise go unnoticed.

On a macro-scale, studies have argued that the increased usage of social media by consumers will decrease the incidences of all forms of greenwashing (Lyon & Montgomery, 2013). With the type of increased scrutiny and monitoring that social media facilitates, it is argued that it will be much more difficult for companies to maintain discrepancies between their symbolic and substantive environmental actions.

Theoretical Hypotheses

Based on this literature review, this paper proposes a set of propositions that provide a framework for how individuals process and perceive tweets in the context of corporate environmental messaging. This paper is less concerned about the direct interaction between companies and their consumers—this has been a more highly studied topic as shown by the previous literature review. Rather, this theoretical model is focused on understanding the interaction between consumers, and external commentators of corporate environmental management. There has been an increasing amount of third-party and external commentary on corporate environmental authenticity, whether that be from individuals casually tweeting about companies or industry trade organizations publishing formal reports on corporate environmental

compliance. The phenomenon of having accessible external commentary on corporate environmental affairs is unique in that it democratizes the dialogue such that anyone can become a producer or consumer of commentary (much more than was possible through traditional media).

Furthermore, it brings to light the gaps of knowledge in current literature—we know with relative confidence how consumers react to environmental messaging from companies themselves (re: universal skepticism, as internalized through attribution theory). There has also been significant research on how consumers interact with social media platforms more broadly. However, there lacks substantive research on how consumers might react to environmental messaging from external commentators on digital social media platforms. This knowledge gap can produce questions such as:

- Environmental messaging directly from companies is processed with skepticism which can spark increased scrutiny. Do consumers also view environmental messaging from external commentators with the same level of skepticism, and how does it differ based on the information source (author of the Tweet)?
- Our literature review has shown that consumers are more inclined to punish companies for being environmentally unfriendly than they are to reward companies for being environmentally friendly. Does this logic extend to the realm of social media? Are consumers more inclined to share “negative” posts that punish a company, compared to “positive” posts that reward a company for doing well?

The following theoretical propositions aim to provide some guidance based off of the related academic literature. These propositions will serve as hypotheses to be tested empirically in the next section of this paper.

Proposition #1: Individuals are more likely to share/like Tweets that aim to punish a company for being environmentally unfriendly, compared to Tweets that aim to reward a company for being environmentally friendly.

There is ample literature across contexts that suggest the phenomenon underlying human nature to skew towards having a negativity bias in contexts from social-emotional development, to news consumption and brand perceptions (Vaish, Grossmann & Woodward, 2013; Winchester & Winchester, 2009; Soroka, Fournier & Nir, 2019). Proposition #1 theorizes that this phenomenon extends into the world of environmental messaging on digital platforms.

Proposition #2: Negative tweets will have a larger effect on perceptions of corporate environmental authenticity than positive tweets.

The aforementioned consensus in literature on negativity bias may also apply to the extent to which content can shape our perceptions of corporate environmental authenticity. Consumers are often much more critical of negative experiences than positive experiences, and environmental messaging on digital platforms is thought to be no different. Proposition #2 is a natural extension of this logic, theorizing that negative environmental messaging about a company from a third-party commentator will have a larger impact on decreasing perceptions of environmental authenticity relative to the effect that positive messaging has on increasing perceptions of environmental authenticity.

This proposition will not be tested in this paper due to data and experimental design limitations. In order to empirically ascertain the moderating effect of post message on environmental authenticity, we would need to first record a baseline measure of perceived

environmental authenticity of the company before presenting either a negative or positive tweet to the participants to measure the change in attitudes. While this question is outside the scope of the empirical experimental survey in Part II, it is encouraged that future research be done to explore the relevance of this theoretical proposition in helping us understand how individuals react to digital third-party commentary on corporate environmental authenticity.

Proposition #3: Tweets from more credible information sources will have a stronger moderating effect on shaping consumer perceptions of environmental authenticity.

Previous studies in marketing and communications have found that source credibility play a significant role in shaping the shareability of a post. There are various characteristics that can alter the perceived credibility of an information source, including the type of account (institutional such as an NGO versus an individual), whether or not the account is verified, display name of the account, the number of followers, and even the phrasing of the Tweet (Shariff, Zhang & Sanderson, 2014; Mitra, Wright & Gilbert, 2017). Proposition #3 theorizes that this phenomenon will hold true in environmental messaging on Twitter specifically, using account type (NGO versus individual) to manipulate perceived information source credibility.

For the hypothesis to prove our theoretical proposition, there would have to be a clear relationship demonstrated between perceived credibility and the account type (NGO, individual). Studies, however, have suggested that Twitter accounts associated with organizations generally have a higher perceived level of credibility than individual accounts (McCorrison, Jurgens & Ruths, 2015). This paper will assume these findings hold true for this context.

Proposition #4: Tweets about corporate environmental messaging from more credible information sources will have a higher likelihood of being shared/liked by individuals than the same tweets from less credible information sources.

It has been established that generally content from credible sources have a higher likelihood of being shared or liked (Yang, Tufts, Ungar, Guntuku, & Merchant, 2019). However, there has yet to be substantive research on the implications of this phenomenon specifically as it applies to third-party commentary on corporate environmental authenticity. Proposition #4 theorizes that we should expect to see higher traction with content from more credible sources.

Significance of Research Questions

In light of the rapidly changing landscape of social media activism and increasing prevalence of wariness around greenwashing, this research hopes to provide a better understanding of the intersection between environmental activism and social media. While there have been studies that have looked at greenwashing through both traditional media forms (TV advertisements, etc.) and direct company-consumer interactions, there has yet to be research done on the implications of digital third-party commentators on perceptions of environmental authenticity. Given the highly democratized state of commentary production and consumption on platforms like Twitter, it is more important than ever for companies to understand how to anticipate and manage digital third-party commentary on their environmental outcomes.

PART II: Empirical Assessment of our Theoretical Model

Introduction & Survey Methodology

This section of the paper will empirically test the three hypotheses from the theoretical model in Part I. To do so, we conduct a 2x2 between groups experimental survey. The experiment included two independent variables (information source and post message) and two dependent variables (post shareability and environmental authenticity).

The independent variables each had two conditions (NGO and Individual authored tweets for information source, and negative and positive sentiments for post message) for a total of four different treatment effects: positive message from an NGO, negative message from an NGO, positive message from an individual, negative message from an individual.

Survey participants were recruited from Amazon Mechanical Turk (n=200), with the only restriction being that they were above 18 years old and lived in the United States. The original sample size was n=248, however 48 responses were discarded due to a failure to correctly answer one of the two attention check questions employed for a successful participation rate of 80.65%. The attention check questions confirmed that the participant understood who the information source was (NGO vs. individual) and what the post message was (negative vs. positive). A copy of a sample survey is attached in Appendix A. The participants were presented with one of the four following Tweets based on their randomly assigned treatment group:

Condition #1: NGO, Negative



Philadelphia Alliance for Climate Action @ForPhiladelphia · 1m

Bartelby Apparel has always advertised themselves as being environmentally friendly, but were recently ranked as being in the bottom 5% of most sustainable clothing companies in the US. There is lots of room for improvement!



Condition #2: NGO, Positive



Philadelphia Alliance for Climate Action @ForPhiladelphia · 1m

Bartelby Apparel has always advertised themselves as being environmentally friendly, and were recently ranked as being in the top 5% of most sustainable clothing companies in the US. Good job!



Condition #3: Individual, Positive



Steven Li @StevenL56429446 · 1m

Bartelby Apparel has always advertised themselves as being environmentally friendly, and were recently ranked as being in the top 5% of most sustainable clothing companies in the US. Good job!



Condition #4: Individual, Negative



Steven Li @StevenL56429446 · 1m

Bartelby Apparel has always advertised themselves as being environmentally friendly, but were recently ranked as being in the bottom 5% of most sustainable clothing companies in the US. There is lots of room for improvement!



The dependent variable constructs were measured using a series of Likert scale questions from 1 to 7. Post shareability was measured by asking individuals the following questions with 1 on the Likert scale translating to “extremely unlikely”, and 7 translating to “extremely likely”:

- 1) If you saw this tweet in real life, how likely would you be to "favourite" or "like" it?
- 2) If you saw this tweet in real life, how likely would you be to "retweet" or "share" it?

Due to the meaningful difference in behavioural attitudes and drivers behind “liking” and “sharing” a tweet, the results for each dependent variable were analyzed separately rather than reducing them into a single measure for the construct of “post shareability.” Many see “sharing”

a tweet as a much stronger form of endorsement than simply “liking”—this differentiation is meaningful.

To measure environmental authenticity, a series of three questions were adapted from several marketing studies, using a Likert scale from 1 (strongly disagree) to 7 (strongly agree):

- 1) On a scale from 1-7, please rate how much you agree with the statement: I trust this company.
- 2) On a scale from 1-7, please rate how much you agree with the statement: This company cares about the environment.
- 3) On a scale from 1-7, please rate how much you agree with the statement: This company is honest about their environmental impact.

These three measures were then reduced into a single dependent variable construct for environmental authenticity. The internal construct validity was confirmed prior to reducing the data using both an assessment of the correlation between the three dependent variables (see Figure 1), as well as computing Cronbach’s alpha (see Figure 2) which indicated strong internal construct validity ($\alpha = 0.947 > 0.700$). The responses to the three questions were reduced to measure the environmental authenticity construct by adding the Likert scores for a total possible range from 3 to 21.

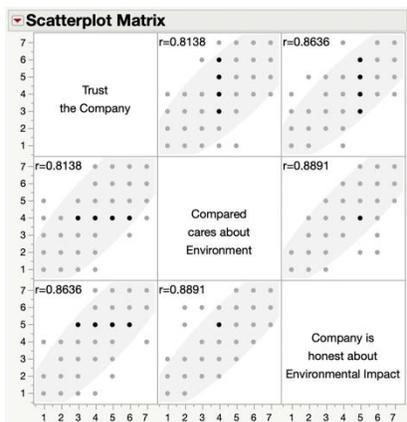


Figure #1: Correlation between dependent variables.

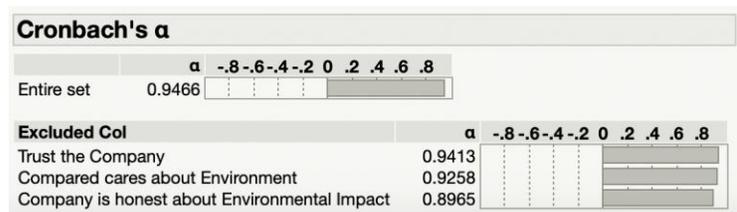


Figure #2: Cronbach’s alpha, computed between dependent variables underlying Environmental Authenticity construct.

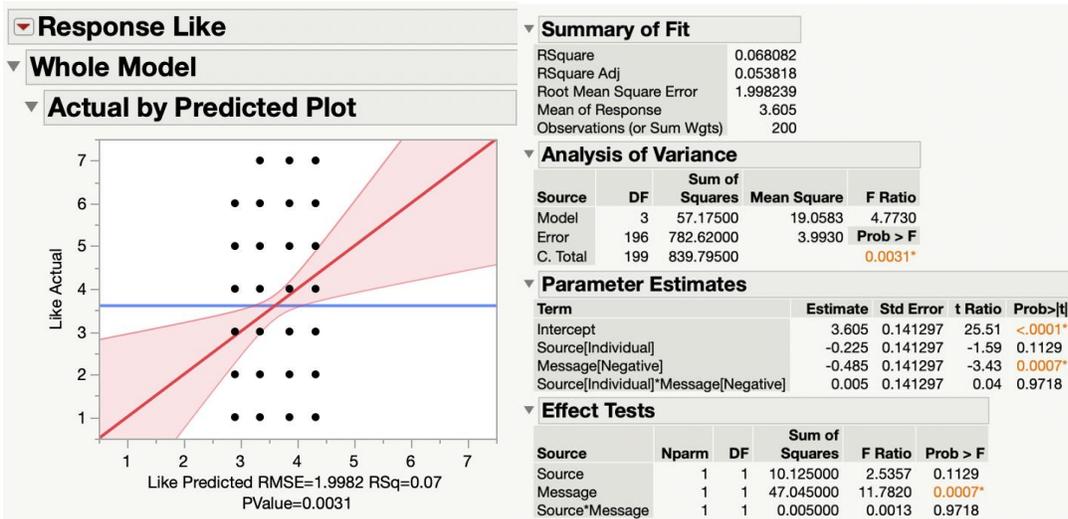
It is also worthy to note that the output of a Likert scale is ordinal in nature, yet the statistical analysis conducted in this paper used parametric methods suitable for continuous data. While the debate around treating Likert scale items as continuous data has not yet been completely resolved, there is significant evidence that an “ordinal approximation of a continuous variable” from a Likert scale is not harmful to the analysis or outcomes of data (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). Furthermore, the potential risk of altering outcomes of analysis through mistreating ordinal data as continuous data has been found to be mitigated in contexts where several Likert scale items are combined into a single construct. Given that our dependent construct of environmental authenticity will be measured as a reduction of three separate Likert scale items, this paper will assume no issues in using parametric methods on Likert scale data.

Participants were also instructed to answer the questions assuming they had a Twitter account and were an active user. Various binary variables were also recorded through the survey to test for potential effects that historical Twitter usage and age might have on an individual’s answers. The average age of participants was 38.27 with a standard deviation of 11.92, and the percentage of participants who have had or currently have a Twitter account was 90.5%. However, there was no statistically significant difference in responses based on historical Twitter usage or age of participants which suggests that not limiting the survey to users who might have been more familiar with Twitter would not have changed the findings of this paper.

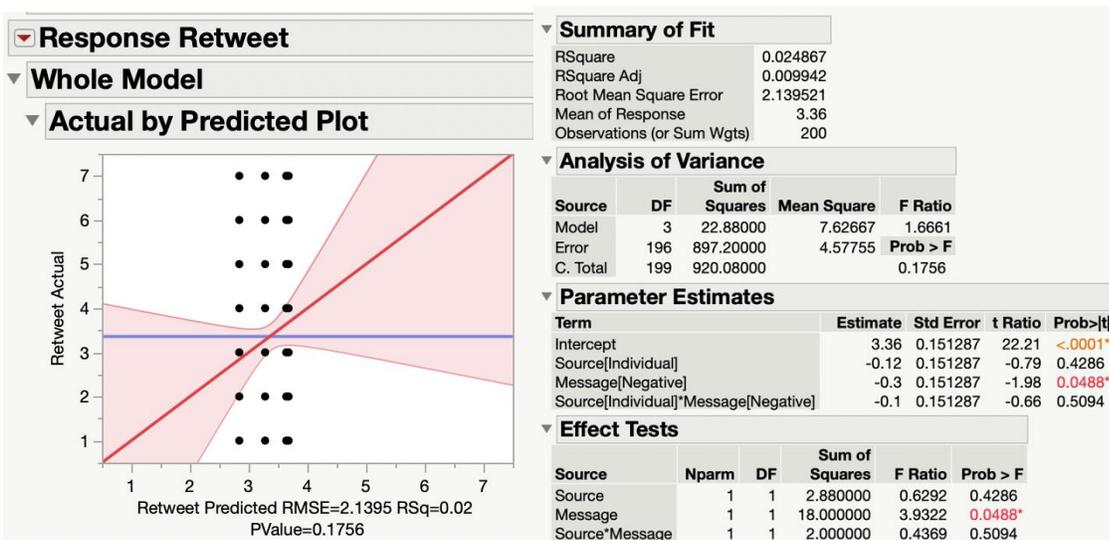
Statistical Analysis

A factorial between group ANOVA was conducted on the data set to test the effect of the independent variables on the two dependent variable constructs. The results of the analysis and their implications on our hypotheses will be discussed in the following pages. The following output was obtained from JMP, the primary statistical software used for this paper:

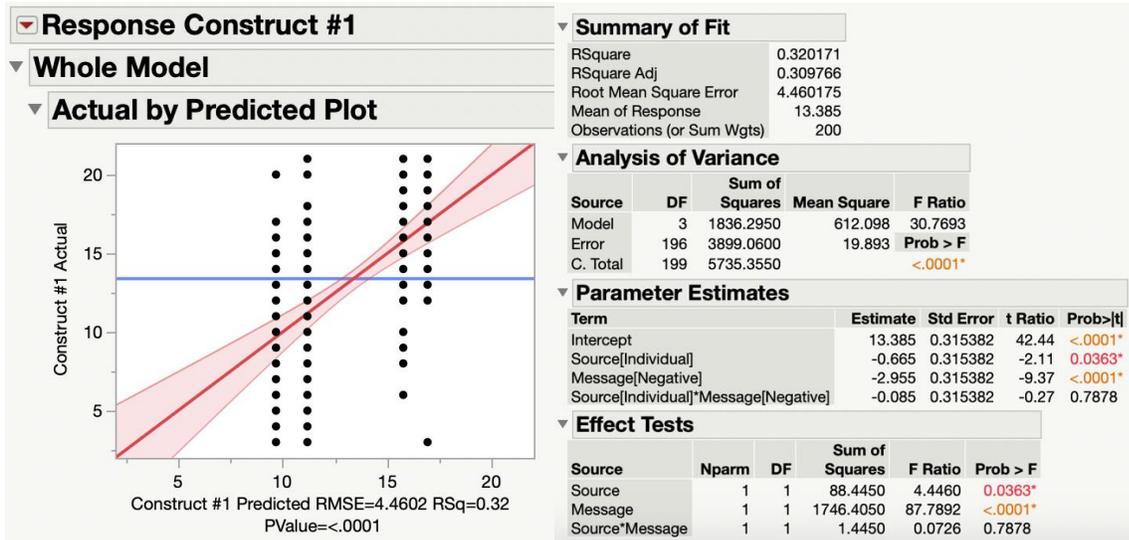
1. Effects of Independent Variables on “Likelihood of Liking”



2. Effects of Independent Variables on “Likelihood of Sharing”



3. Effects of Independent Variables on Environmental Authenticity Construct



Additional statistical output is attached in Appendix D, detailing the effects of each individual independent variable in each of the factorial between group ANOVA's.

Result #1: Post Message and Shareability

Hypothesis #1: Individuals are more likely to share/like Tweets that aim to punish a company for being environmentally unfriendly, compared to Tweets that aim to reward a company for being environmentally friendly.

The factorial between group ANOVA revealed a statistically significant effect of post message on “likelihood of liking/favouriting a tweet”, $F(1, 199) = 47.05, p < 0.05$. The mean rating on the Likert Scale from 1 (extremely unlikely) to 7 (extremely likely) was 3.12 (SE = 0.1998) for negative posts, while the mean rating for positive posts was 4.09 (SE = 0.1998). This demonstrates that participants were statistically significantly more likely to like/favourite posts with a positive message.

As well, there was a statistically significant effect of post message on “likelihood of sharing/retweeting a post”, $F(1, 199) = 0.4369, p < 0.05$. The mean rating on the Likert Scale from 1 (extremely unlikely) to 7 (extremely likely) was 3.06 (SE = 0.2140) for negative posts, while the mean rating for positive posts was 3.66 (SE = 0.2140). This demonstrates that participants were statistically significantly more likely to share or retweet posts with a positive message. Both of these findings reject our theoretical hypothesis that posts with a negative message would have a higher shareability.

There was also no significant interaction effect between Source*Message on “Likelihood of Liking”, $F(1, 199) = 0.0050, p < .05$. No significant interaction effect between Source*Message on “Likelihood of Retweeting” was found either, $F(1, 199) = 0.4369, p > 0.05$.

Result #2: Information Source and Environmental Authenticity

Hypothesis #2: Tweets from more credible information sources will have a stronger moderating effect on shaping consumer perceptions of environmental authenticity.

The factorial between group ANOVA revealed that there is a statistically significant effect of information source (NGO vs individual) on environmental authenticity, $F(1, 199) = 4.446, p < 0.05$. The mean rating on the combined Likert Scale between 3 (participant rated all three internal Likert questions with “1”) and 21 (participant rated all three internal Likert questions with “7”) was 12.72 (SE = 0.4460) for individual posts, and 14.05 (SE = 0.4460) for NGO posts. There was no statistically significant interaction effect between source*message and environmental authenticity, $F(1, 199) = 0.0726, p > 0.05$. A further breakdown of average construct scores for the four treatment groups is presented here:

Treatment Group	Average Environmental Authenticity Score
NGO, Positive	16.92
NGO, Negative	15.76
Individual, Positive	11.18
Individual, Negative	9.68

These findings partially confirm our theoretical hypothesis that tweets from more credible information sources will have a stronger effect on shaping environmental authenticity. A more credible information source had a stronger effect in increasing the environmental authenticity score when the post was positive and praising the company. However, if the theoretical proposition were completely true, we would also expect posts of a negative nature from credible sources to have a larger decreasing effect on environmental authenticity than similar posts from less credible sources. Rather, we find that participants were statistically significantly more likely to rate companies more favourably on the environmental authenticity scale when the source was an NGO, regardless of whether the underlying message was positive or negative.

Result #3: Information Source and Shareability

Hypothesis #3: Tweets about corporate environmental messaging from more credible information sources will have a higher likelihood of being shared/liked by individuals than the same tweets from less credible information sources.

The factorial between group ANOVA revealed that there is no statistically significant effect of information source on either metric of post shareability. Using the Likert scale to measure “Likelihood of Liking” from 1 (extremely unlikely) to 7 (extremely likely), the mean score for

NGO's was 3.83 (SE = 0.1998), and 3.38 (SE = 0.1998) for individuals. This difference was statistically insignificant, $F(1, 199) = 2.536, p > 0.05$.

Using the Likert scale to measure "Likelihood of Retweeting" from 1 (extremely unlikely) to 7 (extremely likely), the mean score for NGOs was 3.48 (SE = 0.2140) and 3.24 (SE = 0.2140) for individuals. This difference was statistically insignificant, $F(1, 199) = 0.6292, p > 0.05$.

These findings indicate that we can reject our initial theoretical hypothesis that tweets from more credible information sources will have a higher likelihood of being shared/liked by individuals than similar tweets from less credible information sources. Rather, the findings indicate no statistically significant difference in this context.

Discussion

The empirical findings disprove many of the hypotheses underlying our theoretical model of how individuals might process digital third-party commentary on corporate environmental authenticity. However, it is still worthwhile to discuss and understand the implications of each of the results to refine our understanding on the subject, frame Part III of this paper, and suggest future areas for research.

1) Result #1: Positive posts are more likely to be shared/liked.

Our theoretical proposition that negative posts would likely gain more traction than positive posts was largely rooted in the existent literature on the role of negativity bias in news consumption and brand perceptions. However, there are also studies that suggest an important distinction exists between consuming content, and the decision to share content. While negative content may have a disproportionate effect on shaping our perceptions as suggested by the

negativity bias literature, the decision to like or share content may be influenced by a reverse, positivity bias due to its inherently more social nature (Kim, 2015; Berger, 2014; Huang, Lin, & Lin 2009). Our findings suggest that this negativity bias in selection and positivity bias in sharing behaviour hold true for digital, third-party commentary on corporate environmental authenticity.

This is counterintuitive to many anecdotal sentiments around Twitter's "call-out culture" as being overly critical and unconstructively harbouring negativity. Our findings, rather, suggest that users are inherently more likely to share posts with positive messages as it pertains to environmental authenticity.

Our initial literature review found that attribution theory has been proposed as being partly responsible for causing environmental advertising to have a negative effect on a company's financial performance regardless of its actual environmental performance (Johnstone and Tan, 2015; Nyilasy et al., 2014; Self et al., 2010; Easterling et al., 1996). Our findings suggest, however, that consumers may be less skeptical of spreading positive commentary on corporate environmental authenticity when it comes from digital, third-party commentary. A possible explanation for this result could be that participants may take a less critical and cynical stance on environmental authenticity claims when it is not coming from the company itself, due to lower perceived levels of bias.

Our literature review also revealed the role that prospect theory plays in our perception of negative versus positive content (Kent & Wan, 2011; Brenner et al., 2007). While these studies have shown that consumers reward companies less for substantive actions than they punish companies for symbolic actions, our findings had conflicting results. Rather, participants were more inclined to share good news that rewarded companies, debunking the belief that environmental messaging is always harmful or that substantive action does not improve brand

perception. Whether increased shareability leads to increased financial performance, however, is a limitation of this study that will be discussed in more detail in the following section.

2) Result #2: Posts from more credible sources receive relatively more favourable environmental authenticity ratings for both positive and negative messages.

Our initial hypothesis based off of the literature review, was that posts from more credible sources would have a stronger effect on participant perceptions of environmental authenticity in both negative and positive message conditions. This was based on the argument that information from more credible sources is seen as being more reliable, and so information from less credible sources would be received with a larger degree of skepticism. Our findings, rather, suggest that our hypothesis was only half valid. While posts from more credible information sources had a larger effect on perceptions of environmental authenticity for positive messages, posts from less credible sources had a larger decreasing effect on perceptions of environmental authenticity for negative messages. In summary, participants were more charitable in their perceptions of environmental authenticity when the information source was more credible, for both positive and negative posts.

While the positive directional findings are consistent with our intuition and theoretical proposition, the possible mechanisms behind the counterintuitive negative directional findings deserve some consideration. A potential explanation that we might be able to explore further in Part III of this paper is the possibility that our manipulation of Tweet author (NGO vs. individual) might not translate to a manipulation in information source credibility in the way that we anticipate. While intuition might lead us to believe that an NGO would signal a higher degree of information credibility, it is also conceivable that one might view the perspectives of an NGO

as being potentially biased or rooted in a political agenda. Furthermore, the tweet from an individual could be perceived as being more genuine or authentic, in which case it might play a more direct role in shaping negative perceptions of environmental authenticity when “calling out” a company.

In that case, it would make sense that a participant’s perception of environmental authenticity would experience a larger decrease with the individual authored tweet compared to the NGO authored tweet. Further research may want to validate this possibility by either finding additional proxies with which to manipulate information source credibility (such as changing the traction of the Tweet) or include a control question to explicitly measure the degree to which participants see the information source as being credible.

Lastly, both of the tweets (NGO and individual) referenced an external “ranking” rather than a more subjective opinion. Perhaps, the role of information source is less relevant when the Tweets are discussing an external ranking rather than expressing and arguing a subjective opinion. Research has suggested that tweets of a political nature are seen as more credible when referencing an external source of information (Ghaisani, Munajat, & Handayani, 2017), and thus future research may want to explore the effects of information source without the mediating effect of referencing an external resource or link.

3) Result #3: No statistically significant effect between source credibility and how likely a post is to be shared or liked.

Our results also reject our third initial hypothesis that tweets from more credible information sources have higher shareability. There are several possible explanations for this finding. There is a myriad of behavioural and psychological mechanisms that are incorporated into one’s

decision to share or like a post. While information credibility is very likely one of these factors based on our literature review, research also suggests that there could be additional factors that could have correlated with account type and exerted an overwhelming effect on shareability (Ha & Ahn, 2011). For example, message authenticity might play a role in shaping one's decision to share or like a post. Message authenticity could, then, be more highly correlated with individual accounts than organizational accounts. Therefore, NGO authored tweets could have been perceived not only as being more credible, but also less authentic—producing a net effect that indicated a statistically insignificant relationship.

As mentioned above, another explanation could be that account type did not correlate with information source credibility. It is possible that information source credibility plays an important role in whether one decides to like or share a post, however participants simply did not find the NGO authored tweets to be any more credible than the individual authored tweets. This is a possible explanation that we can explore in Part III of this paper through in-depth individual case studies.

A last possibility for this statistically insignificant relationship is that information source credibility simply does not play an important role in whether one decides to like or share a post (Sterrett et al., 2019). This possibility will be explored in Part III of this paper through in-depth individual case studies as well.

Conclusion, Limitations & Further Exploration

This research poses some limitations in both the data set, the external validity and the analysis conducted. In terms of the data set, the survey participants were composed of Amazon Mechanical Turk (MTurk) workers. While it is not uncommon for MTurk to be used as a data

collection platform for academic research, there are also some questions as to the external validity of such data. MTurk workers oftentimes complete surveys for hours at a time, and thus might not approach hypothetical Tweets in a survey with the same cognitive mindset as one might have when using a platform like Twitter.

Furthermore, signalling intention to share or like a post through a survey is very different than actually sharing or liking a post. Since the probability that one actually likes or shares a post is expected to be smaller than the probability that one considers or signals intention to like or share a post, our empirical effects might have been stronger under this experimental setting. Future studies may consider using a multivariate regression model to scrape actual data on Twitter engagement with third-party environmental commentary, using adequate controls to discern the relationship in a way that may have more external validity at the expense of internal validity.

A second limitation of this study is that participants might have had a predisposition towards particular industries as being more or less environmentally friendly or “shareable”. For example, consumers might be more likely to share or like a post from a consumer goods company rather than a B2B company with a less salient brand presence. In this case, a hypothetical company Bartelby Apparel was used. However, if participants were predisposed to believe that apparel companies are less environmentally friendly, then the effects of our independent variables on our dependent variables could have been skewed to an extent that would make cross-industry generalizations difficult or inaccurate.

In other words, our interactions with and perceptions of companies are products of a long and deep-rooted process of socialization and interaction that can take place over many years. Thus, the behavioural mechanisms that drive how we react to and perceive digital commentary on

companies we know of is likely much more complex than what is accomplishable in this experimental setting. While this experiment uses a hypothetical company with which the participants have had no previous history with, the phenomenon we aim to study likely do not occur in such a vacuum in reality. While Part III of this paper aims to develop a more realistic and externally valid understanding of these behavioural mechanisms moderating our interactions with digital environmental commentary, more mixed-method and structured qualitative studies could contribute to these efforts.

A third limitation is that this study uses two “profiles” to manipulate information source credibility. There are a few potential problems with this. First, is that the way Twitter feeds are produced means that it is unlikely users will see posts that do not have some degree of relationship to them. For example, a user scrolling through Twitter will almost entirely see posts that are from either an account they have explicitly followed, or content that has been engaged with by accounts that they have explicitly followed. Therefore, most content from “individuals” will likely have a higher credibility in the real world than in an experimental setting, as they likely have an established relationship to some degree.

Future research may want to substantiate the findings of this paper by using a broader set of “profiles” in order to develop a more robust argument in favour of the results. Rather than use a single environmental NGO and individual, researchers may want to expand the scope to include academic research institutions, explicit environmental activists, or even direct engagement with companies.

A fourth limitation of this paper is the degree to which findings from Twitter are generalizable to other digital platforms. Social media is a rapidly changing landscape, with platforms exploding in popularity almost as commonly as other platforms seem to disappear

from the realm of relevance in a matter of months. Twitter as a platform inevitably has its niche differentiators, which could also manifest in different behavioural mechanisms and patterns in how users interact with content. Future studies may want to explore how the findings of this paper apply to other digital platforms such as Facebook or Instagram.

A fifth area of potential future research is better translating the findings of this paper to more tangible factors. There has been extensive literature documenting the effects of greenwashing on financial performance of companies. For industry leaders to better understand the implications of these findings on their companies, more research should be done to explore how factors like customer equity, purchase intention and likelihood of partaking in word of mouth (WOM) marketing are affected by changing perceptions of environmental authenticity as a result of digital third-party commentary.

PART III: Individual Case Studies—Exploring Possible Mechanisms

To be clear, the purpose of these individual case studies is not to discern any semblance of a scientifically-sound causal relation. Rather, Part III of this paper is purely explorative in nature with the goal of providing an opening dialogue upon which future research may be conducted. Part I of this paper was focused on providing a theoretical model through which we made educated and testable hypotheses about how individuals might interact with tweets as it pertains to post shareability and perceptions of greenwashing. Part II was dedicated to empirically testing some of the aforementioned hypotheses using a survey experiment. Part III will aim to provide some colour around our empirical findings by discerning the behavioural mechanisms through which the documented causal relationships tested in Part II are formed. Part III is able to provide some additional external validity for the statistically significant results in Part II, while also providing possible explanations as to why some of the hypotheses were reject. A handful of academic sources were referenced to provide methodological guidance on framing the individual case studies and the collected responses (Malterud, Siersma, & Guassora, 2015; Kvale, 1994; Kvale, 2006), and a sample case study transcript is available in Appendix B.

Methodology & Data

With the goal of providing qualitative data to provide possible explanations behind the behavioural mechanisms of the causal relationships established in the previous section, Part III employs structured but open-ended interviews. Interviews were conducted with students at the University of Pennsylvania, and thus do not attempt to provide a representative sample of the target population that this paper is trying to study. Furthermore, due to the preliminary nature of these interviews, there was no concrete attempt to avoid selection bias through randomization.

Interview participants were not participants in the previous experimental survey as to avoid priming them with questions and possible answers. Interviews were conducted remotely and lasted about 10-minutes each, with a total of ten interviews (n=10). The following guide was used to structure the interviews:

- 1) Do you think students are generally more inclined to like/share posts with a negative message (“calling out” an organization), or a positive message (praising an organization)? Why?
- 2) Do you think YOU are generally more inclined to like/share posts with a negative message or a positive message? Why?
- 3) What makes a company “authentic” on social media?
- 4) When you decide to share (retweet, repost, etc.) another post on social media, why do you do it? Feel free to think back to the last few times you decided to retweet or repost something on any social media platform.
- 5) What makes you trust a tweet?
- 6) Are you more likely to like/share a tweet that you trust? Why or why not?
- 7) What makes you suspicious of a company for committing greenwashing?

Explaining Result #1: Post Message and Shareability

Cancel Culture and Controversy

Of the interviews conducted, many individuals expressed the prevalence of “cancel culture” in most likely encouraging the liking/sharing of negative posts rather than positive posts. However, nearly every interviewee who talked about “cancel culture” as a cause of negativity bias, also mentioned the underlying motive of wanting to spark a debate over a controversial issue they believed in—but perhaps the very reason that cancel culture is so prevalent is also the

very same reason some feel uncomfortable sharing negative posts: to garner “responsiveness” over controversial issues:

“‘Cancel culture’ is very popular with students, who are often constantly looking to criticize groups and individuals, often to show ways they can be more inclusive, less damaging [...] while positive messages may be more enjoyable to see, they are unlikely to garner the same amount of attention and responsiveness.”

This was echoed by another interviewee, who expressed the importance of “dramatic opinions” and “shock value” to whether or not an individual decides to share a post:

“Students at Penn are more inclined to like and share posts with a negative message because these posts are more controversial and thus get more attention [...] students [...] will share things that have a more dramatic opinion and shock value.”

Rewards not worth the Risk

While individuals might be inclined to “call out” companies for wrongdoings, perhaps the inherent risk of starting conflict is not worth it. This was a commonly expressed opinion by the interviewees:

“I think that students are more inclined to like or share posts with a positive message. I think especially, in this day and age where any indication of taking sides can be met with hostility, people are more likely to play it safe and not show any adverse reaction to negative messages.”

Individuals clearly have different intrinsic levels of risk tolerance and conflict aversion. Personal assessments of conflict aversion were expressed as being a reason for deciding whether or not to share negative posts:

“I personally think I’m more inclined towards positive messages. I’m definitely a conflict averse person and reach as far as not wanting to be associated with any sort of arguments on social media.”

To confirm the mediating role of conflict aversion and risk tolerance in shaping how an individual reacts to digital third-party commentary on corporate environmental authenticity, follow up research can be done with a pre-test measure of either construct in order to see if a statistically significant difference exists. If there is empirical evidence of this behavioural mechanism described in the previous quote, we might expect to see those with a lower level of conflict aversion having a higher likelihood of sharing negative posts on social media.

Another interviewee cited the toll that constantly being exposed to and sharing negative news can have on their mental health:

“I am more inclined to share posts with a positive message. I tend to only want to look at these messages because social media can take a toll on your mental health and [the positive messages] make me feel better!”

Despite our initial hypothesis rooted in negativity bias and prospect theory, it appears that one of the most significant behavioural deterrents from sharing negative posts is the associated risk and stress from starting conflict.

Taking a Stance on (Hypothetical) Issues

Sharing a post on social media was seen as taking a stance on a particular side:

“[I share posts on social media] because I want the people who follow me to see something or to show my stance on something.”

Perhaps it is not that the rewards are often not worth the risk when sharing negative or controversial posts but rather that our experimental manipulations of fake tweets were not able to

invoke the same level of emotional commitment to issues needed for participants to “go out on a limb” and justify the risk of starting conflict.

In other words, in real life circumstances a participant might be much more willing to share a post that has a material impact on and topical relevance to their lives. This would be difficult to fully capture in an experimental setting. This is reinforced by an interviewee who expressed the importance of “wanting to get things changed” behind their decision to share a post on social media:

“I rarely ever [share posts], but if it’s something that I feel is very important and close to my core beliefs, then I will. [...] I will share a post about it with the ultimate hope that if the issue gets enough exposure it will be ameliorated, or the responsible parties will be held accountable and be forced to answer for themselves.”

The moderating role that one’s relationship with the organization in their likelihood of sharing or liking a post was also expressed by an interviewee. They argued that they would be more likely to share negative posts with organizations that they are closer to as they do not want to be affiliated or held accountable for an organization close to them:

“I feel as if [people] are more likely to share negative messages, since most people want to hold the organizations, they are affiliated with accountable for their mistakes more than organizations that they are not familiar with or tied to. [...] No one is really comfortable being affiliated with an organization that does not align with their own views.”

Not only would it be difficult to authentically align the hypothetical situations in this experiment with “core beliefs”, but participants also might not feel as strong about changing a company they have no exposure to.

Another barrier to using hypothetical issues, is that some interviewees expressed that they are only comfortable sharing information that they could verify. This would be difficult in an experimental setting for participants to have all the information they need to make a 100% informed decision:

“Additionally, I would only retweet or repost a message or post that I am 100% behind and strongly agree with.”

Natural Algorithmic Amplification

Perhaps it may seem like “cancel culture” and negativity bias dominate individual decisions to share or like a post, when in reality we are not less prone to sharing negative posts as our findings suggest but rather there is a natural algorithmic amplification effect due to the increased dialogue and traction that negative posts often attract. The previous sections documented how a fear of sparking controversial debates was often seen as a deterrent to sharing negative posts. This phenomenon of sparking controversial debates might overamplify the representation of negative posts on our timelines, when in reality individuals themselves are less prone to sharing negative content.

An interviewee also felt that negative posts are generally written to attract the attention of viewers to a larger extent than most positive posts:

“[Negative messages] tend to be packaged in a way that grabs a student’s attention more so than a positive one. They tend to be click-baity and exaggerated to some extent.”

Difference between Liking vs. Sharing

The case studies also revealed a behavioural difference between liking and sharing a post. Despite our results not finding a statistically significant difference in post messaging and

shareability for either liking or sharing a post, future research should continue to make this distinction. Many participants expressed that liking was seen as more moderate than sharing:

“I think students will choose to call out a negative message because anger and rage is a more compelling emotion. I feel like you would just like a positive message versus outwardly sharing it.”

Explaining Result #2 and #3: Effects of Information Source

Our second and third results from Part II were that posts from more credible sources result in more favourable environmental authenticity scores regardless of post message, and that the information source of a tweet has no statistically significant effect on its shareability. This finding partially rejected our second hypothesis that tweets from a more credible information source would have a larger effect on perceptions of environmental authenticity, and completely rejected our third hypothesis. While the NGO authored tweets had a larger effect in shaping perceptions across the positive message condition, the individual authored tweets had a larger effect in shaping perceptions across the negative message condition.

This section aims to reconcile our findings with the literature review by offering insights from the qualitative interviews to supplement our understanding of the effect that information source has on both perceptions of environmental authenticity and shareability. For this discussion, we will assume that a higher level of trust correlates with a higher ability to change perceptions of environmental authenticity. Therefore, we can use individual case studies to discern possible drivers behind trust and the potential of a post to shape perceptions of environmental authenticity. However, future studies could also consider implementing a pre-test to see the extent to which this assumption holds true, or the extent to which information source (NGO vs. individual) effects trust or perceived credibility. The interviews revealed a few

noteworthy themes in the discussion of information source credibility and the magnitude with which perceptions of environmental authenticity are impacted.

Personal Relationships foster Trust

The interviews revealed two seemingly opposing drivers behind consumer trust in a Tweet: personal proximity and perceived domain expertise. The first common theme, was the idea that personal relationships foster trust in a Tweet:

“I also think a tweet is more trustworthy if I know this person in real life,” and “I trust a tweet when the person who posted it is someone I personally know.”

This could provide a plausible explanation to our empirical finding in Part II as to why the individual source led to more harsh ratings of environmental authenticity in the case of a negative message. Perhaps, in negative instances, participants trusted a more personal and “genuine” account. However, this fails to adequately reconcile the positive directional and negative directional findings. If perceived personal proximity were to be seen as more trustworthy, then we would also expect the individual account to lead to higher perceived environmental authenticity in the positive message condition as well.

Expertise fosters Trust

The sentiment of personal proximity as a driver of trust, however, seems to run counter to another common theme: the importance of expertise in establishing credibility and trust:

“[I trust a tweet] if it is from a reputable source, like a well-respected news source, or from someone who I respect in their field, like a medical professional or author” and “I trust a tweet if I can verify the information through either my own research or see that an official organization that has been known to be credible tweets the message.”

This would lead us to believe that the NGO source would have a larger influence on shaping perceptions of environmental authenticity—however, this was not the case with negative posts which had a weaker effect than the individual authored tweets. As mentioned in an earlier section, it is also possible that the fact that the hypothetical tweets referenced an external ranking rather than expressing a more subjective opinion, could have meant that source credibility played less of a role in shaping participant perceptions of environmental authenticity.

Traction fosters Trust

Another theme that was brought up in the interviews was the role of historical traction in shaping the credibility of a Tweet:

“[What makes me trust a Tweet] is probably [the] number of retweets and favourites because that means it’s legit and has been vetted by many many people,” and “I also will trust [a Tweet] if it’s been retweeted or shared a ton.”

The fact that the hypothetical tweets showed that the messages had no retweets or likes could have structurally altered the way that individuals perceived the messages between information sources or post messages. While this will be discussed in more detail in the next section, following research should factor in historical traction (number of favourites and retweets) as a moderating factor in the relationship between information source and shareability.

Tone as a Moderating Factor

One interviewee mentioned that:

“[I think what makes me trust a Tweet] depends on the context of the tweet. But one thing that comes to mind is a tweet that uses a kind, open tone instead of a hostile one. I don’t think I’d trust a tweet that was openly rude, even if they were calling someone out.”

It is possible, then, that the behavioural and psychological mechanisms that drive a person to share or like a post differ between positive and negative messages. In the case of a positive message, one might weigh the importance of the conflicting factors of personal proximity and domain expertise differently than in the case of a negative message. This would explain the seemingly contradictory results between the importance of information source in altering perceptions of environmental authenticity between negative and positive messages.

Conclusion, Limitations & Further Exploration

This paper is a mixed-method study divided into three parts. Part I provided an overview of the current literature on corporate greenwashing, social media marketing and the intersection of the two. The section concluded by developing a theoretical model and testable hypotheses that aimed to explain how individuals might process tweets as it pertains to environmental messaging from external third-party commentators.

Part II empirically tested the hypotheses through a 2x2 between-participants survey experiment (n=200) to measure the effects of information source (author of the tweet) and post message (positive versus negative) on two dependent variable constructs: post shareability and environmental authenticity. The empirical study found that (1) positive posts have a higher likelihood of being liked/shared than negative posts, (2) that commentary posts from more credible information sources are ranked more favourably in environmental authenticity for both positive and negative conditions compared to less credible information sources, and (3) that the credibility of an information source does not have a statistically significant effect on the likelihood of a post being shared or liked.

Part III aimed to provide some colour into potential behavioural mechanisms behind the causal relationships tested in Part II. Part III was exploratory in nature and used a series of qualitative in-depth individual case studies (n=10) to propose a set of future research questions that would develop a more nuanced understanding of the empirical findings.

Part III found that the effect of post message on shareability is moderated by several factors. While interviewees emphasized the prevalence of cancel culture in fostering negativity bias in shareability (as our theoretical hypothesis originally anticipated), others also noted the important role that conflict aversion plays in shaping their decision to share negative posts. Many saw the act of sharing a negative post “calling out” a company as being confrontational and potentially sparking dialogue, which acted as a deterrence even when interviewees agreed with the underlying goals of a post. The role of having an emotional devotion to a cause as a motivating driver behind sharing a negative post was also mentioned. It is possible, then, that experimental settings may be flawed in this context as it is difficult to replicate the same degree of emotional commitment to hypothetical causes and companies.

Part III also revealed a contradictory relationship moderating the effect of information source on both shareability and perceptions of environmental authenticity. Many interviewees saw personal proximity with the information source as an important indicator of trustworthiness. On the other hand, others emphasized the importance of domain expertise in fostering trust. Future research should look at how different factors and contexts moderate whether personal proximity or expertise exert the prevailing effect in digital commentary on environmental authenticity. Interviewees also highlighted the importance of traction in fostering trust. Future research may want to incorporate traction as a moderating factor in the relationship between information source and shareability or perceptions of environmental authenticity. Intuition

suggests that posts with a higher degree of traction (more favourites, more retweets) would have a larger effect on shareability and perceptions of environmental authenticity.

In addition, it was revealed that people use Twitter for different purposes, and that the underlying motive behind using Twitter may be an important consideration in how participants interact with content. One interviewee in particular voiced that because they use Twitter more for entertainment purposes, information source credibility does not play a role in deciding whether or not to share or like a post. Future research should integrate a pre-test to see if the primary motive for using Twitter has a statistically significant effect on other dependent variable construct outcomes.

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Appendix A: Sample Survey

Research Study

You will be presented with a series of tweets, each followed by corresponding questions. For the purpose of this study, assume that you are an active user of Twitter, a social media platform where users can post and share messages called "Tweets".

If at any time you have a question or concern or want to be removed from this research study, you can reach out to Brandon Nguyen at brandonn@wharton.upenn.edu or 267-648-1858.

* Required

1. Do you, or have you ever, had a personal Twitter account? *

Mark only one oval.

Yes

No

Ren's
Cafe

Read the following hypothetical tweet and answer all of the following questions assuming you are an active user of Twitter.

The Philadelphia Alliance for Climate Action is a non-profit organization that advocates for companies to be more environmentally responsible.



2. What was the account that posted this tweet? *

Mark only one oval.

- A non-profit organization
- A business
- An individual
- A government agency

3. Was the company discussed in the tweet ranked in the bottom 5% or top 5% of most sustainable companies? *

Mark only one oval.

- Bottom 5%
- Top 5%

4. If you saw this tweet in real life, how likely would you be to "favourite" or "like" it? *

Mark only one oval.

	1	2	3	4	5	6	7	
Extremely unlikely	<input type="radio"/>	Extremely likely						

5. If you saw this tweet in real life, how likely would you be to "retweet" or "share" it? *

Mark only one oval.

	1	2	3	4	5	6	7	
Extremely unlikely	<input type="radio"/>	Extremely likely						

6. On a scale from 1-7, please rate how much you agree with the statement: I trust this company. *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	Strongly agree						

7. On a scale from 1-7, please rate how much you agree with the statement: This company cares about the environment. *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	Strongly agree						

8. On a scale from 1-7, please rate how much you agree with the statement: This company is honest about their environmental impact. *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	Strongly agree						

Confirmation Code

Your confirmation code will be given to you when you after clicking "Submit".

9. I understand that compensation is contingent on successfully putting in the confirmation code that will be given on the next page after submitting. *

Mark only one oval.

Yes

Appendix B: Sample Individual Case Study

- 1) *Do you think students are generally more inclined to like/share posts with a negative message (“calling out” an organization), or a positive message (praising an organization)? Why?*

I feel like it may be posts calling out an organization. Typically when a post is about an organization doing well, it doesn't seem to stir up as much conversation/controversy as a post calling someone out. I think people become more invested in the arguments that come after a post with a negative message, and sometimes if they don't feel comfortable enough to make their own post but want to be involved, take to liking posts instead.

- 2) *Do you think YOU are generally more inclined to like/share posts with a negative message or a positive message? Why?*

I personally think I'm more inclined towards positive messages. I'm definitely a conflict averse person and reaches as far as not wanting to be associated with any sort of arguments on social media. I will definitely come back to a post and read the comments if I'm invested in the discussion, but don't like liking negative posts.

- 3) *What makes a company “authentic” on social media?*

I think a company feels authentic when the media it presents doesn't appear to be curated (although it definitely is). A company feels more inviting when they post like they would if they were just another person you were following, not a big brand. I also think companies feel more authentic when they engage with users either by featuring them in posts, reposting, or liking and commenting on users posts.

- 4) *When you decide to share (retweet, repost, etc.) another post on social media, why do you do it? Feel free to think back to the last few times you decided to retweet or repost something on any social media platform.*

This may be sort of a boring answer but I honestly can't remember the last time I reshared something on social media. I used to do it a lot more, but I've found myself not posting/sharing as much on social media lately.

- 5) *What makes you trust a tweet?*

I think it depends on the context of the tweet. But one thing that comes to mind is a tweet that uses a kind, open tone instead of a hostile one. I don't think I'd trust a tweet that was openly really rude, even if they were calling someone out. I also think a tweet is more trustworthy if I know who exactly is tweeting it.

- 6) *Are you more likely to like/share a tweet that you trust? Why or why not?*

Yes for sure. If I don't trust the tweet I probably won't even consider sharing or liking it because I don't feel comfortable not knowing its real intent or purpose. There's always a lot of shady and rude stuff online, so avoiding content when you don't know its real purpose seems to be the safe route. I feel more comfortable publicly interacting with content on social media when that content is trustworthy.

- 7) *What makes you suspicious of a company for committing green washing? Aka, they are not being authentic with their actual sustainability progress.*

A lack of transparency, especially when consumers try to get information from the company. If a company is standoffish about sharing that information, it feels like they have something to hide. Also, sometimes overdoing an emphasis on sustainability can feel like a marketing ploy or like the organization is trying too hard. It feels more natural when the sustainability is just a built in element that is promoted as just part of the brand, not some revolutionary concept that deserves all of your attention.

Appendix C: IRB Approval Letter

Institutional Review Board
3800 Spruce St., First Floor Suite 151
Philadelphia, PA 19104
Phone: 215-573-2540
(Federalwide Assurance # 00004028)

TO: Mary H McDonnell
CC: Nguyen, Brandon

RE:
IRB PROTOCOL#: 842914
PROTOCOL TITLE: Effects of Information Source on Shareability and Perceptions of
Greenwashing

SPONSOR: NO SPONSOR NUMBER
REVIEW BOARD: IRB #8

IRB SUBMISSION: NOTICE OF EXEMPTION

Dear Dr. McDonnell,

The above referenced protocol was reviewed by the Institutional Review Board on 17-Apr-2020. It has been determined that the proposal meets eligibility criteria for IRB review exemption authorized by 45 CFR 46.104, category 2.

ONGOING REVIEW:

- The IRB must be kept apprised of any and all changes in the research that may have an impact on the IRB review mechanism needed for a specific proposal. You are required to submit modifications to the IRB if any changes are proposed in the study that might alter the exemption determination, or any applicable HIPAA waiver determination. New procedures that may have an impact on the exemption determination, or HIPAA waiver determination cannot be initiated until Committee approval has been given.
- Consistent with the federal regulations, IRB approval of this protocol will not expire and no continuing reviews will be required for this protocol. The IRB may occasionally contact you to confirm that the trial is still ongoing and that you are adhering the previously stated requirement to submit modifications.

COMMITTEE APPROVALS: You are responsible for assuring and maintaining other relevant committee approvals. This human subjects research protocol should not commence until all relevant committee approvals have been obtained.

If your study is funded by an external agency, please retain this letter as documentation of the IRB's determination regarding your proposal.

If you have any questions about the information in this letter, please contact the IRB administrative staff. A full listing of staff members and contact information can be found on our website: <http://www.irb.upenn.edu>

NOTE REGARDING THE CONDUCT OF RESEARCH AND THE COVID-19 PANDEMIC:

While the IRB is permitting and processing submissions, approval by the IRB at this time DOES NOT constitute authorization to initiate this protocol, protocol amendment, or continue research procedures (as applicable). Please see details below depending on your affiliated school.

Penn Medicine.

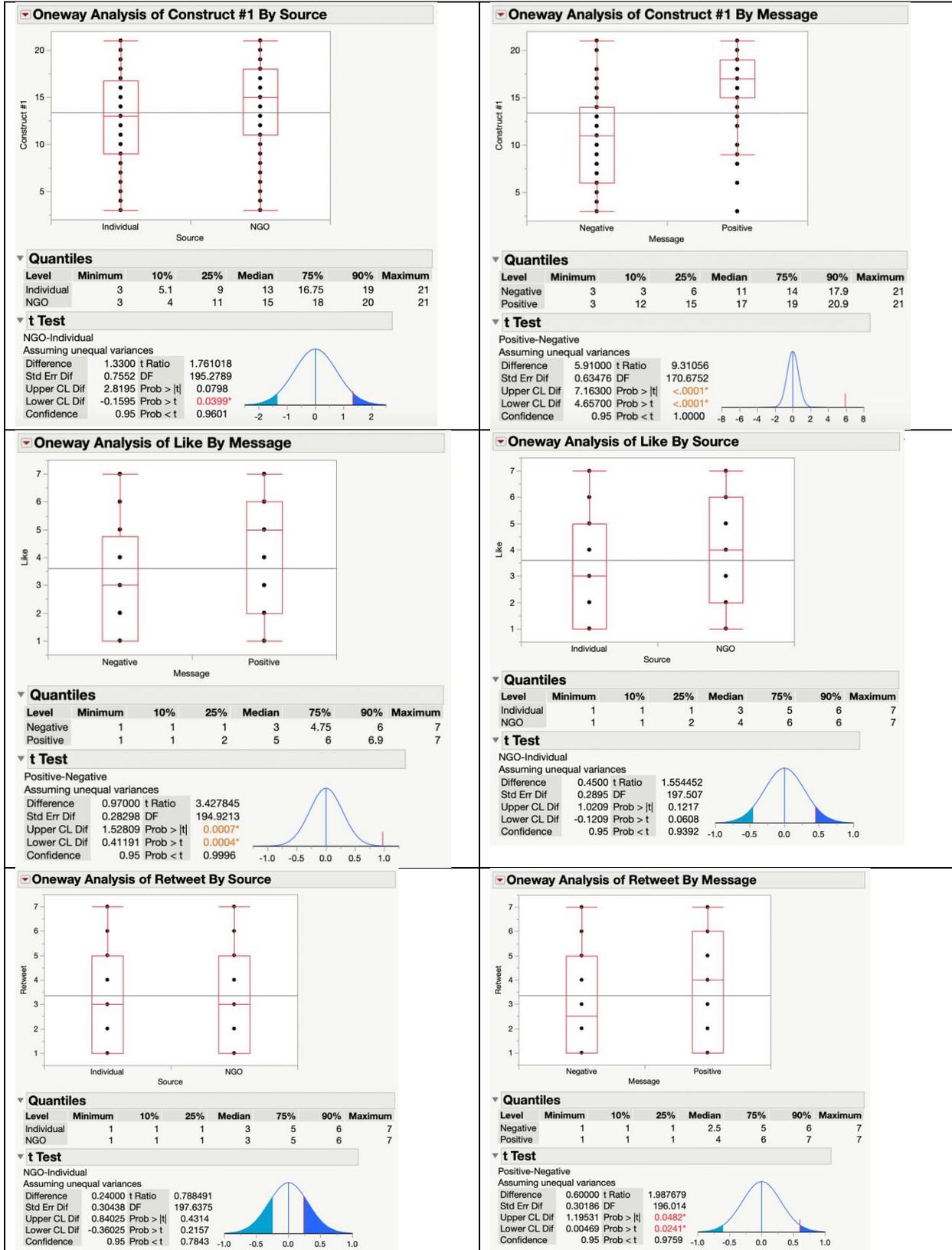
During the COVID-19 Pandemic, permitted clinical trial activity is limited to essential clinical trials. Essential clinical trials are those that enroll or follow patients with life threatening or serious conditions for which participation in the clinical trial holds out the clear prospect of the patient directly benefiting. Patients already enrolled into clinical trials who are undergoing safety assessments fall into this definition. Please review the Message from Emma Meagher, MD - Clinical Research Update #3 on the IRB website here for further details: <https://irb.upenn.edu>. Please consult with Emma Meagher at emma@upenn.edu for non-oncology trials or Bob Vonderheide at rhv@upenn.edu for oncology trials for guidance if you wish to open a new trial, or if you are unclear whether your protocol constitutes essential research.

Other Schools

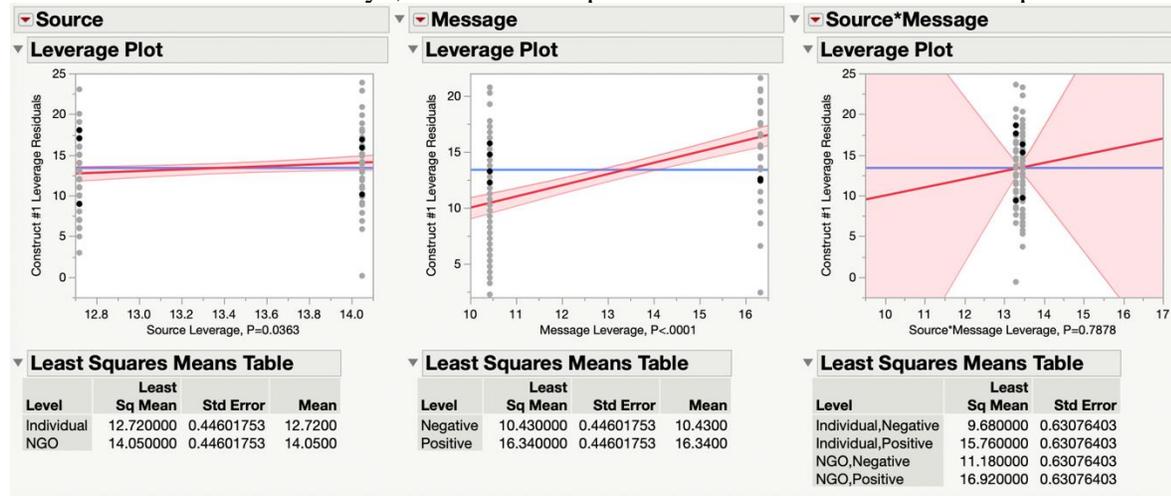
Only research studies with procedures that may be conducted remotely or virtually may be conducted at this time (e.g., electronic survey research, record reviews, secondary data analysis). Please also refer to any guidance provided by your school.

*****This letter constitutes official University of Pennsylvania IRB correspondence. *****

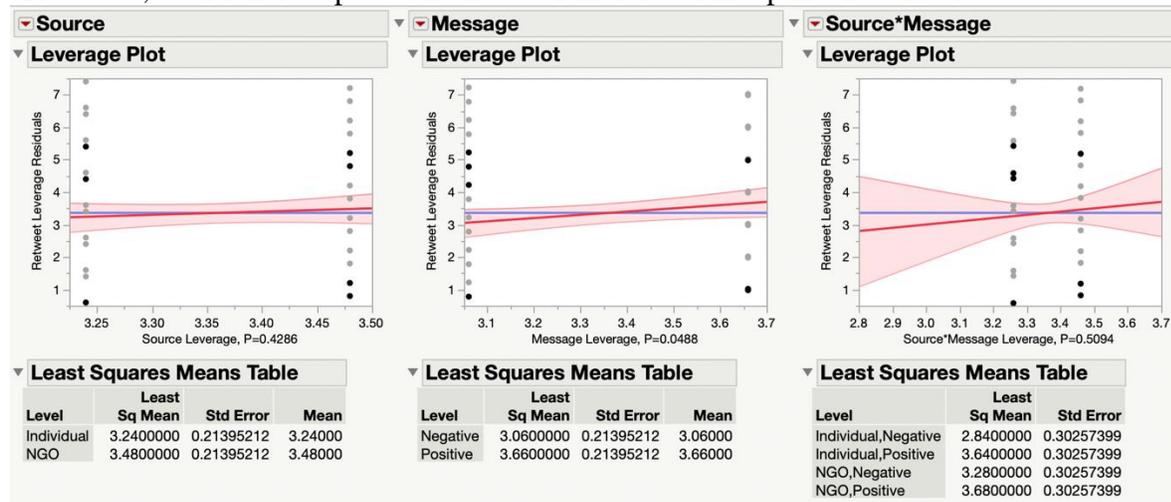
Appendix D: Additional Statistical Output



“Environmental Authenticity”, additional output with effects of individual independent variables



“Retweet”, additional output with effects of individual independent variables



“Like”, additional output with effects of individual independent variables

