Evaluating the Efficacy of Mirth as a Communication Strategy

in Natural Resource Conservation

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Abstract

The purpose of this study is to examine the efficacy of mirthful messaging as a strategy to engage users in natural resource conservation efforts via social media. A sample of social media users ($n = 166$) completed a survey measuring their attitudes as well as information credibility; message credibility; argument strength, and information quality of mirthful and negatively valenced social media posts related to natural resource conservation. Results indicated no significant difference in attitudes toward mirthful or negatively valenced posts. Argument strength and message credibility of negatively valenced posts were significantly higher than mirthful messages. However, information credibility and information quality were significantly higher than those of the negatively valenced messages. Practical applications for professional communicators are discussed, specifically, the implication that desired outcomes are heavily influenced by message and information credibility, which may be influenced by the use of mirthful content.

Keywords: mirth, humor, valenced messaging, social media, Facebook, natural resource conservation

Evaluating the Efficacy of Mirth as a Communication Strategy in Natural Resource Conservation

Published research that addresses the implications of social media strategy on conservation attitudes and intentions is lacking. From a practical standpoint for communication specialists, understanding how to most efficiently and effectively employ the myriad tools available is crucial. More important than a mere familiarity with the functionality of a medium, is the ability to strategically deploy messaging—finding the right balance between familiarity and novelty—that will motivate the desired response from the target audience (Thompson, 2017). This is especially true of social media. The Multilevel Model of Meme Diffusion (M^{3}D), which generically analyzes meme efficacy, provides a useful, scalable starting point, by evaluating the combined roles of *homophily* and *heterophily* in meme propagation. Homophily, which is the tendency to seek out similarity, reinforces familiarity and reduces the degree of uncertainty felt about a subject. Elements of heterophily, the tendency to be attracted to difference, create enough dissonance to engage curiosity (Spitzberg, 2014; Ming, 2015). Memes, however, are a highly specific genre, and comprise only a fraction of social media posts relevant to conservation.

Because of the noted scarcity of conservation-specific social media research (Büscher, 2016), communicators in the field often rely on tangential data, and trial-and-error to help rationalize their engagement strategies. However, applying findings relevant to single-issue advocacy groups may not always be effective. Environmental organizations address a broad range of topics (Hestres, 2018) which creates unique communication challenges demanding further investigation to understand how best to approach them. Thus, the purpose of this inquiry

is to examine the efficacy of positively valanced social media content as a strategy to engage and educate audiences in natural resource conservation.

To this end, this study begins by reviewing research examining new media in activism and conservation, and *humor* as a communication strategy in a variety of applications. These findings are extrapolated to evaluate the potential utility and application of *mirth* and positive affect in social media posts as mechanisms to engage audiences, not only with natural resource conservation organizations, but also to educate, and further promote conservation attitudes and intentions.

Literature Review

The following section will synthesize the existing literature on this topic. This includes: 1) social media in conservation advocacy; and, 2) humor.

Social Media in Conservation Advocacy

The mediation of nature is a double-edged sword. Authors such as John Muir, touting the richness, magnificence, and need for preservation of pristine wilderness, inspired increased visitation (Philippon, 2005). Once a privilege of the aristocracy, today, leisure excursions to undeveloped spaces are accessible to all classes (Elliot, 2006). A casual scroll through Instagram testifies to the popularity of capturing the trophy photograph documenting a wild adventure. This is not a new phenomenon. As early as the 1970s, the impact of a growing number of visitors on wild spaces was recognized (Elliot, 2006), but the advent of new media presents novel engagement and education opportunities to help curtail this impact (Levitt, 2002).

Today, the Internet—and more so social media—enables immediate connectivity, not only through shared photos and tales of exotic places, but through heretofore unattainable discourse (Levitt, 2002). An essay published in 2002 posits "the Internet may be regarded as a

turning point in the struggle to conserve and protect the earth" (Scherr, 2002, p. 207). This has proved true over the past decade, as natural resource conservation groups have quickly adopted web-based technologies to engage and educate diverse, worldwide audiences in an effort to effect change.

The Internet is a powerful persuasive tool for conservationists when employed strategically (Levitt, 2002). For example, when considering environmental justice, policy, and activism, political orientation plays a key role in interpretation and acceptance (Clayton, 2018). A more conservative propensity is to believe environmental protection practices should be the decision of individuals, and a more liberal perspective is that conservation should be a societally governed, with individuals each doing their share (Clayton, 2018). As a result, legacy environmental groups, in earlier decades, operated in a political climate which required them to utilize 'insider tactics'. These strategies included lobbying directly to government officials, targeted media buys (Hestres, 2018), and direct individual communication to audiences deemed likely to support their cause and their bottom-line. New media, however, have expanded outreach horizons, enabling contemporary organizations to gather user-specific data, target and reach more diverse, expanded audiences, on a personal level.

The challenge therefore becomes determining how to best engage the increasingly diverse audience, when tried-and-true, traditional communication methods, such as page-long appeal letters are viewed, especially within conservation groups, as a waste of resources. With more than three billion users worldwide, social media offers alluring possibilities (Newberry, 2019). Among the extant literature evaluating new media and conservation activism, one discovers advice encouraging the facilitation of public discursive communication, and the necessity of using timely, teachable moments to build awareness and engage emotions to incite action (von

Essen, 2017; Taylor, 1995). Equally relevant is a caution against the overuse of spectacle to the distraction of the core issue (Pezzullo, 2016).

Additionally, since human beings do not exist merely as individuals, but as part of a greater system, societally, biologically, technologically, and ecologically (Sun, DeLuca, & Seegert, 2017), they must act in ways conducive to supporting that system. This notion is reinforced by the networked structure of social media, which allows for immediate (inter)action. This is significant because, unlike traditional video and print media, engagement with online content is not only consumed, but through liking, sharing, linking, and commenting, it is modified and co-produced. This changes the nature of the experience (Büscher, 2016), allowing the individual to feel a sense of belonging, participation, and ownership in the process. Taken together, these findings present a strong case for the strength of social media as an outreach tool for conservation advocates.

Humor

Humor—psychologically comprised of cognitive, emotional, and expressive components—serves a wide array of interpersonal social functions (Martin, 2006). Because of this, a significant body of literature exists examining how humor operates as a persuasive communication strategy. In leader-follower relationships, benign humor has been demonstrated to enhance reciprocity-of-liking effects and enhance follower likelihood to adopt positive feelings toward leadership (Pundt, Fröhlich, & Nerdinger, 2017). In social issue engagement, humor helps to create a bond with the audience, prevent emotional burnout, and reduce negative affect in response to the message (Branagan, 2007; Moyer-Gusé, Tchernev, & Walther-Martin, 2019). Though these studies are not specific to social media strategy, their findings suggest broader applicability for conservation organizations utilizing humor as a tool to enhance activism among their followers.

Humor and Activist Engagement

Humor is universally human, and occurs in nearly every social context (Martin, 2006). Indeed, the argument has been made that jokes and laughter are essential elements of humanity, because they help us understand ourselves, our values, and relate to others (Lynch, 2002). What one finds amusing, and their respective reaction to that subject matter reveals hidden biases and plays to their core beliefs (Penman & Vedantam, 2015). It is therefore not surprising that humor has a long-standing tradition of use to confront privilege (Branagan, 2007) and also provides a means by which those in power may symbolically level the field and engage with "subordinates" as equals (Nilsen, 1983). This is pertinent to organizations seeking to create a perception of social equality with their audience. Humor has the ability to make the truth of otherwise unpopular messages more palatable, is a more sustainable emotion than anger (Branagan, 2007), and can provide relief from tension or stress (Lynch, 2002). All of these attributes prove useful for organizations seeking to employ humor to connect with an audience.

Some researchers address humor only as a benign form of communication, but many distinguish between benign and aggressive, or positive and negative forms. These are not necessarily opposites, and possess different attributes and outcomes (Pundt et al., 2017). Examples of aggressive humor which may deprecate the subject include "infotainment" news, satire, and sarcasm (Martin, 2006). These have been demonstrated to produce negative affect in the message recipient, and can induce a diminished perception of the subject matter (Baumgartner & Morris, 2006), a desire for disassociation, and reduced perceived credibility of the purveyor (Pundt et al., 2017). This suggests that an activist communicator wishing to engender a positive attitude toward their message, create a sense of belonging, and demonstrate institutional credibility, will want to avoid the use of negative humor in their outreach messaging.

Further, the paradoxical nature of humor makes it difficult to quantify, and a challenge to use successfully as an engagement tool. Not everyone has the required "instinct" but when the audience is known and understood; timing and construct are appropriate; and the message is sufficiently original (McIlheran, 2006), amusing messaging has strong potential to engage the viewer. Humorous ads garner more attention than those which contain no humor (Nabi, Moyer-Gusé, & Byrne, 2007), and that humor also has the ability to implant permanent ideas into the viewer's psyche (Branagan, 2007) which may indicate humor aids in information retention. Getting the viewer's attention and ensuring they sufficiently retain key message components is essential to the mission of conservation groups.

Humor and Persuasion

Environmental advocacy organizations are not only interested in engaging an audience and educating the members regarding their mission, but also in persuading those same parties to alter their intentions and act to change their behavior in a desired way. For those organizations which employ humorous content as a means to engage and educate, additional messaging strategies may be required to make the leap to persuasion. Humor creates inclusive opportunities (Branagan, 2007), but research has not yet conclusively demonstrated that it serves as a positive reward to reinforce persuasive messaging. Moreover, while humor may operate as an unconditioned stimulus (Markiewicz, 1974), increases liking (Nabi et al., 2007), and *media* has demonstrable effects on environmental beliefs (Moyer-Gusé et al., 2019), there is no conclusive connection between *humor* and persuasion. Though some evidence suggests that low involvement individuals may be conditioned by humor for future persuasion (Nabi et al., 2007; Yoon & Tinkham, 2013), humor may cause high-involvement individuals to react negatively, resulting in a backfire effect for an overt persuasive attempt (Nabi et al., 2007; Moyer-Gusé et al., 2019). Accordingly, knowledge of the target audience and understanding the desired

outcome—engagement, education, conditioning, and/or persuasion—is critical when deploying humorous content. More important, perhaps, is understanding how component(s) of humor influence audience engagement. This study focuses on the emotional component of humor: mirth.

Humor vs. Mirth: The Critical Distinction

Though research on the role of *humor* in engagement and persuasion comprises a significant segment of the literature reviewed and elaborated upon, for the purpose of this study, the term "humor" itself is ill-fitting, being broad and nonspecific. General audiences will accept the Oxford English Dictionary definition of *humor*: "with reference to action, speech, writing, etc.: the quality of being amusing, the capacity to elicit laughter or amusement. Also: comical or amusing writing, performance, etc." (2019). However, as has been discussed, researchers offer a deeper insight to the concept of humor, having identified at least 11 categories thereof, which can be differentiated based on their intentions, (Martin, 2006) and which may include both positively and negatively valanced communication (Pundt et al., 2017).

To eliminate the ambiguity of "humor" and accommodate the need for succinct specificity, this study employs the terms "mirth" and "mirthful"—a "pleasurable feeling; enjoyment, gratification; joy, happiness" and "of a thing: entertaining, amusing; affording mirth" (Oxford English Dictionary, 2019)—to characterize the emotional gratification inspired by positively valanced social media content. This is justified by findings associated with the broaden-and-build theory of positive emotions which maintains that, unlike negative emotions which narrow one's conception of possible actions, positive emotions function by broadening a person's openness to thoughts and actions beyond their typical scope (Frederickson, 2007). Research further suggests positive emotions not only enhance creative problem-solving; build and maintain relationships and feelings of commitment; and encourage mutually beneficial

outcomes (Martin, 2006), but are also functionally distinct (Strohminger, Lewis & Meyer, 2011). Mirth, specifically, has been associated with bolstering interpersonal bonds and group unity and rewarding cooperative endeavors to achieve goals which would be otherwise unattainable (Martin, 2006). This is especially relevant to organizations seeking to unify a large audience to engage in a specific, shared cause or course of action.

At a time when climate change is under scrutiny, rain forests are burning at unprecedented rates, light pollution is blocking out the stars, and the food chain is being contaminated with plastics, one might readily conclude amusement and frivolity have no place in wide-spread, rapidly shared conservation messaging, but the research suggests otherwise. Based on these findings, the following research question is posed:

> *Research Question:* To what extent is the use of mirth in social media posts an effective
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> means for engaging audiences in natural resource conservation efforts?

To examine the efficacy of mirthful content as an engagement tool; its ability to impart new information; and the role of mirth in translating engagement and education into action, the following hypotheses will be tested:

> *Hypothesis 1:* Attitudes toward mirthful messages are different than those toward
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> negatively valenced messages.
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> *Hypothesis 2:* Mirthful messages and negatively valenced messages will differ in
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> information credibility.
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> *Hypothesis 3:* Mirthful messages and negatively valenced messages will differ in
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> message credibility.
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> *Hypothesis 4:* Mirthful messages and negatively valenced messages will differ in
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> argument strength.

Hypothesis 5: Mirthful messages and negatively valenced messages will differ in information quality.

Method

Participants

Because engagement with social media does not take place in a controlled environment, this study was designed to allow individuals to participate remotely, without demographic or geographic limitations, via the Internet, just as they would interact with the social media platform(s) of their choice. Convenience sample subjects were invited to participate via email, posts on Facebook, Instagram, Twitter, and Reddit. According to The Pew Research Center, 72% of the American public uses some form of social media, with the most-widely used platform being Facebook (2019). Of Facebook users, those between 18 and 64 years demonstrate the highest levels of engagement with the platform — 68% or higher (Perrin & Anderson, 2019). This distribution was reflected in the study sample.

Participants included 166 individuals identifying as female (*n* = 138; 83.1%), male (*n* = 27; 16.3%), and other (*n* = 1; .6%) who identified predominately as heterosexual (*n* = 153; 92.2%). Participants largely reported having an advanced degree (*n* = 142; 85.5%); with 12.7% (*n* = 21) having a high school diploma or equivalent, and 1.8% (*n* = 3) with less than a high school education. Participants identified their ethnicity as non-Hispanic (*n* = 144; 86.7%) or Hispanic (*n* = 17; 10.2%), with six people not reporting (3%). Participants identified their race as White or Caucasian (*n* = 136; 81.9%), Asian or Asian American (*n* =10; 6.0%), two or more races (*n* =7; 4.2%), other (*n* =4; 2.4%), Black or African American (*n* =3; 1.8%), American Indian or Alaskan Native (*n* =2; 1.2%), and four participants did not identify their race (2.4%). Participants ranged in age from 12-75 (*M* = 45.2048; *Mo* = 44; *SD* = 13.1650). Participants

reported relationship status as follows: 65.7% (n = 109) reported that they were married; 21.7% (n = 36) reported that they were single, and 12.7% (n = 21) reported that they were in a committed relationship but not married.

Procedure and Instrumentation

Study participants completed an online survey about social media messaging in natural resource conservation, created and administered using Qualtrics survey software. Data were collected for a period of 10-days. Participants began by reading a brief consent form. By clicking "next" subjects agreed to participate in the study. Each participant was presented with the same four Facebook posts from natural resource conservation organizations — two mirthful (see Appendix A), two negatively valanced (see Appendix B) in alternation — each containing a photograph, paired with a textual message. Immediately after viewing the post, participants responded to a series of statements for each measure. The first eight items gauge message credibility: a composite measure of four statements to measure argument strength and four statements evaluating information quality. The next four items measure information credibility, and the final item evaluates attitudes toward the preceding message. To ensure consistency, participants were shown the correlating Facebook post before being asked to respond to each measure, *i.e. Mirthful Message - measure 1 statements; Mirthful Message 1 - measure 2 statements, Mirthful Message 1 – measure three statements, and so on*. See Appendix C. No compensation was offered for participation.

Message Credibility

Message credibility (mirthful α =.71; negatively valenced α =.89) was assessed by evaluating two component dimensions: *argument strength* (mirthful α =.87; negatively valenced α =.87) and *information quality* (mirthful α =.80; negatively valenced α =.73) (Li & Suh, 2015).

Four statements for each dimension were measured using a five-point Likert Scale, ranging from *strongly disagree* = 1 to *strongly agree* = 5. Sample items include, "In general, the argument of information on this Facebook post was convincing" and "In general, the information on this Facebook post was easy to understand."

Information Credibility

Information credibility of the posts was measured by asking participants to respond to four statements using a five-point Likert response format, ranging from *strongly disagree* (1) to *strongly agree* (5). Sample items include, "In general, I think information from this Facebook post is credible," And "In general, I think information from this Facebook post is trustworthy." The scale was reliable for mirthful messages (α =.89) and negatively valenced messages (α =.90).

Attitudes

Attitudes about each post were evaluated using five items measured on a 1 to 7 semantic differential scale, i.e., *unenjoyable/enjoyable; untrustworthy/trustworthy; serious/funny; important/unimportant; uninformative/informative*. Two of the items were reverse coded. After accounting for the items that were reverse coded, the scale was reliable for both mirthful messages (α =.71) and negatively valenced messages (α =.76).

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Results

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Hypothesis 1

A dependent samples t-test was used to test Hypothesis 1 (i.e., attitudes toward mirthful messages are different than those toward negatively valenced messages). Results indicated that there is no significant difference in attitudes toward mirthful and negatively valenced messages. See Appendix D.

Hypothesis 2

Again, a dependent samples t-test was used to test Hypothesis 2 (i.e., mirthful messages and negatively valenced messages will differ in information credibility). Results indicated a significant difference in information credibility between mirthful and negatively valenced messages, $t(155) = 3.02$, $p < .01$. This indicates the information credibility of mirthful messages ($M = 4.46$, $SD = .61$) was significantly higher than negatively valenced messages ($M = 4.28$, $SD = .68$). See Appendix D.

Hypothesis 3

The results of the dependent samples t-test used to evaluate Hypothesis 3 (i.e., mirthful messages and negatively valenced messages will differ in message credibility) indicated that there was a significant difference in message credibility between mirthful and negatively valenced messages, $t(147) = -5.76$, $p < .01$. The message credibility of negatively valenced messages ($M = 4.96$, $SD = .74$) was significantly higher than mirthful messages ($M = 4.64$, $SD = .70$). See Appendix D.

Hypothesis 4

Findings from the dependent samples t-test used to test Hypothesis 4 (i.e., mirthful messages and negatively valenced messages will differ in argument strength) showed that there was a significant difference in argument strength between mirthful and negatively valenced messages, $t(159) = -11.02$, $p < .01$. The argument strength of negatively valenced messages ($M = 5.79$, $SD = 1.00$) was significantly higher than mirthful messages ($M = 4.98$, $SD = .87$). See Appendix D.

Hypothesis 5

The dependent samples t-test used to test Hypothesis 5 (i.e., mirthful messages and negatively valenced messages will differ in information quality) indicated a significant difference in information quality between mirthful and negatively valenced messages, $t(152) =$ 2.57, $p < .05$. The information quality of mirthful messages ($M = 4.29$, $SD = .61$) was significantly higher than negatively valenced messages ($M = 4.17$, $SD = .57$). See Appendix D.

Discussion

The purpose of this study was to examine the use of mirth in social media posts as means for engaging audiences in natural resource conservation efforts, and better understand how to employ mirthful content in communication strategy.

After evaluating *attitudes* toward comparable mirthful and negatively valenced messages, the findings of this research did not support Hypothesis 1 (i.e., attitudes toward mirthful messages are different than those toward negatively valenced messages), instead revealing no significant difference between them. While previous research demonstrates humorous messages increase liking (Nabi et al., 2007), this study suggests that is not always the case. If audiences react equally well to serious and mirthful messaging with comparable content, it frees communicators from concerning themselves about the "likeability" of a message based purely on valence. This allows flexibility to strategize presentation based on desired outcomes resulting from other variables, such as argument strength.

Argument strength, is determined by the extent to which a message recipient perceives an argument to be convincing, persuasive or effective in supporting its position (Li & Suh, 2015). Results of this study demonstrate a substantially higher perception of argument strength in negatively valenced messages than in their mirthful counterparts. This finding may mean that audiences connected more thoroughly with negatively valenced messaging because of its serious

tone. This is a significant finding for conservation organizations, and suggests an important component of message creation is determining the desired persuasive effect. Mirth, should, perhaps, be saved for messages where persuasion is less critical, e.g. beach cleanup notices or event announcements, and a more serious tone used for subjects such as hazards, closures and wildlife health warnings. Also worth noting is that in this study, the negatively valenced Facebook posts presented to survey participants contained comparatively more textual information than their mirthful counterparts, which relied more heavily on the graphic element. The sheer volume of information may have contributed to the perception of argument strength, and could suggest that in addition to adopting a serious tone, the inclusion of additional, significant information beyond the graphic is important to convey critical messages. This is supported by findings that when leaders satisfactorily communicate with their followers, humor is not necessary (Pundt et al., 2017). The volume of text used to make an argument cannot be the only consideration, however. Information quality also plays a key role.

Information quality (IQ) is concerned with the applicability of information communicated, and the degree to which it is perceived as objective, accurate, and timely (Li & Suh, 2015). The findings of this study demonstrate mirthful messages have appreciably higher IQ than those with negative valence. This suggests the mirthful messages are more readily understood, accepted, and perceived as reliable and relevant to the receiver, aligning with previous research which shows positive emotions increase openness to ideas and action (Frederickson, 2007). Though this suggests mirth is a useful for engagement and enhancing positive perceptions, it may not ensure persuasion or perceptions of credibility.

Message credibility is an objective measure of the reliability of the communication itself, e.g. factual quality and meaning, and may be assessed by evaluating communication content on a

medium (Li & Suh, 2015) — in this case, conservation organizations' posts on Facebook. In this study, message credibility of negatively valenced posts was found to be significantly higher than mirthful posts. As previously noted, this research evaluated two dimensions of message credibility: *argument strength* and *information quality*. Because argument strength evaluates the *completeness* of a message, and information quality evaluates *applicability* of the message, it is not surprising that this study's findings regarding message credibility and argument strength, favor negatively valenced messages. A solemn message deemed to have a convincing, valid argument carries more credence than one seen as timely and objective, but blithe. Overall, this suggests that when an organization needs to ensure a message carries a certain gravity, and be perceived as comprehensive and trustworthy, a mirthful tone should be avoided.

Interestingly, however, message credibility may not be the most significant factor for resource conservation communicators — i.e. purveyors of information intended to educate and inspire action — to understand. Ultimately, *information credibility* is a receiver-based judgment which includes both objective perceptions of *message credibility* and subjective judgment of *medium credibility* (Li & Suh, 2015). Though this study did not measure medium credibility, previous research demonstrates Facebook has been widely accepted as a credible medium, with the capacity to mobilize certain users (Li & Suh, 2015; Elhadidi, 2019). That this study finds mirthful posts are perceived to have a significantly higher level of information credibility than their negatively valenced counterparts is intriguing. Previous evidence strongly indicates that *humor* enhances source liking, but is unlikely to affect credibility judgments (Nabi et al., 2007). This research supports the assertion that *mirth* — the emotional component of humor — is functionally independent (Strohminger, Lewis & Meyer, 2011). It further indicates that the beyond negatively valenced posts' perceptions of objectivity and persuasiveness, the

combination of lighthearted, easy-to-understand information, on a credible medium, with a valid message, instills an additional level of trust. This does not, however, mean that mirth is an appropriate choice in all circumstances. Noting, once again, that the mirthful examples presented in this survey relied heavily on their amusing graphic component paired with a brief message suggests they may have served more as an infographic or meme, balancing familiar, comfortable imagery with unfamiliar information to enhance curiosity and information retention (Spitzberg, 2014; Ming, 2015).

In sum, attitudes do not vary based upon the valence of the post, but negatively valenced posts are deemed to have stronger arguments and are higher message credibility. Mirthful posts, however, are perceived to contain more credible, higher quality information. These findings, taken together with prior research, demonstrate the utility of both mirthful and negatively valenced messages.

Practical Implications

This study began as a response to the recent uptick of mirthful messaging employed by natural resource conservation organizations on social media platforms. Examining the efficacy of mirth as a communication tool enables communicators to more effectively strategize how to better affect desired outcomes. Understanding that both mirthful and negatively valenced Facebook posts are equally well like, without concern for audience variables such as sex or age, means one need not worry about losing audience members because of tone. Messages may be composed for a general audience. Further, this study compared mirthful and negatively valenced posts containing comparable messages, communicators, demonstrating that message matters less than the tone, in terms of perception outcomes. When communicators wish to convey a significant message, which must to be perceived as valid and objective, a serious tone and

comprehensive information to make a strong case, may be preferable to a lighthearted post. However, when the goal of the post is to create a trustworthy, educational, and engaging informational experience, mirthful messaging is appropriate.

Limitations and Future Directions

The findings of this research should be interpreted with the study's limitations in mind. The first is the demographic distribution of the relatively small convenience sample size, which may not accurately represent the perceptions of a complete cross-section of social media users. The sample was comprised of participants predominantly identified as Caucasian/White (81.9%); heterosexual (92.2%); married (65.7%); female (83.1%); with a mode age of 44; and holding advanced degrees (85.5%) (see Appendix D). Though tests showed no significant differences in results for sex, age, or education in this study, none of these dimensions may be conclusively excluded from consideration as affecting transferability to other demographic groups. Further, because study participants largely resided in North/Central America (90.4%) (see Appendix D), results may not accurately reflect the perceptions of individuals world-wide. Additionally, because the survey was conducted in American English, using message samples from American organizations, linguistic and cross-cultural interpretations of vocabulary and humor were not considered. As in all voluntary, self-report studies, it is possible that other moderating effects or methodological biases were not captured. The examples used in this survey contained both an image and text. That the negatively valenced posts contained more textual information may have influenced the perception of argument strength or other measures of credibility. Further, graphics have been demonstrated to impact persuasive message processing (Lazard & Atkinson, 2014). Future research would benefit by obtaining larger samples and more closely evaluating independent variables. Extended research on the utility of mirth in social media application

should include: the efficacy of mirth to alter intentions to act; information retention; and how lighthearted messages affect perceptions of credibility of the organization posting them. Moreover, because this sample relied on Facebook posts as examples and existing data regarding the medium credibility of Facebook, it is recommended that future research include a variety of examples from other popular social media platforms (e.g. Instagram and Twitter), and that independent tests of medium credibility be performed, respectively.

Conclusion

The natural world is all about balance. Light and dark. Ebb and flow. So too is the human need for solemnity and mirth. In an effort to save natural resources and preserve the world for future generations, conservation groups regularly employ negatively valanced cautionary messaging. As the social media landscape evolves, however, mirthful social posts have begun to appear, serving as a palatable conduit to engage and educate audiences about conservation subjects. The findings of this study suggest that mirthful messages are a useful tool, and are as equally well received as negatively valenced messages. This allows communicators to freely strategize when and how to mix and mingle different types of posts, and focus on key factors such as argument strength, information quality, and message credibility, which may influence specific perceptions. This study also suggests that a serious message tone is preferable for communications which need to make a strong, persuasive argument and must be seen as trustworthy. Lighthearted communications increase perceptions that the information contained in an organization's posts is credible, relevant, and trustworthy to their audience. Such positive connections have been demonstrated to enhance group unity and reward cooperation to achieve greater goals. By carefully considering and strategically employing a combination of mirthful and negatively valenced messages, natural resource conservation groups will more successfully engage their audience with their cause or course of action.

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    rise of "barstool biology" in nature conservation. *Environmental Communication*, (4),

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APPENDIX A

MIRTHFUL MESSAGES

Mirthful Message 1
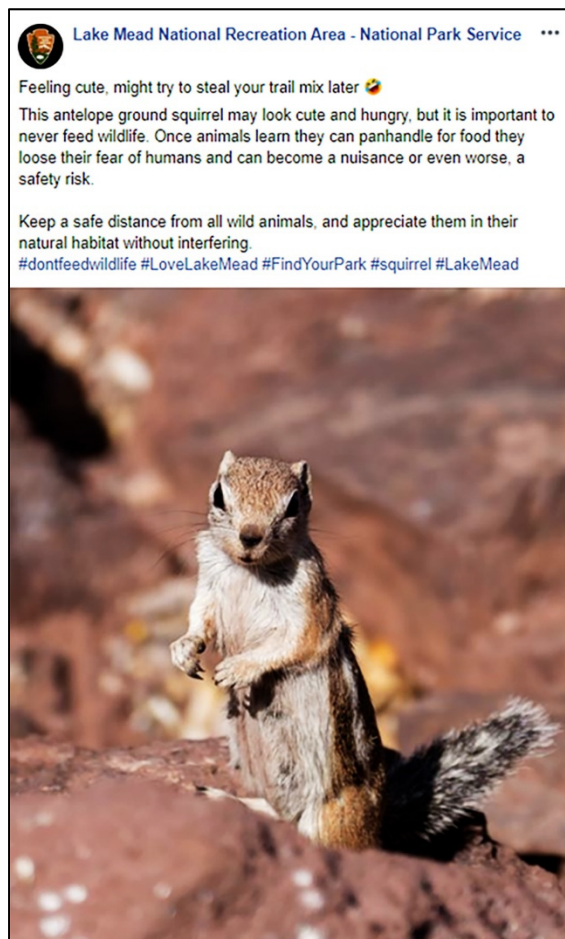
Mirthful Message 2

APPENDIX B

NEGATIVELY VALENCED MESSAGES

Negatively Valenced Message 1

Negatively Valenced Message 2
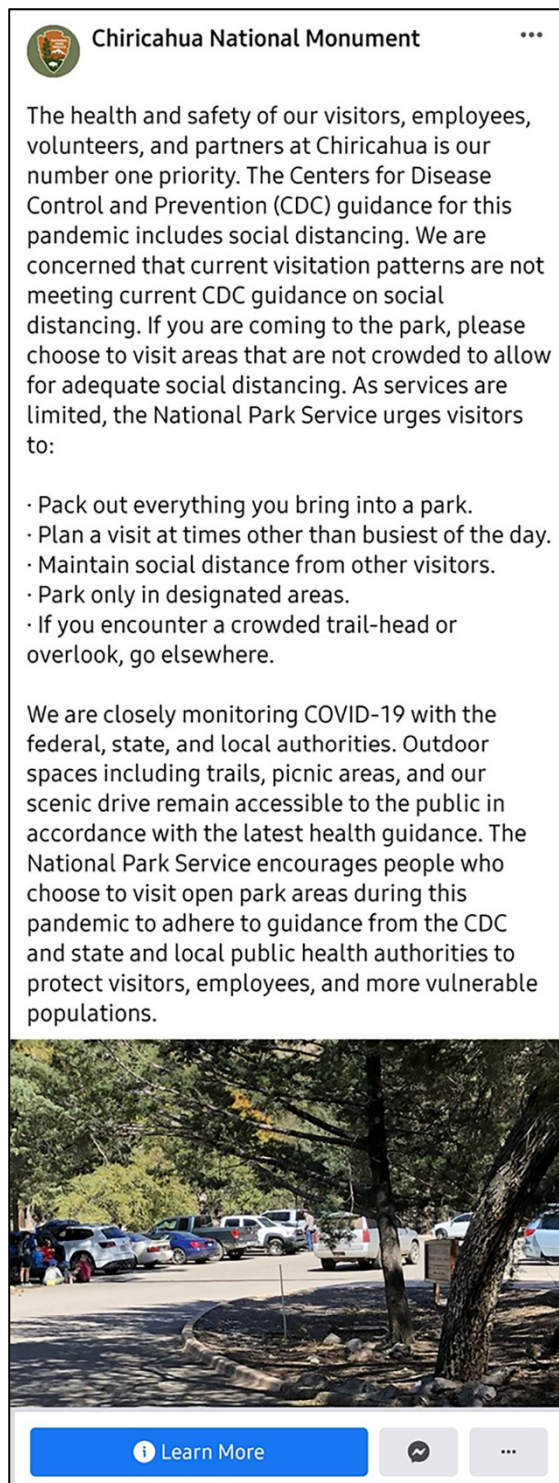
APPENDIX C

SURVEY QUESTIONNAIRE

Dear Participant:

I am a graduate student working under the direction of Dr. Lori Bednarchik in the Hugh Downs School of Human Communication at Arizona State University.

I am conducting a research study to evaluate the efficacy of mirthful social media messaging as a strategy to engage audiences in natural resource conservation. I am inviting your participation, which will involve filling out some demographic questions about yourself (e.g., age, sex, race, relationship status, etc.) in addition to filling out a short survey. It should take approximately [INSERT MINUTES HERE] minutes to complete the survey.

Your participation in this study is voluntary. You can skip questions if you wish, and can exit the survey at any time.

There are no direct benefits for you, and there are no foreseeable risks or discomforts from your participation.

Your responses will be anonymous. No one will be able to determine which responses are yours.

If you have any questions concerning the research study, please contact Dr. Lori Bednarchik at Lori.Bednarchik@asu.edu.

By clicking "next" you consent to participate in this study.

Sincerely,

Dawn Beeson
Dr. Lori Bednarchik

1. At your last birthday, how old were you in years?
   o _____ years old
2. What is your sex?
   o Female
   o Male
   o Other
3. Which of the following best describes your sexual orientation?
   o Heterosexual/Straight
   o Homosexual/Gay
   o Bisexual
   o Unsure/Questioning
   o Other
4. How do you describe your ethnicity?
   o Hispanic
   o Not Hispanic
5. How do you describe your race?
   o White or Caucasian
   o Black or African American
   o Asian or Asian American
   o American Indian or Alaskan Native
   o Native Hawaiian or Pacific Islander
   o Two or more races
   o Another race, please specify: _____
6. What is your current relationship status?
   o Single
   o In a committed relationship but not married
   o Married
7. What is your highest level of education?
   o High school
   o Some college
   o Undergraduate degree
   o Graduate degree
8. Do you currently, or have you ever, worked in any of the following fields (select all that apply):
   o Graphic design
   o Marketing
   o Social media
   o Education
   o Natural resource management
   o Construction
   o Mining
   o Forestry

Mirthful Message 1 - Message Credibility: Argument Strength

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 1 - Squirrel]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the argument of information in this Facebook post was convincing. (1)	○	○	○	○	○
In general, the argument of information in this Facebook post was persuasive. (2)	○	○	○	○	○
In general, the argument of information in this Facebook post was valid. (3)	○	○	○	○	○
In general, the argument of information in this Facebook post was logical. (4)	○	○	○	○	○

Mirthful Message 1 - Message Credibility: Information Quality

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 1 - Squirrel]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the information on this Facebook Post was accurate. (1)	○	○	○	○	○
In general, the information on Facebook Post was objectively presented. (2)	○	○	○	○	○
In general, the information on this Facebook Post was easy to understand. (3)	○	○	○	○	○
In general, the information on this Facebook Post was sufficiently timely. (4)	○	○	○	○	○

Mirthful Message 1 - Information Credibility

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 1 - Squirrel]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, I think information from this Facebook Post is believable. (1)	○	○	○	○	○
In general, I think information from this Facebook Post is factual. (2)	○	○	○	○	○
In general, I think information from this Facebook Post is credible. (3)	○	○	○	○	○
In general, I think information from this Facebook Post is trustworthy. (4)	○	○	○	○	○

Mirthful Message 1 – Attitudes

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 1 - Squirrel]

I thought that this Facebook post was:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
unenjoyable	○	○	○	○	○	○	○	enjoyable
untrustworthy	○	○	○	○	○	○	○	trustworthy
serious	○	○	○	○	○	○	○	funny
important	○	○	○	○	○	○	○	unimportant
uninformative	○	○	○	○	○	○	○	informative

Negatively Valenced Message 1 - Message Credibility: Argument Strength

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 1 – Bighorn Sheep]
Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the argument of information in this Facebook post was convincing. (1)	○	○	○	○	○
In general, the argument of information in this Facebook post was persuasive. (2)	○	○	○	○	○
In general, the argument of information in this Facebook post was valid. (3)	○	○	○	○	○
In general, the argument of information in this Facebook post was logical. (4)	○	○	○	○	○

Negatively Valenced Message 1 - Message Credibility: Information Quality

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 1 – Bighorn Sheep]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the information on this Facebook Post was accurate. (1)	○	○	○	○	○
In general, the information on Facebook Post was objectively presented. (2)	○	○	○	○	○
In general, the information on this Facebook Post was easy to understand. (3)	○	○	○	○	○
In general, the information on this Facebook Post was sufficiently timely. (4)	○	○	○	○	○

Negatively Valenced Message 1 - Information Credibility

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 1 – Bighorn Sheep]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, I think information from this Facebook Post is believable. (1)	O	O	O	O	O
In general, I think information from this Facebook Post is factual. (2)	O	O	O	O	O
In general, I think information from this Facebook Post is credible. (3)	O	O	O	O	O
In general, I think information from this Facebook Post is trustworthy. (4)	O	O	O	O	O

Negatively Valenced Message 1 – Attitudes
Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 1 – Bighorn Sheep]

I thought that this Facebook post was:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
unenjoyable	O	O	O	O	O	O	O	enjoyable
untrustworthy	O	O	O	O	O	O	O	trustworthy
serious	O	O	O	O	O	O	O	funny
important	O	O	O	O	O	O	O	unimportant
uninformative	O	O	O	O	O	O	O	informative

Mirthful Message 2 - Message Credibility: Argument Strength

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 2 - Falcon]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the argument of information in this Facebook post was convincing. (1)	O	O	O	O	O
In general, the argument of information in this Facebook post was persuasive. (2)	O	O	O	O	O
In general, the argument of information in this Facebook post was valid. (3)	O	O	O	O	O
In general, the argument of information in this Facebook post was logical. (4)	O	O	O	O	O

Mirthful Message 2 - Message Credibility: Information Quality

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 2 - Falcon]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the information on this Facebook Post was accurate. (1)	O	O	O	O	O
In general, the information on Facebook Post was objectively presented. (2)	O	O	O	O	O
In general, the information on this Facebook Post was easy to understand. (3)	O	O	O	O	O
In general, the information on this Facebook Post was sufficiently timely. (4)	O	O	O	O	O

Mirthful Message 2 - Information Credibility

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 2 - Falcon]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, I think information from this Facebook Post is believable. (1)	○	○	○	○	○
In general, I think information from this Facebook Post is factual. (2)	○	○	○	○	○
In general, I think information from this Facebook Post is credible. (3)	○	○	○	○	○
In general, I think information from this Facebook Post is trustworthy. (4)	○	○	○	○	○

Mirthful Message 2 – Attitudes

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Mirthful Image 2 - Falcon]

I thought that this Facebook post was:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
unenjoyable	○	○	○	○	○	○	○	enjoyable
untrustworthy	○	○	○	○	○	○	○	trustworthy
serious	○	○	○	○	○	○	○	funny
important	○	○	○	○	○	○	○	unimportant
uninformative	○	○	○	○	○	○	○	informative

Negatively Valenced Message 2 - Message Credibility: Argument Strength

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 2 – Vehicles]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the argument of information in this Facebook post was convincing. (1)	○	○	○	○	○
In general, the argument of information in this Facebook post was persuasive. (2)	○	○	○	○	○
In general, the argument of information in this Facebook post was valid. (3)	○	○	○	○	○
In general, the argument of information in this Facebook post was logical. (4)	○	○	○	○	○

Negatively Valenced Message 2 - Message Credibility: Information Quality

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 2 – Vehicles]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, the information on this Facebook Post was accurate. (1)	○	○	○	○	○
In general, the information on Facebook Post was objectively presented. (2)	○	○	○	○	○
In general, the information on this Facebook Post was easy to understand. (3)	○	○	○	○	○
In general, the information on this Facebook Post was sufficiently timely. (4)	○	○	○	○	○

Negatively Valenced Message 2 - Information Credibility

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 2 – Vehicles]

Please indicate your level of agreement or disagreement with each of the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In general, I think information from this Facebook Post is believable. (1)	○	○	○	○	○
In general, I think information from this Facebook Post is factual. (2)	○	○	○	○	○
In general, I think information from this Facebook Post is credible. (3)	○	○	○	○	○
In general, I think information from this Facebook Post is trustworthy. (4)	○	○	○	○	○

Negatively Valenced Message 2 – Attitudes

Please review this Facebook post from Lake Mead National Recreation Area - National Park Service and answer the following questions.

[Negatively Valenced Image 2 – Vehicles]

I thought that this Facebook post was:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
unenjoyable	○	○	○	○	○	○	○	enjoyable
untrustworthy	○	○	○	○	○	○	○	trustworthy
serious	○	○	○	○	○	○	○	funny
important	○	○	○	○	○	○	○	unimportant
uninformative	○	○	○	○	○	○	○	informative

End of Survey

APPENDIX D

SPSS OUTPUT TABLES

$N = 217$
51 participants eliminated because of missing data
Final sample ($n = 166$)

Reliability

Mirthful Messages
Credibility (16 items; α =.71)
      Argument strength (8 items; α =.87)
      Info quality (8 items; α =.80)
Information credibility (8 items; α =.89)
Attitudes (10 items; α =.71)

Negatively Valenced Messages
Credibility (16 items; α =.89)
      Argument strength (8 items; α =.86)
      Info quality (8 items; α =.73)
Information credibility (8 items; α =.90)
Attitudes (10 items; α =.76)

Descriptive Statistics

What is your sex? – tested: does not change outcomes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	138	83.1	83.1	83.1
	Male	27	16.3	16.3	99.4
	Other	1	.6	.6	100.0
	Total	166	100.0	100.0	

At your last birthday, how old were you in years? – tested: does not change outcomes

N	Valid	166
	Missing	0
Mean		45.2048
Median		44.0000
Mode		44.00
Std. Deviation		13.14650
Minimum		12.00
Maximum		75.00

Which of the following best describes your sexual orientation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Heterosexual/Straight	153	92.2	92.7	92.7
	Homosexual/Gay	1	.6	.6	93.3
	Bisexual	5	3.0	3.0	96.4
	Unsure/Questioning	1	.6	.6	97.0
	Other	5	3.0	3.0	100.0
	Total	165	99.4	100.0	
Missing	System	1	.6		
Total		166	100.0		

How do you describe your ethnicity? Hispanic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hispanic	17	10.2	100.0	100.0
Missing	System	149	89.8		
Total		166	100.0		

How do you describe your ethnicity? Not Hispanic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Hispanic	144	86.7	100.0	100.0
Missing	System	22	13.3		
Total		166	100.0		

How do you describe your race? - Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White or Caucasian	136	81.9	84.0	84.0
	Black or African American	3	1.8	1.9	85.8
	Asian or Asian American	10	6.0	6.2	92.0
	American Indian or Alaskan Native	2	1.2	1.2	93.2
	Two or more races	7	4.2	4.3	97.5
	Other	4	2.4	2.5	100.0
	Total	162	97.6	100.0	
Missing	System	4	2.4		
Total		166	100.0		

Where is your home located? - Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North America/ Central America	150	90.4	90.4	90.4
	Europe	10	6.0	6.0	96.4
	Asia	4	2.4	2.4	98.8
	Other:	2	1.2	1.2	100.0
	Total	166	100.0	100.0	

What is your current relationship status?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	36	21.7	21.7	21.7
	In a committed relationship but not married	21	12.7	12.7	34.3
	Married	109	65.7	65.7	100.0
	Total	166	100.0	100.0	

What is your highest level of education? – tested: does not change outcomes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than high school degree	3	1.8	1.8	1.8
	High school graduate (high school diploma or equivalent including GED)	21	12.7	12.7	14.5
	Undergraduate Degree	65	39.2	39.2	53.6
	Masters/Doctoral/ Professional Degree	77	46.4	46.4	100.0
	Total	166	100.0	100.0	

Results

Hypothesis 1: Attitudes toward mirthful messages are different than those toward negatively valenced messages.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Neg_Valenced_Attitude	5.3074	148	.88426	.07269
	Mirthful_Attitudes	5.2311	148	.84490	.06945

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Neg_Valenced_Attitude - Mirthful_Attitudes	.07635	.53673	.04412	-.01084	.16354	1.731	147	.086

Hypothesis 2: Mirthful messages and negatively valenced messages will differ in information credibility.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mirthful_Info_Credibility	4.4455	156	.61141	.04895
	Neg_Val_Info_Credibility	4.2772	156	.68425	.05478

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Mirthful_Info_Credibility Neg_Val_Info_Credibility	.16827	.69686	.05579	.05806	.27848	3.016	155	.003

Hypothesis 3: Mirthful messages and negatively valenced messages will differ in message credibility.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mirthful_Message_Credibility	4.6360	148	.70212	.05771
	Neg_Valenced_Message_Credibility	4.9620	148	.74018	.06084

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Mirthful_Message_ Credibility Neg_Valenced_Message_ Credibility	-.32601	.68858	.05660	-.43787	-.21416	-5.760	147	.000

Hypothesis 4: Mirthful messages and negatively valenced messages will differ in argument strength.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mirthful_Argument_Strength_D1	4.9789	160	.87339	.06905
	Neg_Val_Arg_Strength_D1	5.7898	160	.99580	.07873

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Mirthful_Argument_Strength_D1 Neg_Val_Arg_Strength_D1	-.81094	.93099	.07360	-.95630	-.66558	-11.018	159	.000

Hypothesis 5: Mirthful messages and negatively valenced messages will differ in information quality.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mirthful_Info_Qual_D2	4.2941	153	.60892	.04923
	Neg_Val_Info_Qual_D2	4.1650	153	.57455	.04645

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Mirthful_Info_Qual_D2 Neg_Val_Info_Qual_D2	.12908	.62127	.05023	.02985	.22832	2.570	152	.011