6-2018

Third-person perception of science narratives: The case of climate change denial

Michael Field DAHLSTROM

Sonny ROSENTHAL
Singapore Management University, srosenthal@smu.edu.sg

Research Article

Third-Person Perception of Science Narratives: The Case of Climate Change Denial

Michael Field Dahlstrom[1] ⑮
and Sonny Rosenthal[2]

Abstract
Science communicators are increasingly recognizing the potential of narratives to reach and influence audiences. However, do audiences recognize and consider this tactic when evaluating how such messages influence themselves and others? This study compares third-person perceptions of persuasive narrative and nonnarrative messages in a climate change context. Results suggest that individuals are aware of the influence of narratives and are able to resist this influence, but this is only when they perceive a message as having negative influence. Otherwise, individuals underestimate the influence of narratives on themselves. These findings add an audience-centered perspective to the current discussions on incorporating narratives within science communication.

Scholars and practitioners of science communication are increasingly promoting narrative as a potentially powerful tool for reaching and influencing

[1]Iowa State University, Ames, IA, USA
[2]Nanyang Technological University, Singapore

Corresponding Author:
Michael Field Dahlstrom, Greenlee School of Journalism and Communication, Iowa State University, 613 Wallace Road, 101B/215 Hamilton Hall, Ames, IA 50011-4010, USA.
Email: mfd@iastate.edu

nonexpert audiences about science. A number of recent journal articles have explored the impact of narratives across a range of science communication contexts (Cooper & Nisbet, 2016; Jensen, Yale, Krakow, John, & King, 2017; Muurlink & McAllister, 2015; Shaffer et al., 2017) and the National Academy of Sciences devoted a recent workshop to explore how narratives can benefit science (National Academies of Sciences, Engineering, & Medicine, 2017). This interest extends outside of academic contexts. Popular author Randy Olsen's latest book, *Houston, We Have a Narrative: Why Science Needs Story*, calls on scientists to use more narratives in the communication (Olson, 2015). The Story Collider (https://www.storycollider.org/) was founded by two physicists in 2010 to both train and showcase scientists using stories and currently tours major cities around the country. The Science and Entertainment Exchange is a program that connects scientists with entertainment industry professionals to work science topics into entertainment storylines (http://www.scienceandentertainmentexchange.org/).

These efforts to popularize assume that narratives will positively influence audiences toward science. Yet this is only one side of the negotiated environment in which communication occurs. Audiences attend to and process science information and may find themselves agreeing with or opposing it depending on how it comports with their existing perspectives (Kahan, 2012). That is, the influence of narrative is likely contingent on how audiences think about and respond to narrative messages.

In this audience-centered view, audiences are often acutely aware that media messages can influence beliefs and attitudes. Messages they perceive to have negative influence often draw criticism, sometimes with calls for redaction, correction, punishment, or even censorship. However, these concerns are rarely self-directed, and motives to restrict harmful media messages are related to the belief that such messages influence others more than the self (Sun, Shen, & Pan, 2008). This is the third-person effect, which is a robust finding in mass communication research, and it is most pronounced in the context of messages perceived to have negative influence (Davison, 1983, 1996; Perloff, 1999; Sun, Pan, & Shen, 2008).

According to the third-person effects perspective, audiences perceive their own beliefs and attitudes to be relatively impervious to effects of media. Research commonly points to motivational and cognitive factors that drive this perceptual gap. The motivational account draws attention to such processes as ego defense and optimism bias, according to which individuals tend to regard themselves as less susceptible than average to the influence of media (Shen, Pan, & Sun, 2010). This motivation results in an underestimation of influence on the self. On the other hand, the cognitive account suggests that individuals reflect on their own capacity to resist influence but use

intuitive theories of media effects to estimate influence on others (Shen et al., 2010). These cognitions do not necessarily bias perceived influence on the self, but they tend to amplify perceived influence on others. Given either account, when individuals believe a message has negative influence, they will tend to regard themselves as less influenced than others.

When audiences process narrative messages, a different kind of perceptual bias may arise in parallel with third-person perception. Researchers suggests that audiences employ different cognitive pathways to process messages presented in a narrative format than they employ when engaged in more systematic information processing (Bruner, 1986; Fisher, 1984). Narrative processing can result in greater agreement with the message and, simultaneously, diminished awareness of being influenced (Green & Brock, 2000; Green, Garst, & Brock, 2004; Slater & Rouner, 2002). Because audiences might not recognize the persuasive intent of narrative messages, researchers suggest that narrative formats are potentially powerful for influencing audiences otherwise resistant to persuasive appeals (Moyer-Guse & Nabi, 2010).

But are audiences truly unaware of the power of narratives to influence them and others, especially about scientific issues? Calls for redaction and apology surrounding portrayals of the HPV (human papillomavirus) vaccine suggest otherwise. In 2011, CNN anchor Anderson Cooper criticized then presidential candidate Michelle Bachmann for using a narrative he felt would unfairly bias her audience against the vaccine. According to Bachmann, a mother approached her after a debate claiming the vaccine gave her daughter "mental retardation." Cooper stated, "It is incredibly irresponsible for [Bachmann] to repeat what this person said as part of her argument about the HPV vaccine" (Mirkinson, 2011). Two years later, Katie Couric received criticism for using anecdotal evidence in her daytime talk show to tell the antivaccine side of the issue. Couric eventually apologized (Couric, 2013), and in a follow-up CBS News story, a prominent bioethicist argued that ". . . presenting the anecdotal reports of extreme side effects did more negative damage to people than it positively contributed to a debate" (Jaslow, 2013).

These examples suggest that some individuals are particularly concerned about the potential of narratives to influence imagined audiences about science in what they see as a negative direction. Furthermore, this third-person perception seems to be heightened by a perceived power of narrative messages. However, the interplay of these two areas of literature has seen little attention in extant literature.[1] In order to expand this line of research, we ask if audiences recognize the special persuasive potential of narrative messages and if they account for this potential (a) when considering how messages influence them relative to others and (b) when forming opinions regarding the message itself?

Exploring these considerations can add a more contextual component to the third-person effects perspective by further accounting for how audiences may incorporate different message formats within their assumption of objectionable media message influence. Within the field of narrative persuasion, these considerations can introduce an audience-centered perspective of narrative expectations, a perspective that has only begun to be explored in a literature currently dominated by traditional effects studies. Within science communication in particular, these considerations can introduce an empirical exploration of an otherwise overlooked audience perspective within the calls for increased narrative within science communication.

Toward addressing these considerations, we present an experiment that compares third-person perceptions of persuasive narrative and nonnarrative messages in the context of climate change. We manipulate the presence and strength of narrative elements and consider how treatment effects on perceived influence vary in relation to social distance and perceived negative influence of the message. We then compare the perceived influence on self to the actual influence caused by the narrative manipulations in order to examine the accuracy of individuals' self-assessments.

Third-Person Perception

Perceptual biases are a common focus of psychological research. In communication research, one of the most studied perceptual biases arises in the third-person effect—individuals perceive themselves as less susceptible than others to influences of media messages—and are more likely to oppose those messages as a result (Sun, Shen, & Pan, 2008; Xu & Gonzenbach, 2008). The perceptual component of this process is called third-person perception.

Motivational and Cognitive Explanations

Explanations of third-person perception commonly describe motivational and cognitive processes. The motivational account suggests that individuals are motivated to hold a positive view of the self. In the context of media, individuals can maintain such a view by regarding themselves immune to the influence of media messages. Scholars have related this motivational process to such concepts as unrealistic optimism (Hoorens & Ruiter, 1996) and ego enhancement (Boyle, McLeod, & Rojas, 2008). One consequence of such motivations is that individuals may underestimate the extent to which media messages influence them.

Another account of third-person perception describes a more rational, cognitive process. Whereas introspection may guide estimations of media influence on the

self, individuals cannot directly access the thoughts of others. Consequently, they may estimate media influence on other people by invoking intuitive theories of "powerful" media effects (Eveland, Nathanson, Detenber, & McLeod, 1999; Pronin, 2008). Andsager and White (2007) describe this process succinctly:

> A person who has been exposed to pornography and has noted no changes in his or her own behavior may conclude that inasmuch as pornography, which is a societal problem after all, does not affect me, it must be a problem because it affects other people. (p. 18)

Although it is possible that motivational processes bias introspection, the more cognitive appraisal of media influence should generally lead to more accurate perceptions of media influence on the self.

Third-person perceptions are an important topic of study because they may lead to certain attitudinal or behavioral outcomes. For example, individuals express greater support for censorship when they believe that undesirable media content does not affect them much but does influence general audiences (Ho, Detenber, Malik, & Neo, 2012; McLeod, Eveland, & Nathanson, 1997; Rojas, Shah, & Faber, 1996; Rosenthal, Detenber, & Rojas, 2015). Support for censorship is a well-documented and robust behavioral outcome of third-person perception, as two meta-analyses report (Feng & Guo, 2012; Xu & Gonzenbach, 2008).

Moderating Factors

Several factors may influence the size of third-person perception, of which the current study focuses on two. First, assuming that lay theorizing of generalized others is an antecedent of third-person perception, then the extent to which others are generalized is related to the size of the self-other perceptual asymmetry. When individuals perceive others as being similar to them, they may confer upon others some of the perceived immunity to influence that they grant themselves. If individuals believe the media do not particularly influence them, then they should also believe that the media do not particularly influence others who are similar to them. On the other hand, they may perceive dissimilar others as lacking that common immunity. This *social distance corollary* suggests that the greater the social distance between self and others, the greater the self-other perceptual asymmetry (Gibbon & Durkin, 1995; McLeod et al., 1997; Meirick, 2005).

Second, when effects of media are particularly undesirable (e.g., cigarette ads promoting smoking), third-person perception tends to grow in magnitude. This *negative influence corollary* suggests that the more undesirable the

influence of media, the greater the self-other asymmetry of perceived influence (Gunther & Storey, 2003). This concept is important because individuals need to identify whether or not a message may negatively influence audiences before they can form an appropriate response.

Third-Person Perception of Climate Change Denial

Climate change was chosen as the context for this study as it represents a timely and ubiquitous scientific context within which persuasive messages are abundant. As such, audiences are more likely scrutinize relevant messages for persuasive intent, which is a starting point for third-person perceptions. Likewise, using this context with an audience of undergraduate students has been found to elicit a reverse third-person perception, or first-person perception, when the audience perceives the message to have positive influence (Lin, 2013; Rosenthal & Dahlstrom, 2017). Therefore, we expect that a message obviously attempting to persuade audiences away from the scientific consensus of climate change will be perceived by undergraduate students as a potentially negative influence and will therefore elicit third-person perception. More so, and in line with theory, we expect this effect to be heightened by perceived social distance and negative influence.

> **Hypothesis 1:** Individuals will have third-person perception of a message denying climate change. Specifically, they will rate the message as influencing others more than self.
> **Hypothesis 2:** Third-person perception will be larger when individuals rate others who are dissimilar from them than when they rate individuals who are similar to them.
> **Hypothesis 3:** The greater the perceived negative influence of the message, the larger the third-person perception.

These hypotheses reflect what is already understood about third-person perception; they aim to replicate prior research findings in an important science communication context. The more theoretically novel contributions of this study come from the intersection of third-person perception and persuasive narrative messages.

Narrative Persuasion

Narratives are messages structured to tell a story—the experience of specific characters across a series of related events over a defined time period. Narratives are often contrasted with expository or argumentative formats of

communication (Avraamidou & Osborne, 2009; Bruner, 1986; Fisher, 1984). These latter formats present general truths about the world that individuals can distill and then apply to their own specific situations (Dahlstrom, 2014). In contrast, narrative stories describe a specific situation from which individuals can then induce what general truths must be in effect for that situation to have occurred (Bruner, 1986; Dahlstrom, 2014; Strange & Leung, 1999). Unlike expository content, the example offered in a narrative is not necessarily designed to represent a probable case of a larger phenomenon. In fact, it is often the less representative and extreme cases that make for more exciting stories.

Nonetheless, narratives have the power to shape perceptions about the larger world through specific, constructed cases. This persuasive power is not necessarily dependent upon the author of a message explicitly attempting to persuade—narratives by their very nature present information in ways that influence audiences regardless of author intent. The field of narrative persuasion explores how audiences select, process, and ultimately become influenced by narrative messages and research suggests that this special influence arises from a collection of cognitive processes. Narratives gain credibility because they already represent the preferred structure for storage and retrieval in memory, leading to more efficient processing and understanding (Schank & Abelson, 1995). The related area of exemplification theory demonstrates this processing bias. When specific cases and statistical information are both present within a single message, audience perceptions tend to align with the specific cases even if they contradict the rest of the message (Zillmann, 2002, 2006).

Narratives also gain credibility through greater audience engagement. The transportation imagery model describes how audiences of narrative content can become so cognitively and emotionally engaged in the story world that they no longer have the cognitive resources remaining to generate counterarguments against the claims present in the narrative. As such, acceptance of the narrative content becomes the default outcome (Busselle & Bilandzic, 2009; Gerrig, 1993; Green & Brock, 2000). Research across numerous contexts, both science-related and not, finds that greater engagement, often called transportation, is related to greater acceptance of factual and normative claims presented in narrative messages (Green, 2004; Lu, Thompson, Baranowski, Buday, & Baranowski, 2012; van Laer, de Ruyter, Visconti, & Wetzels, 2014). Transportation can be influenced both by the quality of a narrative message and by preexisting attitudes that motivate an individual to engage with a particular narrative (McFerran, Dahl, Gorn, & Honea, 2010).

While narrative formats may intrinsically offer benefits for persuasion, they also represent complex message structures exhibiting large variation

across messages. Some narratives are cognitively and emotionally captivating while others have trouble maintaining an audience. Likewise, the formats of expository, argumentative, and narrative do not remain distinct within the media environment, and narratives are often part of larger messages that also employ expository and/or argumentative formats. Scholars have attempted to catalog the numerous elements within a narrative's construction that may lead to this varied execution (Avraamidou & Osborne, 2009; Kreuter et al., 2007; Norris, Guilbert, Smith, Hakimelahi, & Phillips, 2005).

The concept of *narrativity* represents the complexity of narrative elements within a message that grant it the potential to create a rich representation of a story world (Fludernik, 2002; Kinnebrock & Bilandzic, 2011). Dimensions of narrativity include character development, presence of lasting consequences, multiplicity of possibly story lines, genre typicality, and craftsmanship. Narrativity is a useful concept to categorize messages that employ narrative formats within larger message structures as well as messages that exist on the boundary of what may be considered "narrative" but nonetheless contain narrative elements. In essence, narrativity captures not the content of a message but the range and depth of its narrative components. While the interplay of these dimensions remains an area of active study, increased levels of narrativity are expected to correspond to greater vividness, story engagement, and emotional responses as compared to the same events portrayed through less narrativity (Kinnebrock & Bilandzic, 2011).

Although literature suggests that narratives represent a potentially powerful format for persuasive influence, it does not explore this influence relative to third-person perceptions. In other words, narratives may be influential, but do audiences perceive them to be so? If audiences hold intuitive theories about the persuasive effects of narratives, then narrativity may influence the size of third-person perception in whatever direction those intuitive theories would predict. However, if audiences do not differentiate between types of message formats when evaluating their influence, narrativity ought to play less of a role in third-person perception. Because these relationships have yet to be explored empirically, we propose the following research question.

Research Question 1: Does the magnitude of third-person perception vary by the degree of narrativity present within a message?

Finally, the study objectives thus far have considered the perceptions individuals have regarding media influence on the self and others. Yet narrative persuasion theory would predict that media messages with increasing narrativity would lead to increased message-consistent influence, regardless of whether or not audiences acknowledge such influence. This prediction aligns

with the previously mentioned calls for increased narrative within science communication—the assumption is that narratives will lead to greater acceptance and support of science. Comparing the perceived influence on the self to the actual influence on the self will permit an evaluation as to how accurately individuals are able to predict their response to science narratives.

> **Hypothesis 4:** Messages with greater narrativity will result in greater agreement with a message's argument.
> **Research Question 2:** How does the perceived influence of narrativity on the self compare to the actual effect of narrativity on the self?

Method

Participants

Participants were undergraduate communication students at large research universities in Singapore and the Midwestern United States. Participants in Singapore received movie vouchers in exchange for participation, while participants in the United States received partial course credit.

The initial sample contained 428 subjects. The length of time participants spent reading the stimulus was used as an initial screening criterion, and 11 outliers were identified by median absolute deviation and removed. Participants who spent less than 20 seconds reading the stimulus material ($n = 21$) were also removed. This resulted in a final sample of 396 participants. Participants in Singapore ($n = 198$) were predominantly female (67.5%), with a median age of 21 years. Participants in the United States ($n = 198$) were also predominantly female (77.3%), with a median age of 19 years. The two samples were pooled for analysis, with country of residence serving as a demographic control.[2]

Protocol

Data were collected during 2 weeks. At both study sites, subjects in groups of 10 to 20 completed a roughly 15-minute online survey in a proctored computer lab. After giving their informed consent, participants completed a pretest capturing their initial beliefs and attitudes about climate change. The survey then informed participants that they would read a story about climate change that was published in an influential and widely read news outlet and had since become controversial over worries that such stories may lead audiences to doubt mainstream climate science. This statement of controversy was included to make salient the persuasive leaning of a message that some see as having a

negative influence, which is an important consideration underlying the activation of third-person effects. Random assignment then exposed participants to one of three versions of a stimulus article that differed by the amount of narrativity present. Finally, participants completed a series of questions about perceived influence and other items evaluating the article and their beliefs. At the session's conclusion, participants were thanked, debriefed, and excused.

Stimuli

Background. The stimuli consisted of a core expository news article describing why one scientist claims that sea levels are not rising. Passages representing different degrees of narrativity were inserted into this core story, resulting in three treatments: no narrativity, low narrativity, and high narrativity. The core news article came from the text of an article published in *The Telegraph* titled "Rise of Sea Levels Is 'The Greatest Lie Ever Told.'" The article features a scientist who claims a more accurate understanding of how climate change influences sea levels because he goes into the field to observe, while other scientists just use computer models. After traveling to various islands in the Indian Ocean, he claims that sea levels are not rising. The article is written in an expository format with no strong narratives present.

However, the scientist in question has been published in other venues where he shares that his convictions come from local stories he collected while visiting the islands. One story in particular describes a tree growing near the shoreline that locals say has been a community icon for decades. Based on this story, the scientist concludes that if sea levels had risen, this tree would have died long ago. Since the tree still lives, sea levels cannot be rising. This reliance of the scientist on anecdotal evidence is beneficial as its inclusion permits all three treatments to maintain the same reliance on narratives for evidence, while differing only on the degree of narrativity with which the narratives are told. Therefore, the final stimulus incorporated this additional content into the core news story to create the manipulations.

Manipulations. The no-narrativity version took the original published text and shortened it from 999 to 420 words to focus the argument more on the purposes of the study. One sentence was added to specify that the scientist's evidence about sea level rise was based on stories from local people to keep the emphasis on anecdotal evidence consistent across treatments. The low-narrativity version included an additional paragraph describing the story that he claims disproves rising sea levels. The high-narrativity version included the same story but added vivid details to align with the conceptualization of increased narrativity, including character details, setting, and emotional descriptions. In sum,

the no-narrativity version describes a scientist who rejects sea level rise because of stories he collected. The low-narrativity version includes one of those stories, and the high-narrativity version tells the same story in vivid detail.

The no-narrativity version contained fewer words than the other versions, so buffer text was added to provided additional expository context about themes that were already introduced. The final word counts of the stimuli versions were 686 for no narrativity, 553 for low narrativity, and 773 for high narrativity. Reading time was measured and used as a control to account for these differences in stimulus length.

Variables

Manipulation Checks. To ensure participants experienced the manipulations as intended, two variables were measured to serve as manipulation checks.

Story reliance captured if the participants were cognitively aware of the presence or absence of narrative elements in the stimuli. Story reliance was measured with a single item, "Facts are one source of information often used to persuade people about a topic. Another common source of information is anecdotes, or personal stories. What source of information do you think the journalist who wrote the previous article relied on most?" on a Likert-type scale from 1 (*almost exclusively facts*) to 5 (*almost exclusively anecdote; M* = 3.61, *SD* = 1.01).

Transportation captured if the participants experienced a greater sense of immersion in reaction to narrative elements present in the stimuli. Transportation was measured with the Transportation Scale–Short Form (TS-SF) on a 7-point Likert-type scale, which had acceptable reliability (M = 4.12, SD = 1.06, α = .77).

Third-Person Perception. *Perceived Influence* captured the degree to which participants thought the stimuli would influence various groups of people and was measured for the self and at two levels of social distance: other students and the general public. Perceived influence on the self was measured with two items: (a) "How much do you think that reading this story influenced your beliefs about rising sea level?" and (b) "How much do you think that reading this story influenced what you know about rising sea level?" each on a Likert-type scale from 1 (*not at all*) to 7 (*very much*). Because this and the following influence scales are constructed from two items, the Spearman-Brown coefficient (r_{sb}) was used for reliability testing (M = 3.15, SD = 1.45, r_{sb} = .82). These items were repeated for perceived influence on other students by replacing the references to "your" and "you" in the above items to "other [specific university of the participant] students" (M = 3.65, SD = 1.34, r_{sb} = .85). Similarly, for perceived influence on

the general public, the same references were changed to "the average [national-ity of the participant]" ($M = 4.31$, $SD = 1.19$, $r_{sb} = .72$).

Other Variables. *Perceived Negative Influence* captured the degree to which par-ticipants consider being influenced by the stimulus message to be a negative outcome. This variable was measured by asking, "Some people criticized this article because of how it might influence people away from scientific consensus about climate change. These critics say such influence is a bad thing. Others disagree. What do you think? If the previous article were to influence readers' beliefs away from scientific consensus about climate change, this would be," followed by a set of three differential items on 7-point Likert-type scales (good/bad, desirable/undesirable, beneficial/harmful). Greater values indicated greater perceived negative influence ($M = 4.77$, $SD = 1.30$, $\alpha = .90$).

Climate Change Opinion was captured prior to stimulus exposure and therefore serves as a preexisting measure of climate change beliefs. Climate change opinion was measured by a set of three items: (a) "The Earth is too large for people to affect the climate," (b) 'There is good evidence that the Earth's average temperature will rise during this century," and (c) "Climate change is a matter that should be taken seriously," each on 5-point Likert-type scales from *strongly agree* to *strongly disagree*. Values were recoded as necessary to create a scale where higher values indicate greater initial accep-tance of climate change ($M = 4.25$, $SD = 0.63$, $\alpha = .72$).

Message-Consistent Influence captures the degree to which the stimulus materials actually influenced attitudes in the intended direction. Because the stimuli were attempting to persuade audiences against sea level rise, mes-sage-consistent influence was measured as agreement with three statements: "The oceans are too large for people to affect the sea level," "There is good evidence that sea level will rise during this century," and "Rising sea level is a matter that should be taken seriously." Responses were on a 5-point Likert-type scale from *strongly agree* to *strongly disagree*. Values were recoded so that higher scores represent more doubt about sea level rise and hence greater message-consistent influence ($M = 1.97$, $SD = 0.64$, $\alpha = .67$).

Demographics, including *age, sex*, and *country of residence*, were also recorded and served as controls when mentioned.

Results

Manipulation Checks

Two manipulation checks were used to ensure the manipulations matched expectations. First, story reliance was used to test if participants cognitively

noticed narratives when they were present. A one-way analysis of variance (ANOVA) confirmed a significant effect, $F(2, 393) = 12.64$, $p < .001$, $\eta_p^2 = 0.06$, and post hoc least significant difference (LSD) comparisons showed that both the low-narrativity ($M = 3.72$, $SD = 0.99$) and high-narrativity ($M = 3.82$, $SD = 0.88$) treatments were seen as relying more on anecdotes than the no-narrativity treatment ($M = 3.24$, $SD = 1.07$). There was no significant difference between the two narrative conditions. This suggests the participants cognitively noticed the narratives as intended.

Second, transportation was used to test if the level of narrativity produced the predicted differences in immersion.[3] A one-way ANOVA confirmed a significant effect, $F(2, 393) = 3.17$, $p = .043$, $\eta_p^2 = 0.02$, and post hoc LSD comparisons showed that the high-narrativity treatment resulted in greater transportation ($M = 4.29$, $SD = 1.09$) than the no-narrativity treatment ($M = 3.96$, $SD = 1.01$). The level of transportation in the low-narrativity condition ($M = 4.10$, $SD = 1.05$) was not significantly different than either of the other two treatments. This suggests that at least the two extreme manipulated differences in narrativity resulted in the expected effect on transportation.

Third-Person Perception

Three hypotheses predicted that there would be third-person perception of the stimuli (Hypothesis 1), and this perceptual gap would increase as social distance increased (Hypothesis 2) and as perceived negative influence of the message increased (Hypothesis 3). A repeated-measures ANOVA confirmed a significant effect, $F(2, 788) = 6.58$, $p = .001$, $\eta_p^2 = 0.02$, supporting Hypotheses 1 and 2. Post hoc LSD comparisons showed that perceived influence on the self ($M = 3.15$, $SD = 1.45$) was lower than perceived influence on other students ($M = 3.65$, $SD = 1.34$), which was itself lower than perceived influence on the general public ($M = 4.31$, $SD = 1.20$). In support of Hypothesis 3, the analysis showed the predicted interaction with perceived negative influence, $F(2, 788) = 34.72$, $p < .001$, $\eta_p^2 = 0.08$. Notably, negative influence was negatively related to perceived influence on the self, other students, and the general public. However, this negative relationship differed among perceptions of self (B = $-.52$, $p < .001$), other students (B = $-.26$, $p < .001$) and the public (B = $-.11$, $p = .013$) such that the third-person perception was more extreme as perceived negative influence increased. Figure 1 shows this interaction.

Narrativity Effects

The first research question asked if the magnitude of third-person perception varies by the degree of narrativity present within a persuasive message.
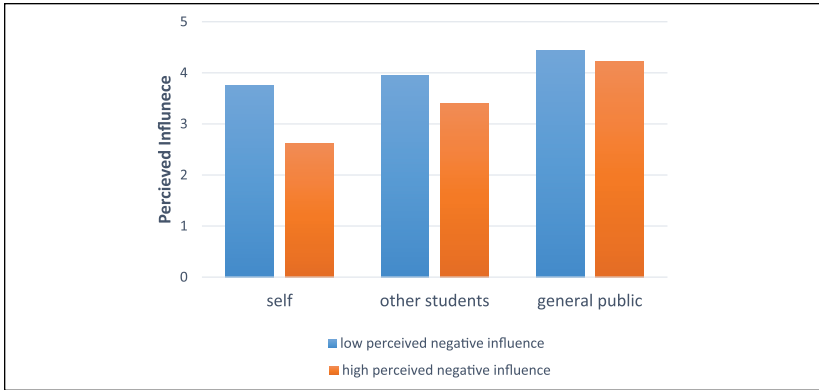
Figure 1. Increasing perceived message influence across social distance demonstrates third-person perception.
Note: These differences increase in magnitude as the perceived negative influence of the message increases.

Hierarchical ordinary least squares regression was used to explore this effect. Perceived influence for each level of social distance was entered as a dependent variable in three otherwise identical regressions. The first block consisted of age, sex, nation of residence, time spent reading the stimulus, and initial climate change opinion. The second block contained two dummy variables representing the three levels of narrativity, with the no-narrativity condition serving as the reference category. The third block consisted of perceived negative influence by itself. The fourth block entered the interaction of narrativity and perceived negative influence, where perceived negative influence was mean-centered.

Table 1 shows the predictors of perceived influence at each of the three levels of social distance. The model had the greatest explained variance for perceived influence on the self ($R^2 = .25$), less for perceived influence on other students ($R^2 = .12$), and less still for perceived influence on the general public ($R^2 = .05$).

The effect of narrativity by itself was modest. Participants rated the low-narrativity message as having less influence than the no-narrativity message on themselves ($\beta = -.13$, $p = .020$) and on other students ($\beta = -.12$, $p = .032$). The dummy variable representing the high-narrativity condition was consistently unrelated to perceived influence. However, there was a consistent interaction between narrativity and perceived negative influence. Whereas perceived negative influence was negatively related to perceived influence only on the self ($\beta = -.24$, $p = .006$), this negative relationship was most pronounced for perceptions of self, other students, and the general public when

Table 1. Perceived Message Influence on Different Levels of Social Distance.

Predictors	Influence on self			Influence on students			Influence on public		
	B	SE	β	B	SE	β	B	SE	β
Intercept	4.05	1.04		2.94	1.05		3.38	0.96	
Block 1									
Age	<.01	.03	<.01	<.01	.03	<.01	−.03	.03	−.06
Sex	.09	.15	.03	.09	.15	.03	.10	.14	.04
Country	.02	.16	<.01	.13	.16	.05	.12	.15	.05
Reading time	<.01	<.01	.06	<.01	<.01	.05	<.01	<.01	≤.01
Climate change opinion	.05	.12	.02	.04	.12	.02	.20	.11	.10
ΔR^2			.04*			.02			.01
Block 2									
Low narrativity	−.38	.16	−.13*	−.35	.16	−.12*	−.06	.15	−.02
High narrativity	−.22	.16	−.07	−.28	.16	−.10	−.04	.15	−.02
ΔR^2			.01			.01			<.01
Block 3									
Perceived negative influence	−.27	.10	−.24**	.06	.10	.06	.07	.09	.08
ΔR^2			.18***			.05***			.02**
Block 4									
Low narrativity × perceived negative influence	−.31	.12	−.17*	−.50	.12	−.30***	−.31	.11	−.21**
High narrativity × perceived negative influence	−.40	.13	−.20**	−.35	.13	−.20**	−.25	.12	−.16*
ΔR^2			.02**			.04***			.02*
Total R^2			.25			.12			.05

Note: ΔR^2 values represent each block when added. All other values come from the final model.
*$p < .05$. **$p < .01$. ***$p < .001$.

the message contained narrative elements (see Figure 2). This finding suggests a perception that both narratives and nonnarratives may be similarly influential when the stakes are low, but as perceived negative influence of a message increases, individuals express greater resistance to narrative message influence and also consider others to be less influenced.
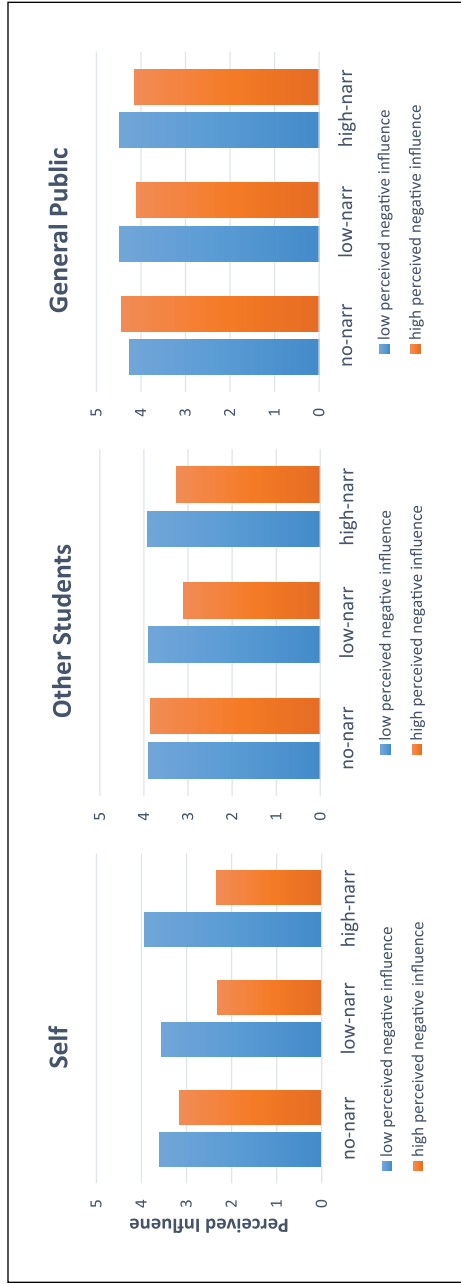
Figure 2. The perceived influence of messages containing different levels of narrativity across different levels of social distance. Note: The perceived influence of narrative messages decreases as the perceived negative influence of the message increases.

355

Story-Consistent Influence

The final hypothesis predicted that actual story-consistent influence would increase as narrativity increased (Hypothesis 4). Similarly, Research Question 2 asked how the actual influence on the self would compare to how participants perceived they would respond to such messages. The same regression analysis was used to test this hypothesis, using message-consistent influence as the dependent variable. The block containing the two narrativity dummy variables did not significantly predict the dependent variable (Block 2), $F(2, 387) = 2.29$, $p = .103$. However, there was again a significant interaction between narrativity and perceived negative influence (Block 4), $F(2, 384) = 5.47$, $p = .005$. As Figure 3 shows, narrativity had the predicted effect on message-consistent influence but only when perceived negative influence was low. When perceived negative influence was high, story-consistent influence was lower overall and did not differ significantly among narrativity treatments.

Discussion

Science communicators are increasingly looking to narrative to help reach and influence audiences. Science narratives can indeed shape perceptions about the world through unique processing pathways, but are audiences aware of this influence and do they take it into account when predicting how others will be influenced? This study explored these questions by bridging the theoretical frameworks of third-person perception and narrative persuasion and testing them in a climate change context. In summary, individuals do seem to recognize narratives as having special influence but only when they perceive messages to have negative influence on audiences. Likewise, the magnitude and direction of perceived message influence did not always align with actual message influence.

Third-person perception literature predicts that individuals will perceive themselves to be less influenced than other people by media messages. Furthermore, as individuals increasingly perceive messages as having negative influence, the perceptual gap increases. Current findings show the classic third-person perception in the context of climate change denial. In addition to testing core theoretical predictions regarding third-person perception, this study considered the potential influence of narrativity to capture additional variance within the traditional third-person perception framework.

Effects of Narrativity

Narrativity represents the degree to which a message contains elements capable of creating a rich story world, and literature suggests that greater narrativity
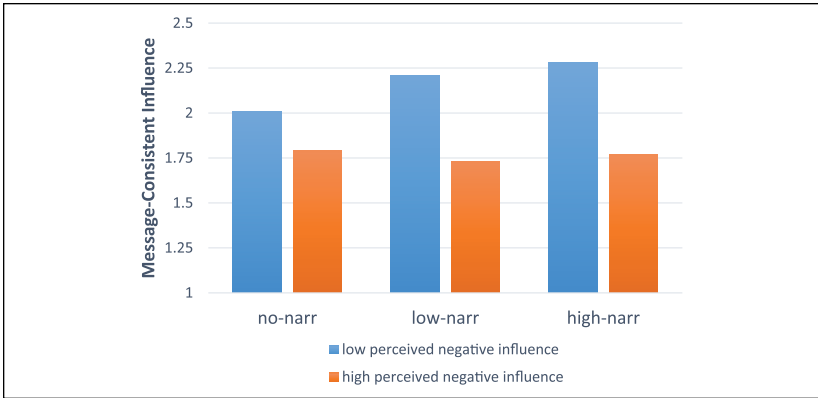
Figure 3. The actual message-consistent influence of messages containing different levels of narrativity.
Note: The influence of narrativity disappears as the perceived negative influence of the message increases.

will result in greater persuasive influence. When, in the current study, third-person perception was examined across messages containing different levels of narrativity, there was a significant interaction with perceived negative influence. This is an interesting finding, whose discussion may illuminate unique aspects of narratives as persuasive tools.

Low Perceived Negative Influence

When the perceived negative influence of a message was low, the different levels of narrativity had relatively little impact on perceived message influence. Whether rating influence on the self, other students, or the general public, there was not a clear difference among the nonnarrative, low-narrativity, and high-narrativity conditions. While there was still third-person perception at both levels of social distance, it seems participants did not devote cognitive resources to differentiate the potential persuasive impacts of narrative formats within what they viewed as a low-stakes situation.

High Perceived Negative Influence

On the other hand, when perceived negative influence of a message was high, perceived influence of the two narrative conditions was lower than perceived influence of the nonnarrative condition. These differences were consistent for perceived influence on the self, other students, and the general public. Interestingly,

the direction of this difference is contrary to what narrative persuasion would predict regarding the actual influence of narratives.

One explanation of this finding is that being in a high-stakes situation may trigger ego-defensive motivations to identify and resist potential sources of influence. If individuals believe that narratives are particularly influential, then they will be motivated to regard themselves as especially resistant to its influence. The main effect of perceived negative influence on perceived influence on the self provides additional support for this explanation: Individuals feel they are less influenced by messages with more negative influence. However, this explanation does not fully explain the pattern of results between levels of social distance. The motivational account can explain why individuals might rate themselves as less susceptible to influence, but it does not explain why they would rate others as less susceptible to certain kinds of media content.

An alternative explanation may be that as perceived negative influence increases, individuals become more critical of evidence in general and view narrative information as less credible, leading to a reduction of its perceived influence. A post hoc analysis lends support to this mechanism, finding that credibility differed among treatments, $F(2, 393) = 6.02$, $p = .003$, $\eta_p^2 = 0.03$. Pairwise comparisons revealed that both the low-narrativity ($M = 2.35$, $SD = 0.75$) and high-narrativity ($M = 2.41$, $SD = 0.72$) treatments were viewed as significantly less credible than the no-narrativity condition ($M = 2.65$, $SD = 0.77$). The two narrative treatments did not significantly differ. This alternative explanation suggests a more cognitive pathway to assessing message influence and is complementary to the motivational explanation. Specifically, individuals are motivated to rate themselves as less influenced than others and use reasoning to evaluate the merits of different kinds of message presentations. These processes are accentuated when perceived negative influence is high. This dual-pathway explanation is consistent with current findings.

Actual Influence

However, self-reported message influence is not the same thing as actual influence, and it is worthwhile to contrast these two kinds of message effects. Current findings show an interesting deviation between perceived and actual message influence. It is important to note that participants reported their agreement with message-consistent statements after they had reported perceived influence; thus, participants may have been motivated to understate their agreement with the message-consistent statements. For this reason, perceived and actual influence are not directly comparable, but the relative differences among treatments can be instructive.

Theories of narrative persuasion predict that messages with greater narrativity will result in greater persuasive influence. Current findings support this prediction but only when perceived negative influence of the message is low. It seems that participants did not consider the degree of narrativity when predicting message influence on the self and, as a result, likely underestimated the extent to which narrative formats influence their opinions. In this low-stakes situation, participants may have dropped their guard against persuasion, allowing themselves greater susceptibility to effects of narratives.

In contrast, when perceived negative influence was high, participants expressed similar agreement with message-consistent statements across all three message conditions. This null finding deviates from the pattern of perceived influence on the self, which participants rated as lower for narrative messages. In other words, participants overestimated their ability to resist narrative influence. Yet this overestimation appears to correspond with how much less they were actually influenced than were "low-stakes" participants.

This finding aligns with the relationship of persuasive intent within narrative persuasion literature, such that individuals who realize a narrative is trying to persuade them will often react against it, countering the persuasion attempt (Moyer-Guse & Nabi, 2010). If fact, a recent survey found some individuals have ethical concerns over the use of narratives to persuade audiences without their knowledge (Brusse, Fransen, & Smit, 2015). The results from the current study suggest that such reactance may be related to third-person perception—perceived negative influence may serve as a sort of heuristic cue to further scrutinize if a message has persuasive intent and, furthermore, if the message should be resisted.

Theoretical and Practical Implications

Taken together, these findings offer conceptual and practical guidance across a range of contexts. Within the third-person effects framework, these results suggest that there are content-related factors that affect individuals' perceptions of media influence. Narratives represent only one type of persuasive tactic, corresponding with only one type of intuitive theory that individuals may use to form beliefs about persuasive influence. Third-person perception researchers can examine further what tactics individuals recognize within persuasive messages, how they perceive those tactics to influence themselves and others, and what contextual factors may serve as cues to amplify or attenuate their acceptance or rejection of the messages.

Within a narrative persuasion framework, these results suggest that much of the actual persuasive power of narratives depends on the context with which audience members receive the narrative and may be related to how

they think others may respond to it. Accounting for such message evaluations may prove useful in predicting when audience members may be cued to look for persuasive intent and challenge the influence of narrative messages versus when they may be more likely to underestimate its influence, leading to greater persuasive effects.

Within a science communication context, these results offer a deeper understanding of how audiences may react to science narratives in different contexts. Even though narrative formats offer promise for science communication, contexts where audiences already have strong opinions or are otherwise cognizant about what they think other people *ought to* think about a topic may be the contexts in which narratives will actually be less influential because of these perceptions. While we selected climate change for this study, many of the current science contexts with significant public attention fall into this category, including vaccines, genetically modified organisms, and evolution. In fact, it may be in response to this controversy that science communicators select these issues to communicate about more frequently. On the other hand, strategic communicators may also use these perceptions to their advantage, manipulating perceptions about message desirability or magnitude of influence to create a context more conducive to narrative acceptance.

While these findings offer some of the first evidence bridging the theoretical frameworks of third-person perception and narrative persuasion, future research should address some of the limitations of this study. The participants represent convenience samples of university undergraduates. While our cross-national sample suggests that the observed relationships are likely robust across diverse contexts, there nevertheless is a need to replicate findings with more generalizable samples. Likewise, the scientific context used for this study may represent an issue that intersects with individual's identities to a degree that may not replicate in other, less controversial scientific contexts. Controlling for climate change attitudes helps to attenuate this context-specific effect, yet current findings would benefit from demonstration within additional scientific issues.

In conclusion, people do seem to be aware of the power of science narratives to persuade, but they use this knowledge only when they consider a message to have negative influence, and thus more high-stakes effects on audiences. In such a context, individuals are able to resist the additional influence of narratives and somewhat assume others possess the same ability. Yet, when the stakes are low, individuals underestimate the influence of science narratives on themselves and others and may grant this communication format even greater persuasive power within society.

Declaration of Conflicting Interests

Funding

Notes

1. Prior research suggests that celebrities such as Katie Couric can have impacts on health-related decisions (Cram et al., 2003; Evans et al., 2014; Gottlieb, 2016). However, such research has not extended these questions to the realm of third-person perceptions or narrative persuasion to explore if audiences are aware of these impacts or aware of any particular narrative persuasion being employed.
2. Country of residence was not a significant predictor in any of the final regression models, suggesting the decision to control for nationality rather than examine its effects was warranted.
3. Transportation was used as a manipulation check instead of a potential mediator because transportation is often reduced when the persuasive intent of a message is made salient (Wentzel, Tomczak, & Herrmann, 2010), as we emphasize to the participants in this study.

ORCID iD

Michael Field Dahlstrom ⬤ https://orcid.org/0000-0001-5128-227X

References

Andsager, J. L., & White, H. A. (2007). Self versus others: Media, messages, and the third-person effect. Hoboken: Taylor & Francis.

Avraamidou, L., & Osborne, J. (2009). The role of narrative in communicating science. *International Journal of Science Education*, *31*, 1683-1707. doi:10.1080/09500690802380695

Boyle, M. P., McLeod, D. M., & Rojas, H. (2008). The role of ego enhancement and perceived message exposure in third-person judgments concerning violent video games. *American Behavioral Scientist*, *52*, 165-185. doi:10.1177/0002764208321349

Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.

Brusse, E. D. A., Fransen, M. L., & Smit, E. G. (2015). Educational storylines in entertainment television: Audience reactions toward persuasive strategies in medical dramas. *Journal of Health Communication*, *20*, 396-405. doi:10.1080/10810730.2014.965365

Busselle, R., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology*, *12*, 321-347. doi:10.1080/15213260903287259

Cooper, K. E., & Nisbet, E. C. (2016). Green narratives: How affective responses to media messages influence risk perceptions and policy preferences about environmental hazards. *Science Communication*, *38*, 626-654. doi:10.1177/1075547016666843

Couric, K. (2013, December 10). Furthering the conversation on the HPV vaccine [Web log post]. Retrieved from http://www.huffingtonpost.com/katie-couric/vaccine-hpv-furthering-conversation_b_4418568.html?1386687305

Cram, P., Fendrick, A. M., Inadomi, J., Cowen, M. E., Carpenter, D., & Vijan, S. (2003). The impact of a celebrity promotional campaign on the use of colon cancer screening—The Katie Couric effect. *Archives of Internal Medicine*, *163*, 1601-1605. doi:10.1001/archinte.163.13.1601

Dahlstrom, M. F. (2014). Using narratives and storytelling to communicate science with nonexpert audiences. *Proceedings of the National Academy of Sciences of the United States of America, 111*, 13614-13620. doi:10.1073/pnas.1320645111

Davison, W. P. (1983). The third-person effect in communication. *Public Opinion Quarterly*, *47*(1), 1-15. doi:10.1086/268763

Davison, W. P. (1996). The third-person effect revisited. *International Journal of Public Opinion Research*, *8*, 113-119.

Evans, D. G. R., Barwell, J., Eccles, D. M., Collins, A., Izatt, L., Jacobs, C., . . . Teams, R. G. C. (2014). The Angelina Jolie effect: How high celebrity profile can have a major impact on provision of cancer related services. *Breast Cancer Research*, *16*, 442. doi:10.1186/s13058-014-0442-6

Eveland, W. P., Nathanson, A. I., Detenber, B. H., & McLeod, D. M. (1999). Rethinking the social distance corollary: Perceived likelihood of exposure and the third-person perception. *Communication Research*, *26*, 275-302.

Feng, G. C., & Guo, S. Z. (2012). Support for censorship: A multilevel meta-analysis of the third-person effect. *Communication Reports*, *25*(1), 40-50. doi:10.1080/08934215.2012.661019

Fisher, W. R. (1984). Narration as a human-communication paradigm: The case of public moral argument. *Communication Monographs*, *51*(1), 1-22.

Fludernik, M. (2002). *Towards a "natural" narratology*. London, England: Routledge.

Gerrig, R. J. (1993). *Experiencing narrative worlds: On the psychological activities of reading*. Boulder, CO: Westview Press.

Gibbon, P., & Durkin, K. (1995). The third-person effect: Social distance and perceived media bias. *European Journal of Social Psychology*, *25*, 597-602. doi:10.1002/ejsp.2420250509

Gottlieb, S. D. (2016). Vaccine resistances reconsidered: Vaccine skeptics and the Jenny McCarthy effect. *Biosocieties*, *11*, 152-174. doi:10.1057/biosoc.2015.30

Green, M. C. (2004). Transportation into narrative worlds: The role of prior knowledge and perceived realism. *Discourse Processes*, *38*, 247-266. doi:10.1207/s15326950dp3802_5

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*, 701-721. doi:10.1037/0022-3514.79.5.701

Green, M. C., Garst, J., & Brock, T. C. (2004). The power of fiction: Determinants and boundaries. In L. J. Shrum (Ed.), *The psychology of entertainment media* (pp. 161-176). Mahwah, NJ: Lawrence Erlbaum.

Gunther, A. C., & Storey, J. D. (2003). The influence of presumed influence. *Journal of Communication*, *53*, 199-215. doi:10.1111/j.1460-2466.2003.tb02586.x

Ho, S. S., Detenber, B. H., Malik, S., & Neo, R. L. (2012). The roles of value predispositions, communication, and third person perception on public support for censorship of films with homosexual content. *Asian Journal of Communication*, *22*(1), 78-97. doi:10.1080/01292986.2011.622775

Hoorens, V., & Ruiter, S. (1996). The optimal impact phenomenon: Beyond the third person effect. *European Journal of Social Psychology*, *26*, 599-610. doi:10.1002/(sici)1099-0992(199607)26:4<599::aid-ejsp773>3.0.co;2-7

Jaslow, R. (2013, December 10). Katie Couric admits disproportionate reporting on HPV vaccine controversy [Web log post]. Retrieved from http://www.cbsnews.com/news/katie-couric-hpv-vaccine-show-criticism-valid/

Jensen, J. D., Yale, R. N., Krakow, M., John, K. K., & King, A. J. (2017). Theorizing foreshadowed death narratives: Examining the impact of character death on narrative processing and skin self-exam intentions. *Journal of Health Communication*, *22*(1), 84-93. doi:10.1080/10810730.2016.1252816

Kahan, D. M. (2012). Why we are poles apart on climate change. *Nature*, *488*, 255.

Kinnebrock, S., & Bilandzic, H. (2011). *How to make a story work: Introducing the concept of narrativity into narrative persuasion*. Aachen, Germany: RWTH Aachen University.

Kreuter, M. W., Green, M. C., Cappella, J. N., Slater, M. D., Wise, M. E., Storey, D., . . . Woolley, S. (2007). Narrative communication in cancer prevention and control: A framework to guide research and application. *Annals of Behavioral Medicine*, *33*, 221-235.

Lin, S. J. (2013). Perceived impact of a documentary film: An investigation of the first-person effect and its implications for environmental issues. *Science Communication*, *35*, 708-733. doi:10.1177/1075547013478204

Lu, A. S., Thompson, D., Baranowski, J., Buday, R., & Baranowski, T. (2012). Story immersion in a health videogame for childhood obesity prevention. *Games for Health Journal*, *1*(1), 37-44. doi:10.1089/g4h.2011.0011

McFerran, B., Dahl, D. W., Gorn, G. J., & Honea, H. (2010). Motivational determinants of transportation into marketing narratives. *Journal of Consumer Psychology*, *20*, 306-316. doi:10.1016/j.jcps.2010.06.017

McLeod, D. M., Eveland, W. P., & Nathanson, A. I. (1997). Support for censorship of violent and misogynic rap lyrics: An analysis of the third-person effect. *Communication Research*, *24*, 153-174. doi:10.1177/009365097024002003

Meirick, P. C. (2005). Rethinking the target corollary: The effects of social distance, perceived exposure, and perceived predispositions on first-person and

third-person perceptions. *Communication Research*, *32*, 822-843. doi:10.1177/0093650205281059

Mirkinson, J. (2011, September 15). Anderson Cooper: Michele Bachmann spreading "dangerous falsehood" on HPV vaccine [Web log post]. Retrieved from http://www.huffingtonpost.com/2011/09/15/anderson-cooper-michele-bachmann-hpv-falsehood_n_963844.html

Moyer-Guse, E., & Nabi, R. L. (2010). Explaining the effects of narrative in an entertainment television program: Overcoming resistance to persuasion. *Human Communication Research*, *36*(1), 26-52. doi:10.1111/j.1468-2958.2009.01367.x

Muurlink, O., & McAllister, P. (2015). Narrative risks in science writing for the lay public. *Journal of Science Communication*, *14*(3), 1-17.

National Academies of Sciences, Engineering, & Medicine. (2017). *Using narrative and data to communicate the value of science: Proceedings of a workshop—in brief*. Washington, DC: National Academies Press.

Norris, S. P., Guilbert, S. M., Smith, M. L., Hakimelahi, S., & Phillips, L. M. (2005). A theoretical framework for narrative explanation in science. *Science Education*, *89*, 535-563. doi:10.1002/sce.20063

Olson, R. (2015). *Houston, we have a narrative: Why science needs story*. Chicago, IL: University of Chicago Press.

Perloff, R. M. (1999). The third-person effect: A critical review and synthesis. *Media Psychology*, *1*, 353-378. doi:10.1207/s1532785xmep0104_4

Pronin, E. (2008). How we see ourselves and how we see others. *Science*, *320*, 1177-1180. doi:10.1126/science.1154199

Rojas, H., Shah, D. V., & Faber, R. F. (1996). For the good of others: Censorship and the third-person effect. *International Journal of Public Opinion Research*, *8*, 163-186.

Rosenthal, S., & Dahlstrom, M. F. (2017). Perceived influence of proenvironmental testimonials. *Environmental Communication*, 1-17. doi:10.1080/17524032.2017.1287112

Rosenthal, S., Detenber, B. H., & Rojas, H. (2015). Efficacy beliefs in third-person effects. *Communication Research*. doi:10.1177/0093650215570657

Schank, R. C., & Abelson, R. (1995). Knowledge and memory: The real story. In R. Schank & R. Abelson (Eds.), *Knowledge and memory: The real story* (pp. 1-86). Hillsdale, NJ: Lawrence Erlbaum.

Shaffer, V. A., Scherer, L. D., Focella, E. S., Hinnant, A., Len-Rios, M. E., & Zikmund-Fisher, B. J. (2017). What Is the story with narratives? How using narratives in journalism changes health behavior. *Health Communication*, 1-7. doi:10.1080/10410236.2017.1333562

Shen, L. J., Pan, Z. D., & Sun, Y. (2010). A test of motivational vs. cognitive explanations for the third-person perception. *American Journal of Media Psychology*, *3*(1/2), 32-53.

Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory*, *12*, 173-191. doi:10.1093/ct/12.2.173

Strange, J. J., & Leung, C. C. (1999). How anecdotal accounts in news and in fiction can influence judgments of a social problem's urgency, causes, and cures. *Personality and Social Psychology Bulletin*, *25*, 436-449. doi:10.1177/0146167299025004004

Sun, Y., Pan, Z. D., & Shen, L. J. (2008). Understanding the third-person perception: Evidence from a meta-analysis. *Journal of Communication*, *58*, 280-300. doi:10.1111/j.1460-2466.2008.00385.x

Sun, Y., Shen, L. J., & Pan, Z. D. (2008). On the behavioral component of the third-person effect. *Communication Research*, *35*, 257-278. doi:10.1177/0093650207313167

van Laer, T., de Ruyter, K., Visconti, L. M., & Wetzels, M. (2014). The extended transportation-imagery model: A meta-analysis of the antecedents and consequences of consumers' narrative transportation. *Journal of Consumer Research*, *40*, 797-817. doi:10.1086/673383

Wentzel, D., Tomczak, T., & Herrmann, A. (2010). The moderating effect of manipulative intent and cognitive resources on the evaluation of narrative ads. Psychology & Marketing, 27(5), 510-530. doi:10.1002/mar.20341

Xu, J., & Gonzenbach, W. J. (2008). Does a perceptual discrepancy lead to action a meta-analysis of the behavioral component of the third-person effect. *International Journal of Public Opinion Research*, *20*, 375-385. doi:10.1093/ijpor/edn031

Zillmann, D. (2002). Exemplification theory of media influence. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 19-41). Mahwah, NJ: Lawrence Erlbaum.

Zillmann, D. (2006). Exemplification effects in the promotion of safety and health. *Journal of Communication*, *56*, S221-S237. doi:10.1111/j.1460-2466.2006.00291.x

Author Biographies

Michael Field Dahlstrom (PhD, Journalism and Mass Communications/Environmental Resources, University of Wisconsin–Madison) is the associate director of the Greenlee School of Journalism and Communication and an associate professor at Iowa State University. His research focuses on how storytelling impacts the communication of science to nonexpert audiences and the contrasting ethical considerations involved.

Sonny Rosenthal (PhD, The University of Texas at Austin) is an assistant professor in the Wee Kim Wee School of Communication and Information at Nanyang Technological University. His research explores several research domains, including environmental communication, science communication, and social research methodology. He is primarily interested in studying communication processes in environmental sustainability, focusing on climate change and recycling.