


Strategic Storytelling: When Narratives Help Versus Hurt the Persuasive Power of Facts

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Abstract

Stories are known to be powerful persuasive devices. Stories can capture attention, evoke emotion, and entrance listeners in a manner that reduces resistance to a message. Given the powerful persuasive potential of stories, one might deduce that it is best to embed one's facts within a story. In contrast to this perspective, the present research suggests that coupling facts with stories can either enhance or undermine persuasion. Specifically, to understand *when* facts benefit from the use of stories, this work provides a deeper examination of how counterargument reduction—a common explanation for the unique persuasive capabilities of stories—operates. Across three experiments, evidence is found for when it is more effective to embed facts within a story versus to use facts alone.

Keywords

persuasion, stories, arguments, narrative transportation

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People seem to enjoy stories. In the words of J. K. Rowling (2019), “There’s always room for a story that can transport people to another place.” However, stories are used for purposes beyond pure entertainment: They can also serve as persuasive devices. Indeed, one need only look to the political sphere, and even one’s everyday life, to see that people often attempt to influence one another by combining a persuasive message with a compelling story. And, maybe they are right to do so; perhaps, strategically surrounding facts with a story is more persuasive than presenting facts on their own. After all, academic research suggests that stories can bypass our natural resistance mechanisms; stories can lead people to give the speaker the benefit of the doubt, or to passively accept the viewpoint of the orator (Krakow, Yale, Jensen, Carcioppolo, & Ratcliff, 2018; Moyer-Gusé & Nabi, 2010). In this way, stories have the power to draw us in and change our attitudes and opinions (Green & Brock, 2000), perhaps even when the facts themselves are weak or inconclusive.

The preceding observations suggest that, although the presentation of facts might be important, one should strategically surround facts with a story to increase persuasion. Indeed, persuaders might be actively encouraged to use stories unless another factor, such as cost or one’s storytelling ability, prohibits them from doing so. We acknowledge that it is possible that the persuasive power of facts might be increased by integrating them into stories. However, we

suggest that the feasibility of such an account requires a better understanding of the psychological relationship between stories and counterarguing, or the generation of negative thoughts. More specifically, where prior work has found *that* stories reduce counterarguing (i.e., Krakow et al., 2018), it is less clear *why* stories reduce counterarguing. In this article, we suggest two distinct reasons that stories might reduce counterarguments: (a) stories bias processing away from negative thoughts, or (b) stories draw attentional resources away from the processing of facts. Moreover, we suggest that the nature of the psychological process informs whether and when the persuasive power of facts is enhanced or reduced by placing them within a story.

First, we provide a review of the literature of persuasion related to the use of facts and stories. Subsequently, we elaborate on the two explanations for why stories reduce counterarguments and delineate the specific predictions that follow from each explanation. Three experiments test when the persuasive power of facts is helped versus harmed by stories. Finally, implications for the further study of the use of facts and stories in persuasion are discussed.

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Literature Review: Persuasion by Facts and Stories

A person who desires to persuade an audience can use a host of strategies. One straightforward option is to present facts in support of one's position. A fact is defined as "a piece of information presented as having objective reality" (Fact, as per Merriam-Webster). For example, to persuade people to brush their teeth, one might present information that brushing one's teeth can prevent cavities. Indeed, early approaches to persuasion are consistent with the idea that learning information and facts is important for successful persuasion to occur (Hovland, Janis, & Kelly, 1953). However, another option is to incorporate a story into one's persuasive appeal. Stories are communicative devices that involve one or more characters, a series of connected events, and a coherent structure and context for those characters and events (see Kreuter et al., 2007).¹ For example, to persuade people to brush their teeth, one might tell a story about how a child who brushed her teeth was always happy and had a beautiful smile.

Of importance, the same set of facts could be presented alone or embedded within a story. A car advertiser that seeks to persuade people that its cars are "built for winter" might present a print advertisement that features a picture of a vehicle it offers and lists the features that it has such as all-wheel drive, dynamic steering, and winter tires. This presentation could be accomplished without any elements inherent in a story—such as characters or events. However, the same print advertisement could also present the same facts, but surround them with a story that describes how a protagonist—Carlos—traverses the road in a snowstorm to pick up his daughter. The story still contains the same facts about the vehicle, but it is now surrounded by richer narrative elements that involve a character and events.

Several distinct pieces of research suggest that embedding facts in stories may ultimately be more persuasive than presenting facts alone (Chang, 2008; de Wit, Das, & Vet, 2008). For example, de Wit et al. (2008) found that participants showed greater intentions to get vaccinated for hepatitis B after being presented with a story on hepatitis B and its effects than after seeing facts without a story. Likewise, Chang (2008) found that, compared with fact-based advertisements, narrative advertisements—ones that were composed of characters and a plot—were more effective at increasing sympathy for individuals suffering from depression and at increasing individuals' willingness to seek help for depression.

A number of mechanisms have been proposed to explain stories' unique persuasive properties (see Green & Brock, 2000; Hamby, Brinberg, & Daniloski, 2017; Nabi & Green, 2015; van Laer, de Ruyter, Visconti, & Wetzels, 2014). However, one of the most often cited explanations for stories' persuasive power is the reduction of counterarguing (Green & Brock, 2000; Slater & Rouner, 2002; van Laer et al., 2014). This explanation holds that stories can reduce people's "counterarguing," or the production of negative

message-related thoughts (Escalas, 2007; Green & Brock, 2000; van Laer et al., 2014). Message-related thoughts pertain directly to *the object of persuasion* within the story (i.e., the brand and the product) as opposed to the story more generally (i.e., the characters and the setting). Because people produce fewer negative thoughts about a message delivered as part of a story, people should be more persuaded when facts are embedded within the story as opposed to presented alone.

In contrast to these findings, some evidence exists that suggests facts might be more persuasive alone than embedded in stories (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Bekalu, Bigman, McCloud, Lin, & Viswanath, 2018). For example, Baesler and Burgoon (1994) found that facts in the form of statistical information were more effective than stories at changing beliefs about juvenile delinquency. Similarly, Bekalu et al. (2018) found that facts presented in a question/answer format were more effective than stories at persuading people to endorse preventive actions during an influenza-related public health emergency. These findings suggest that the persuasive power of facts might be hindered by integrating them into a story.

We suggest that these mixed findings reveal a need to understand *when* incorporating facts into stories increases the persuasive power of a set of facts and when it does not. To do so, we take a closer look at the relationship between stories and counterarguing. Specifically, we draw a distinction between two explanations for *why* stories reduce counterarguing. We focus on this particular mechanism as we believe it has direct consequences for understanding when persuasion will be enhanced versus undermined by embedding facts within a story.

Why Stories Reduce Counterarguing

Prior research has suggested that stories increase persuasion because they reduce counterarguing. However, upon reflection, two distinct reasons exist that could plausibly explain why narratives reduce counterarguing: First, stories could reduce counterarguing via *biased processing*—that is, they could affect people's focus on positive over negative thoughts. Second, stories could reduce counterarguing by *reducing message processing* overall—that is, they could affect the extent to which people engage in message scrutiny. Empirical endeavors, as well as conceptual treatises, typically do not distinguish between these two explanations. As such, most literature can be viewed as compatible with either explanation. However, as we will discuss, these accounts make divergent predictions when it comes to understanding when facts alone are likely to be more versus less persuasive than embedding those same facts into a story.

In particular, these two accounts yield different predictions as a function of whether one has strong and compelling facts or weak and specious facts. As an example of strong versus weak facts, a brand could have either compelling

reasons to purchase it—such as “this drug begins to work in 5 minutes or less”—or less compelling reasons to purchase it—such as “this drug begins to work after an hour of use.”² Similarly, a watch could be touted as being slightly water resistant (i.e., relatively weak) versus completely water proof (i.e., relatively strong). Although both strong and weak facts are arguments in favor of a product, they differ in their persuasiveness; strong facts tend to elicit less counterarguing than weak facts (see Petty & Cacioppo, 1986).

Biased Processing Account

One explanation for why stories reduce counterarguing is that stories bias people away from generating negative thoughts (de Wit et al., 2008; Krakow et al., 2018). Because stories are often engaging, and the process of immersing oneself in a story is enjoyable (Green, Brock, & Kaufman, 2004), efforts to counterargue might disrupt narrative enjoyment and pull people out of the narrative (Slater & Rouner, 2002). A biased processing account suggests that, to the extent people wish to maintain their enjoyment of the narrative, they may prefer to accept—or at least not actively counterargue—claims while engaged with a story (Krakow et al., 2018). As such, people may direct or focus their thinking (i.e., bias) away from negative thoughts. This account suggests that embedding facts in a story should decrease the degree of counterarguing of those facts compared with presenting those facts alone.

If stories bias people away from negative thoughts, such a bias should be most likely to operate in situations where people are inclined to counterargue. As mentioned previously, strong and compelling facts tend to evoke less counterarguing than weak and specious facts (Petty & Cacioppo, 1986). Consequently, a biased processing account predicts that embedding facts within a story should have more pronounced effects on persuasion when facts are weak—when more counterarguments to disrupt exist—as opposed to strong. If facts are strong, embedding those facts in a story should have a less pronounced or nonexistent persuasive advantage over presenting those facts alone.

At its core, the biased processing account predicts that embedding facts within a story should be equally or more persuasive, but not less persuasive, than presenting the same facts alone. Reducing any number of counterarguments, be it large (weak facts) or small (strong facts), can only improve attitudes, not worsen them. Therefore, if biased processing is the main explanation for stories’ reduction of counterarguing, stories should only provide enhancing effects for facts compared with presenting facts alone. This account seems consistent with, and able to explain, several findings in the literature (e.g., Escalas, 2007; Escalas & Luce, 2004; Lien & Chen, 2013).

Reduction in Message Processing Account

Rather than reducing counterarguing via biased processing, another possibility is that stories reduce individuals’ overall amount of message processing. According to this account,

stories do not focus people away from counterarguments per se; rather, stories lower people’s ability to counterargue. Because narratives engross the person in the story, the person is unable to devote as much attention to the generation of negative thoughts about the advertised product and thus exhibits more persuasion in the form of more favorable attitudes and/or behavior (Moyer-Gusé & Nabi, 2010; Slater & Rouner, 2002). Thus, if a person would naturally be prone to generate counterarguments—as is the case when message facts are weak—a reduction in the ability to counterargue predicts a persuasive advantage of stories with facts over facts alone.

Of central importance, the reduction in message processing account makes a different prediction about the effect of embedding facts into a story when those facts are strong. Models of persuasion suggest that people not only engage in counterarguing, but also engage in bolstering, which is the production of positive message-related thoughts (MacKenzie, Lutz, & Belch, 1986; Petty & Cacioppo, 1986). And, the more bolstering people engage in, the more favorable their attitudes become. Importantly, unlike weak and specious facts that tend to evoke counterarguing, strong and compelling facts tend to evoke bolstering (Kupor & Tormala, 2015; Miniard, Bhatla, & Rose, 1990; Petty & Cacioppo, 1986; Rucker, Petty, & Priester, 2007). If stories reduce message processing, they should reduce the generation of *any kind* of message-related thought: Stories should reduce both counterarguing (negative responses) and bolstering (positive responses) of message facts. This logic has a distinct, albeit untested, implication for the use of stories: Embedding facts into a story should indeed be more persuasive than presenting those facts alone when the facts are weak because this should reduce counterarguing. In contrast, embedding facts within stories should actually be *less* persuasive than presenting those facts alone when the facts are strong because this should reduce bolstering, thereby decreasing persuasion. Indeed, research suggests that distracting or dividing attention can reduce the ability to discern differences in fact strength (e.g., Petty, Wells, & Brock, 1976); that is, when their attention is divided, people have difficulty perceiving how specious weak facts actually are and how compelling strong facts actually are.

In short, whereas the biased processing explanation predicts an attenuation of the effect of embedding facts in a story on persuasion, the reduction in message processing explanation predicts a reversal of this effect. Although both hypotheses seemed plausible at the initiation of this research, conceptually, we favored the reduction in message processing account because only this account can explain both prior work that has found a persuasive advantage of stories over facts alone (de Wit et al., 2008; Dickson, 1982; F. Shen, Sheer, & Li, 2015) and a persuasive advantage of facts alone over stories (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Bekalu et al., 2018; Wojcieszak, Azrout, Boomgarden,

Alencar, & Sheets, 2017). Of course, it is also possible that biased processing generally operates in the situations where stories have been found to be superior and some alternative explanation exists for the persuasive power of facts alone over stories. Thus, an empirical test of these hypotheses against one another is required, which brings us to the current experiments.

Overview of Empirical Studies

We conducted three experiments to test these two accounts. Experiment 1 explored the relationship between the use of facts alone versus the same facts embedded within a story as a function of the quality of the facts. Experiment 2 offered a conceptual replication of Experiment 1 and also measured participants' cognitive responses to offer insight into the psychological process. Finally, Experiment 3 replicated the effects of Experiments 1 and 2 with a new story, a new product, and choice as a dependent measure. Across our experiments, we report all exclusions (if any) and report all measures collected. In addition, in Experiments 1 and 2, we aimed to collect 400 participants to have sufficient power to detect a small to medium effect size (Cohen's $d \geq 0.3$). In Experiment 3, we collected as many responses as possible in the lab time allotted to us.

Of note, prior research suggests that for a story to increase persuasion, the object of persuasion needs to be relevant to the story (Guadagno, Rhoads, & Sagarin, 2011) and causal within the story (Dahlstrom, 2010). As such, to give the stories a reasonable chance to increase persuasion, in each story, we took steps to make it clear that the product (a cell phone in Experiments 1 and 2 and medication in Experiment 3) was causal in bringing about the story's conclusion.

Experiment 1: Biased Processing Versus Reduction in Message Processing

Experiment 1 tested the effectiveness of facts alone versus facts incorporated into a story. We pretested the facts to be either strong (i.e., more compelling) or weak (i.e., less compelling). Importantly, both our facts-only and facts-within-story conditions contained identical facts within each fact quality condition. We anticipated that, consistent with both biased processing and reduction in message processing accounts, when facts were weak, stories with those facts embedded would be more persuasive than the facts alone. However, of critical interest was the outcome when facts were strong. If stories enact biased processing, then stories with strong facts should be as persuasive, or even slightly more persuasive, than facts alone. However, if stories reduce message processing, then stories with strong facts should be less persuasive than facts alone.

Method

Design and participants. This experiment used a 2 (presentation: facts-only vs. facts-within-story) \times 2 (fact quality: strong vs. weak) between-subjects design. A total of 403 adults living in the United States were selected from Amazon's online panel service, Mechanical Turk, and paid for their participation. Six participants were removed from analyses for failing an attention check, leaving a total of 397 participants ($M_{\text{age}} = 35.9$, 44.1% women).

Procedure. All participants first viewed a set of instructions. Participants in the facts-only conditions were told to read the information carefully. After viewing the instructions, participants in the facts-only conditions viewed a list of product attributes that pertained to a fictitious brand of cell phone called Moonstone (see Online Methodological Detail Appendix [MDA]). The facts were designed to vary in their overall quality or persuasiveness. An example of a strong fact was "The phone can withstand a fall of up to 30 feet." An example of a weak fact was "The phone can withstand a fall of up to 3 feet." Pretests of 79 individuals from the same online population as those in the main experiment confirmed that the strong facts were significantly more convincing than the weak facts. In the story conditions, these same strong or weak facts were embedded within a short story (see Online MDA). Similar to prior manipulations in the literature, those in the story conditions were told to read and immerse themselves in this story (Gabriel & Young, 2011; Green & Brock, 2000).

Following the manipulation, participants indicated their reactions to the Moonstone phone brand on a three-item, semantic differential scale from 1 (*bad/strongly dislike/unfavorable*) to 9 (*good/strongly like/favorable*). Participants then answered a manipulation check "To what extent did the text you read in this survey seem like a story?" Participants also saw an attention check item that asked for the name of the phone described in the survey, as well as basic demographic questions followed by unrelated questions for a different project. Ancillary items related to whether participants felt engaged with the story were included in this experiment and subsequent experiments; these items suggested individuals were indeed engaged with the story and are available from the authors upon request.

Stimulus materials. Participants in the facts-only condition received a list of facts—strong or weak—about the product. Those in the story conditions read a two-page story about a man and woman rock climbing on a mountain. The story was told from the perspective of the man, Dan. As they climb, Dan describes his wholehearted love for the woman, Amelia. Eventually, Amelia falls and is badly injured, and Dan must call for help on her Moonstone cell phone. The full stories for the story conditions are presented in the Online MDA. Based on condition, either strong or weak facts were embedded into the story (see Online MDA).

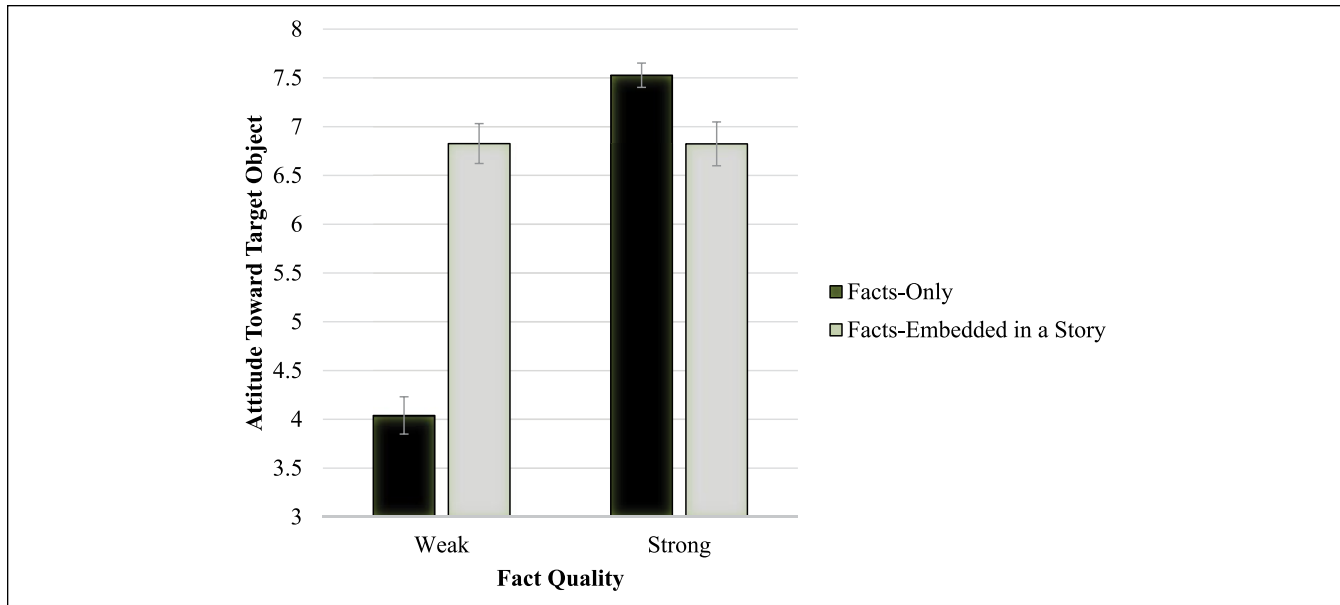


Figure 1. Experiment 1 results. Presentation type by fact quality interaction on attitudes toward target object.

Results

Manipulation check. A two-way analysis of variance (ANOVA) with presentation style and fact quality as factors showed a significant main effect of presentation style on the extent to which the text seemed like a story; the facts-within-story condition seemed more like a story ($M_{\text{story}} = 7.81$, $SD_{\text{story}} = 1.60$) than the facts-only condition, $M_{\text{facts-only}} = 3.41$, $SD_{\text{facts-only}} = 2.25$; $F(1, 393) = 501.5$, $p < .001$, $\eta_p^2 = .561$. This question showed no significant main effect of fact quality, $M_{\text{strong}} = 5.54$, $SD_{\text{strong}} = 2.88$, $M_{\text{weak}} = 5.56$, $SD_{\text{weak}} = 3.01$; $F(1, 393) = 0.36$, $p = .550$, $\eta_p^2 = .001$. A smaller interaction effect of presentation style and fact quality emerged, $F(1, 393) = 6.06$, $p = .014$, $\eta_p^2 = .015$. Because this interaction neither explains the attitude results nor is present in the additional two experiments, we do not discuss it further.

Product attitude. The three semantic differential items for product attitude showed strong reliability ($\alpha = 0.98$) and were averaged into a single attitude score. A two-way ANOVA revealed a significant main effect of presentation style; facts-within-story ($M_{\text{story}} = 6.83$, $SD_{\text{story}} = 2.09$) led to more positive attitudes than facts-only, $M_{\text{facts-only}} = 5.80$, $SD_{\text{facts-only}} = 2.38$; $F(1, 393) = 30.71$, $p < .001$, $\eta_p^2 = .072$. In addition, a significant main effect of fact quality emerged; strong facts ($M_{\text{strong}} = 7.20$, $SD_{\text{strong}} = 1.76$) led to more positive attitudes than weak facts, $M_{\text{weak}} = 5.44$, $SD_{\text{weak}} = 2.43$; $F(1, 393) = 85.90$, $p < .001$, $\eta_p^2 = .179$. However, of greatest interest, a significant interaction effect between the two factors emerged, $F(1, 393) = 86.16$, $p < .001$, $\eta_p^2 = .180$.

To probe this interaction effect, simple effects tests of each factor within the interaction were conducted. When facts were weak, facts-within-story ($M_{\text{story}} = 6.83$, $SD_{\text{story}} = 2.06$)

led to greater persuasion than facts-only, $M_{\text{facts-only}} = 4.04$, $SD_{\text{facts-only}} = 1.92$, $F(1, 393) = 112.64$, $p < .001$, $\eta_p^2 = .223$, $[2.27, 3.30]$. However, when facts were strong, facts-within-stories led to *less* persuasion ($M_{\text{story}} = 6.82$, $SD_{\text{story}} = 2.14$) than facts-only, $M_{\text{facts-only}} = 7.53$, $SD_{\text{facts-only}} = 1.27$, $F(1, 393) = 6.83$, $p = .009$, $\eta_p^2 = .017$, $[-1.23, -.174]$. Or, put differently, strong facts presented by themselves were associated with more persuasion than when the same strong facts were embedded within a story; however, weak facts were associated with greater persuasion when they were embedded within a story than presented alone (see Figure 1).

Discussion

Experiment 1 found that when facts were weak, people were more persuaded by a story with the facts embedded within it than by the facts alone. However, when facts were strong, the opposite effect occurred: people were more persuaded by facts alone than by facts embedded within a story. This latter finding has two important implications. First, this finding bears directly on the biased processing versus the reduction in message processing accounts. These results suggest that the use of stories increased persuasion via a reduction in scrutiny of weak facts as opposed to a reduced focus on negative thoughts. Second, and as a consequence, this study revealed that stories can both increase and decrease persuasion relative to the presentation of facts alone.

Experiment 2: Evidence for Reduced Bolstering

Experiment 2 was conducted with two objectives in mind. First, we sought to replicate the effects of Experiment 1. To

increase generalizability, rather than measuring attitudes, we measured a more downstream outcome of persuasion: use intent. Second, we measured participants' message-relevant thoughts to assess whether differences in the thoughts generated explained differences in use intent. Specifically, based on the reduction in message processing account, we expected that individuals would experience fewer negative thoughts in the facts-within-story condition when facts were weak and fewer positive thoughts in the facts-within-story condition when facts were strong.

Method

Design and participants. This experiment used a 2 (presentation: facts-only vs. facts-within-story) \times 2 (fact quality: strong vs. weak) between-subjects design. A total of 405 adults living in the United States were selected from Amazon's online panel service, Mechanical Turk, and paid for their participation. Sixteen participants were removed from analyses for failing an attention check, leaving 389 participants ($M_{age} = 36.2$, 51.7% women).

Procedure. As in Experiment 1, participants were exposed to either a facts-only condition or a story that contained the same facts. Participants saw the same facts or story about the cell phone Moonstone as in Experiment 1. Participants then answered two behavioral use intent questions: "If you were in the market for a new phone, how likely would you be to try using the Moonstone cell phone?" (1 = *very unlikely* to 9 = *very likely*) and "How willing would you be to try using the Moonstone cell phone next time you need a phone?" (1 = *very unwilling* to 9 = *very willing*). Participants also responded to the same manipulation check as in Experiment 1. Subsequently, participants listed the thoughts they experienced during the task. They were given up to 10 boxes for different thoughts and were instructed to list a single thought in each box and to list at least three thoughts (Wegener, Petty, & Smith, 1995). This procedure is commonly used in the persuasion literature to measure relevance and valence of thoughts, and this has been used as a measure of the extent of counterarguing for both story-based and fact-based texts (L. Shen & Seung, 2018). Finally, participants answered an attention check and demographic questions.

Message-related thoughts. We coded each thought for relevance to the message and overall valence. A thought was coded as "relevant" if it pertained to any of the facts about the cell phone. Any other thoughts were coded as "irrelevant." In addition, each thought was coded as "positive," "negative," or "neutral," based upon its favorability toward the product and stimuli. This method of coding for valence and relevance was adopted from past procedures detailed by Wegener et al. (1995). Two independent coders blind to condition coded each thought. The two coders agreed on 85.8% of thoughts for relevance (Cohen's Kappa = 0.7) and 80.2%

of thoughts for valence (Cohen's Kappa = 0.7). A third coder blind to condition resolved all discrepancies in coding.

Results

Manipulation check. A two-way ANOVA showed a significant main effect of presentation style on the extent to which the text seemed like a story. Participants reported that the facts-within-story condition seemed more like a story ($M_{story} = 7.76$, $SD_{story} = 1.55$) than the facts-only condition, $M_{facts-only} = 3.00$, $SD_{facts-only} = 2.11$, $F(1, 382) = 632.99$, $p < .001$, $\eta_p^2 = .624$. This question showed no significant main effect of fact quality, $M_{strong} = 5.25$, $SD_{strong} = 3.02$, $M_{weak} = 5.46$, $SD_{weak} = 3.02$; $F(1, 382) = 0.04$, $p = .846$, $\eta_p^2 = .000$, and no interaction effect of presentation style and fact quality, $F(1, 382) = 0.910$, $p = .341$, $\eta_p^2 = .002$.

Use intent. The two use intent items were strongly correlated ($r = .93$, $p < .001$) and were averaged into a single use intent score. A two-way ANOVA showed a significant main effect of presentation style such that facts-within-story ($M_{story} = 6.16$, $SD_{story} = 2.26$) led to higher use intent than facts-only, $M_{facts-only} = 5.22$, $SD_{facts-only} = 2.87$; $F(1, 385) = 22.81$, $p < .001$, $\eta_p^2 = .056$. In addition, a significant main effect of fact quality emerged, such that strong facts ($M_{strong} = 6.99$, $SD_{strong} = 1.92$) led to higher use intent than weak facts, $M_{weak} = 4.43$, $SD_{weak} = 2.60$; $F(1, 385) = 150.81$, $p < .001$, $\eta_p^2 = .281$. Of greatest interest, a significant interaction effect emerged between the two factors, $F(1, 385) = 65.73$, $p < .001$, $\eta_p^2 = .146$.

To probe this interaction effect, simple effects tests of each factor within the interaction were conducted. When facts were weak, greater use intent occurred for facts-within-story ($M_{story} = 5.75$, $SD_{story} = 2.31$) than facts-only, $M_{facts-only} = 3.04$, $SD_{facts-only} = 2.13$, $F(1, 385) = 84.56$, $p < .001$, $\eta_p^2 = .180$, [2.13, 3.28]. However, as in Experiment 1, the opposite relationship was observed for strong facts. When facts were strong, facts-within-story led to less use intent ($M_{story} = 6.62$, $SD_{story} = 2.12$) than facts-only, $M_{facts-only} = 7.32$, $SD_{facts-only} = 1.66$, $F(1, 385) = 5.45$, $p = .020$, $\eta_p^2 = .014$, [-1.29, -.11] (see Figure 2).

Message-related thoughts. From the thought listing measure, we calculated the percent of positive message-related thoughts by dividing the number of positive thoughts related to the message by the total number of thoughts, both related and unrelated: $positive_relevant / (positive_relevant + negative_relevant + positive_irrelevant + negative_irrelevant + neutral_relevant + neutral_irrelevant)$. Similarly, we calculated percent of negative relevant thoughts: $negative_relevant / (positive_relevant + negative_relevant + positive_irrelevant + negative_irrelevant + neutral_relevant + neutral_irrelevant)$. We used this method to discover whether, above and beyond the mediating influence of the reduction in counterarguing found by prior research, a reduction in bolstering also occurs

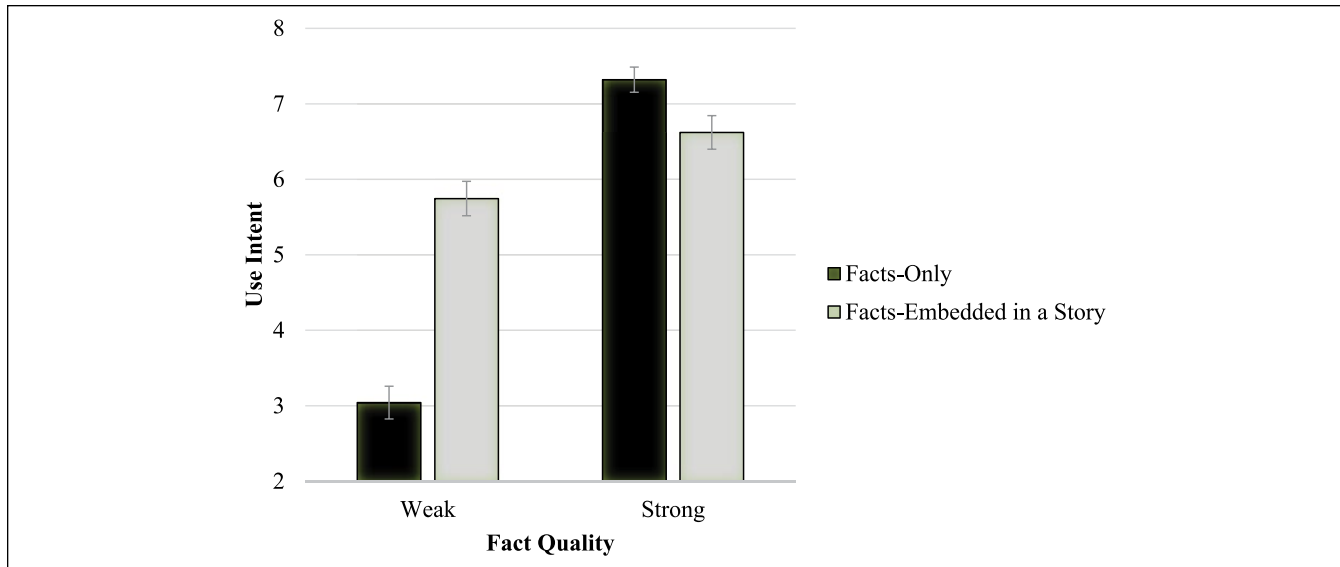


Figure 2. Experiment 2 results. Presentation style by fact quality interaction on use intent.

in response to a story and mediates the effects of stories on persuasion.

A two-way ANOVA showed a significant interaction effect between presentation style and fact quality on percent of negative message-related thoughts, $F(1, 383) = 87.23, p < .001, \eta_p^2 = .185$. Simple effects tests of each factor within the interaction were conducted. When facts were weak, facts-within-story led to relatively fewer negative relevant thoughts ($M_{\text{story}} = 1.13\%, SD_{\text{story}} = 5.38\%$) than facts-only, $M_{\text{facts-only}} = 42.3\%, SD_{\text{facts-only}} = 31.2\%, F(1, 383) = 254.97, p < .001, \eta_p^2 = .400, [-46.2\%, -36.1\%]$. This outcome was also true when facts were strong ($M_{\text{story}} = 1.74\%, SD_{\text{story}} = 8.45\%$), but to a lesser extent because fewer negative thoughts were present overall, $M_{\text{facts-only}} = 8.53\%, SD_{\text{facts-only}} = 15.60\%, F(1, 383) = 6.68, p = .010, \eta_p^2 = .017, [-11.9\%, -1.6\%]$.

More importantly for the present research, the relationship among story condition, fact quality condition, and level of bolstering (percent positive relevant thoughts) was consistent with the reduction in message processing account, but not the biased processing account. A two-way ANOVA showed a significant interaction effect between presentation style and fact quality, $F(1, 383) = 27.68, p < .001, \eta_p^2 = .067$. Simple effects tests of each factor within the interaction were conducted. Facts-within-story led to fewer positive message-related thoughts overall; this effect was especially large when facts were strong, $M_{\text{story}} = 5.2\%, SD_{\text{story}} = 12.5\%, M_{\text{facts-only}} = 32.1\%, SD_{\text{facts-only}} = 28.4\%, F(1, 383) = 109.04, p < .001, \eta_p^2 = .222, [-32.0\%, -21.9\%]$, and somewhat attenuated when facts were weak, $M_{\text{story}} = 0.4\%, SD_{\text{story}} = 2.8\%, M_{\text{facts-only}} = 8.3\%, SD_{\text{facts-only}} = 16.7\%, F(1, 383) = 9.80, p = .002, \eta_p^2 = .025, [-12.9\%, -2.9\%]$.

Moderated mediation. To test whether differences in participants' thoughts mediated the observed difference in use

intent, we performed a moderated mediation analysis (Preacher, Rucker, & Hayes, 2007). Specifically, we performed moderated mediation using the PROCESS macro (model 8) in SPSS with 5,000 bootstrapping samples (Hayes, 2013; Preacher et al., 2007). Presentation style (facts-within-story vs. facts-only) was specified as the independent variable, fact quality as the moderating variable, use intent as the dependent variable, and both percent positive relevant thoughts and percent negative relevant thoughts as mediating variables. By including both positive and negative relevant thoughts as simultaneous mediators, we can determine whether changes in bolstering mediate the effect of stories on use intent even after controlling for the previously demonstrated influence of counterarguing. Because they are measured on different scales, the dependent and mediating variables were standardized before running the model to make interpretation of the results clearer.

In line with our hypotheses, presentation style condition and fact condition interacted to influence both percent positive thoughts, (Interaction: $B = -0.88, SE = 0.17, t = -5.26, p < .001, 95\% \text{ confidence interval (CI): } [-1.21, -0.55]$), and percent negative thoughts (Interaction: $B = 1.39, SE = 0.15, t = 9.34, p < .001, 95\% \text{ CI} = [1.10, 1.69]$). As expected according to both the biased and reduction in message processing accounts, percent negative thoughts was significantly related to use intent ($B = -.28, SE = 0.05, t = -5.32, p < .001, 95\% \text{ CI} = [-0.38, -0.18]$), and the index of moderated mediation for percent negative thoughts was also significant (CI did not include zero) ($B = -0.39, SE = 0.08, 95\% \text{ CI} = [-0.54, -0.24]$), suggesting amount of counterarguing mediates the effect. Importantly, even after controlling for the mediating effect of percent negative thoughts, percent positive (bolstering) thoughts was also significantly related to use intent ($B = 0.17, SE = 0.05, t = 3.68, p < .001, 95\%$

CI = [0.08, 0.26]), and the index of moderated mediation for percent positive thoughts was also significant (CI did not include zero) ($B = -0.15$, $SE = 0.04$, 95% CI = [-0.24, -0.08]).

Discussion

Experiment 2 provided a direct replication of Experiment 1 and offered mediational evidence consistent with the reduction in message processing perspective. Specifically, when people were inclined to counterargue (i.e., facts were weak), having facts embedded within a story strongly decreased negative message-related thoughts and increased use intent. However, when people were likely to bolster (i.e., facts were strong), having facts embedded within a story strongly decreased positive message-related thoughts and thus *reduced* use intent. These results suggest that even controlling for changes in counterarguing, changes in bolstering also play a role in the influence of stories on persuasion, suggesting that a reduction in message processing is important to fully explain the influence of stories.

Experiment 3: Choice as a Dependent Measure

Experiment 3 focused on increasing the generalizability of the effects found in the first two experiments via three notable changes. First, while Experiments 1 and 2 used online samples, Experiment 3 used a different population in a controlled lab environment. Experiment 3 also used a new product category (a flu medication) and a new story (about a child). Finally, we used a dependent measure of more immediate consequence to participants—their willingness to subscribe to receive emails.

Method

Design and participants. This experiment used a 2 (presentation: facts-only vs. facts-within-story) \times 2 (fact quality: strong vs. weak) between-subjects design. A total of 293 participants from a major Midwest university and the surrounding community were brought into a behavioral lab. Participants were paid for their participation. Two participants were removed from analyses for failing an attention check, leaving 291 participants ($M_{age} = 21.1$, 63.2% women).

Procedure. The first part of the procedure was similar to Experiments 1 and 2. However, we used a novel product category, set of facts, and story. Those in the facts-only conditions received a list of strong or weak product attributes that pertained to a fictitious flu medication called “TruFlu” (see Online MDA).³ Those in the story conditions received the same product attributes embedded into a story about a sick child (see Online MDA).

Dependent measure. In Experiment 3, we wanted to focus on a dependent measure of importance in the real world and of more immediate consequence to the participants. Real-world influencers, such as brands and charitable organizations, commonly solicit people to subscribe to a mailing list. If organizations can obtain interest in joining a mailing list, they create a subset of people who have self-identified as being interested in the product and additional information. As such, in this experiment, we asked participants whether or not they would like to provide their email address to be notified about the availability of TruFlu for purchase (Yes or No). Participants then responded to the manipulation check used in Experiments 1 and 2. Finally, participants answered an attention check and some demographic information.

Results

Manipulation check. A two-way ANOVA with presentation style and fact quality as factors showed a significant main effect of presentation style on the extent to which the text seemed like a story: the facts-within-story condition ($M_{story} = 7.46$, $SD_{story} = 1.74$) seemed more like a story than the facts-only condition, $M_{facts-only} = 1.56$, $SD_{facts-only} = 1.25$, $F(1, 286) = 1084.05$, $p < .001$, $\eta_p^2 = .791$. This question showed no significant main effect of fact quality, $M_{strong} = 4.59$, $SD_{strong} = 3.26$, $M_{weak} = 4.50$, $SD_{weak} = 3.39$; $F(1, 286) = 0.09$, $p = .770$, $\eta_p^2 = .000$, and no significant interaction effect, $F(1, 286) = 1.55$, $p = .214$, $\eta_p^2 = .005$.

Choice to provide email address. Perhaps not surprisingly, given that emails are viewed as personal and people are protective of them, only a minority of participants agreed to provide their email addresses (18.2%). Indeed, this could be taken as evidence that participants took the request for their email rather seriously. More importantly, we conducted a logit analysis with choice to provide an email address as the dependent variable and presentation style and fact quality as independent variables. This analysis revealed a significant main effect of fact quality; the proportion of participants who agreed to give their email address was greater in the strong fact (25.7%) compared with the weak fact condition (10.9%, $z = 3.56$; $p < .001$, 95% CI = [0.79, 2.73]). No significant main effect of the facts-only versus facts-within-story presentation style emerged (21.0% versus 15.5%; $z = 1.02$; $p = .307$, 95% CI = [-0.51, 1.63]). However, of greatest interest, a significant presentation style by fact quality interaction occurred ($z = -2.16$; $p = .031$, 95% CI = [-2.77, -0.13]).

To probe this interaction effect, simple effects tests of each factor within the interaction were conducted. When facts were weak, a larger proportion of participants agreed to provide their email addresses in the facts-within-story condition (13.5%) than in the facts-only condition (8.2%), though this difference did not reach statistical significance ($\chi^2 = 1.04$; $p = .307$). In contrast, the opposite relationship was observed for the simple effect test for strong facts. When facts were

strong, a significantly greater proportion of individuals agreed to provide their email addresses in the facts-only condition (34.3%) than in the facts-embedded-in-a-story condition (17.6%; $\chi^2 = 5.11$; $p = .024$), which replicates the key contrast for the theory test found in Experiments 1 and 2.

Discussion

Experiment 3 replicated Experiments 1 and 2 with a new story, a new product category, a different population, and a dependent variable of direct consequence to participants. Once again, we observed a significant interaction. When facts were strong, participants showed greater persuasion from facts alone than from facts within a story. When facts were weak, participants tended to show greater persuasion from facts embedded in a story than facts alone, albeit this difference was not significant. We do not view the lack of significance of this particular contrast as problematic. Specifically, the key contrast—from the perspective of testing the biased processing account versus the reduction in message processing account—is the contrast between the strong fact conditions, which was significant.

Single-Paper Meta-Analysis

Recent work advocates for single-paper meta-analyses (SPM; Inman, Campbell, Kirmani, & Price, 2018; Mcshane & Böckenholt, 2017). An SPM estimates the size of an effect across multiple experiments, accounting for heterogeneity between experiments. In line with this recommendation, we used an online tool (Mcshane & Böckenholt, 2017) to conduct a single-paper meta-analysis to further analyze the key insight of interest reported in this article.

We meta-analyzed the first two experiments on the primary effect of interest: the difference in persuasion between facts-within-story and facts alone at different levels of fact strength.⁴ The SPM estimated the effect of facts-within-story vs. facts alone at 2.75 scale points for weak facts (95% CI = [2.07, 3.42]) and at -0.69 scale points for strong facts (95% CI = [-1.34, -0.04]). As neither confidence interval includes zero, this supports the conclusion that across both experiments, embedding facts within stories was more persuasive than presenting the facts alone when facts were weak, but embedding facts within stories was less persuasive than presenting facts alone when facts were strong.

General Discussion

Stories have a unique persuasive appeal (Green & Brock, 2000). As such, it seems reasonable that persuasion might benefit from, or at least not be harmed by, surrounding one's facts with a story. In fact, one of the arguments for the ability of stories to persuade is that they fundamentally reduce people's counterarguments (Krakow et al., 2018). However, at the outset of this research, a critical ambiguity existed with

regard to the nature of this reduction in counterarguing. It was unclear whether stories reduced counterarguing as a result of instilling a bias in people's information processing or reduced the degree of message elaboration. Based on extant research, a case could be made for either account, but these accounts implied divergent predictions as to how embedding facts in a story would affect persuasion.

The present experiments shed initial light on this issue. Experiment 1 found that, when facts were weak, participants were more persuaded by facts embedded in stories than by facts alone. However, when facts were strong, participants were more persuaded by facts alone than facts embedded in stories. Experiment 2 replicated the effects from Experiment 1 and showed mediation by a reduction in both positive and negative message-related thoughts. The reduction in positive message-related thoughts gives additional credence to the reduction in message processing account over the biased processing account. Finally, Experiment 3 replicated the effects of the first two experiments using a new context, a more behaviorally relevant dependent variable, and a new population. Together, these experiments increase our understanding of the interplay between stories and facts in persuasion.

Limitations and Future Directions

The present research provides evidence consistent with a reduction in message processing account. Of course, this result does not preclude the possibility that biased processing operates in some circumstances. It is possible that biased processing might sometimes operate alongside the reduction of message processing or that biased processing becomes the dominant force at times. For example, in this work, we used messages for which the focal attitude object was not strongly counterattitudinal. Participants were not antagonistic to the general proposition of the message to begin with. Although we believe this represents a number of everyday situations encountered by individuals, in some cases, people may encounter strongly counterattitudinal messages. Two features of strongly counterattitudinal messages could cause stories to affect persuasion primarily via biased processing. First, counterattitudinal topics might be more involving and thus encourage greater scrutiny of information. If people naturally scrutinize information, opportunities for differences in the amount of processing should diminish. Second, when people encounter strongly counterattitudinal information, they tend to counterargue regardless of the strength of the facts (G. L. Cohen, Aronson, & Steele, 2000; Festinger, Riecken, & Schachter, 1956; Ross & Lepper, 1980; Slater & Rouner, 1996). When people are naturally inclined to generate counterarguments, stories might serve the role of momentarily causing them to listen, which could bias processing away from the negative thoughts that would otherwise occur. Future research could consider whether situations that involve counterattitudinal topics lead to biased processing,

as well as other contexts in which biased processing may play a role in producing attitude change (Escalas, 2004, 2007; Lien & Chen, 2013).

One limitation of the present work is that we instructed participants in our studies to let themselves become “immersed” in the stories. This decision was done because it follows the standard practice in research on narrative transportation and persuasion (e.g., Green & Brock, 2000). However, it is possible that these instructions prompted individuals to focus on the plot and characters over the message information, rather than the story itself naturally causing immersion. Of note, this possibility does not challenge the reduced information processing account. In fact, narratives do require immersion to influence persuasion, so enhancing immersion into the story is beneficial for theory testing as it gives stories an ideal opportunity to be effective for both weak and strong facts. Nonetheless, future research could explore whether the presence or absence of such instructions affects the influence of stories on persuasion and their interaction with the strength of the facts.

The current studies suggest that the ability to distinguish strong and weak facts is reduced when facts are embedded within stories. One might raise the more general question of whether a different degree of elaboration is required to recognize strong facts versus weak facts. To the best of our knowledge, most research seems to assume that a person requires similar cognitive resources to recognize the validity of strong facts as to recognize the speciousness of weak facts. However, it strikes us that, when it comes to the study of attitude change, whether greater elaboration is needed to change one’s attitudes depends on whether one’s attitude is likely to be negative or positive in the absence of the message. For example, if people’s default belief is that a product is very poor, then they are likely to shift their attitude more when they elaborate on strong facts, but likely to shift their attitude less when they elaborate on weak facts. In contrast, if people’s default belief is that a product is very good, then they are likely to shift their attitude more when they elaborate on weak facts, but likely to shift their attitude less when they elaborate on strong facts. Indeed, in prior research, both within and across papers, there is evidence that elaboration can increase sensitivity to strong facts, but in other experiments, elaboration appears to primarily increase sensitivity to weak facts (Haugtvedt, Petty, & Cacioppo, 1992; Petty et al., 1976). Of course, understanding other factors that affect whether strong or weak facts require more scrutiny seems a fruitful direction for future research.

Finally, even when one has strong facts, other properties of stories might make them attractive despite the potential to reduce persuasion. For example, stories can use subtext or underlying themes to influence attitudes without the awareness of the audience (E. L. Cohen, 2016). In addition, stories can help capture people’s attention (Aaker, 2018; Green & Brock, 2000) and make messages more memorable (Deighton, 1992; Schank, 1990).

In situations where these aspects are more important than people’s scrutiny of the facts, it is possible that facts embedded within stories might be more useful to a persuader than facts alone. Our research simply suggests that, when the primary objective is to persuade people about an attitude object such as a product or public service message, strong facts alone can serve as the better means to accomplish this objective. One possibility is that influencers might use stories for one purpose—for example, to capture attention—but follow the stories with facts subsequently to aid persuasion. Indeed, it seems like a wealth of opportunities exists for research to explore the interplay between the use of stories and facts at different points in a communication strategy.

Contributions and Conclusion

We view the present experiments as offering two contributions to the literature. The first contribution of the present work is that it provides a direct test of *how* stories affect counterarguing. The current studies provide consistent evidence for the reduction in information processing account as opposed to a reduction in biased processing. In particular, Experiment 2 provides mediational support via changes in favorability of message-relevant thoughts (changes in both counterarguing and bolstering). The second contribution of this work is that it has implications for when facts are more persuasive when presented alone or within a story. The present findings suggest that when facts are weak, embedding facts within a story enhances persuasion relative to the presentation of facts alone. However, when facts are strong, incorporating facts into a story can undermine persuasion. As a consequence, this work suggests that stories provide the most persuasive benefit to influencers with the least convincing arguments.

In the modern climate of “alternative facts” and “fake news,” people are looking for explanations of how misinformation spreads. Although speculative, perhaps, stories play a role in these phenomena; people may accept anecdotal information even when the facts are not strong. As such, the present work warns that people might want to be mindful of becoming caught in the clutches of a compelling story. The current work, however, also offers an additional cautionary tale: When one has strong and compelling facts, it might be prudent to think twice before ensconcing those facts within a story.

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Notes

1. Stories have also been discussed in the academic literature as “narratives.” Consistent with past literature, we use the two terms interchangeably (see Green & Brock, 2000; Kreuter et al., 2007; van Laer, de Ruyter, Visconti, & Wetzels, 2014).
2. Petty and Cacioppo (1986) draw a distinction between strong and weak arguments. We use the term facts in the present research because we focus on features of products designed to be factual in nature, whereas arguments could be viewed as a broader construct that includes other elements such as opinions.
3. Pretests confirmed that the strong facts were more compelling than the weak facts.
4. Because Experiment 3 used a dichotomous dependent measure and the other two used a continuous measure, we could not include all three in the same SPM.

Supplemental Material

Supplemental material is available online with this article.

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