UNIVERSITÄT AUGSBURG
Universitätsbibliothek

OPEN ACCESS
OPUS AUGSBURG

Metacognitive approach to narrative persuasion: the desirable and undesirable consequences of narrative disfluency

Nathan Walter, Helena Bilandzic, Norbert Schwarz, John J. Brooks

Angaben zur Veröffentlichung / Publication details:

Walter, Nathan, Helena Bilandzic, Norbert Schwarz, and John J. Brooks. 2021. "Metacognitive approach to narrative persuasion: the desirable and undesirable consequences of narrative disfluency." *Media Psychology* 24 (5): 713–39. https://doi.org/10.1080/15213269.2020.1789477.

Nutzungsbedingungen / Terms of use:

licgercopyright

Dieses Dokument wird unter folgenden Bedingungen zur Verfügung gestellt: / This document is made available under these conditions:
Deutsches Urheberrecht
Weitere Informationen finden Sie unter: / For more information see:
https://www.uni-augsburg.de/de/organisation/bibliothek/publizieren-zitieren-archivieren/publiz/

Metacognitive approach to narrative persuasion: the desirable and undesirable consequences of narrative disfluency

Nathan Walter[a], Helena Bilandzic[b*], Norbert Schwarz[c], and John J. Brooks[a]

[a]Department of Communication Studies, Northwestern University, Evanston, Illinois, USA; [b]Schwerpunkt Rezeption Und Wirkung, Augsburg University, Augsburg, Germany; [c]Department of Psychology, University of Southern California, Los Angeles, California, USA

ABSTRACT

The current article tests the metacognitive proposition that the relative ease or difficulty with which narrative messages are processed can affect subsequent judgment. Challenging the assertion that experienced disfluency is mostly negative and undesirable, it is argued that disfluent (difficult-to-process) narratives are well-positioned to facilitate narrative persuasion when people hold value-laden beliefs. Using the controversial context of physician-assisted suicide, two experiments (N_1 = 204, N_2 = 558) demonstrate that a metacognitive experience of difficulty is used to infer positions regarding the narrative message. The article then proceeds to test a theoretical model, showing that fluent narratives gain their strength by facilitating the experience of flow among ambivalent individuals, whereas disfluent narratives can challenge value-laden beliefs by attenuating attitude certainty. Implications are discussed and future directions for a metacognitive approach to narrative persuasion are offered.

The main goal of message designers is to stimulate active emotional and cognitive processes in audience members that facilitate persuasion and behavioral change (Igartua, Cheng, & Lopes, 2003). The last two decades saw a steep increase in the use of narratives that, supposedly, can fulfill this function more effectively than nonnarrative messages (Hinyard & Kreuter, 2007). Yet, systematic comparisons of narrative messages with arguments containing statistical data or didactic information have not provided unequivocal evidence for the relative effectiveness of this approach (e.g., Shen, Sheer, & Li, 2015). It has been proposed that some of the variance in the efficacy of narratives can be explained by the moderating effect of preexisting attitudes (Slater & Rouner, 2002). For example, narratives may be useful strategies to

CONTACT Nathan Walter nathan.walter@northwestern.edu Department of Communication Studies, Northwestern University, Evanston, IL 60208

*Department of Media, Knowledge, and Communication, University of Augsburg, Augsburg.

This article has been republished with minor changes. These changes do not impact the academic content of the article.

challenge strong attitudes where nonnarrative texts evoke counterarguing. While the proposition that narratives interact with preexisting attitudes is not new (Krosnick & Petty, 1995), there is surprisingly little empirical evidence to support it – the few studies that investigated the moderating role of preexisting attitudes produced mixed results (e.g., Slater, Rouner, & Long, 2006; Wojcieszak, Azrout, Boomgaarden, Alencar, & Sheets, 2017).

Building on the literature of metacognitions (subjective experiences that accompany the thinking process; for reviews, see Schwarz, 2015; Shulman & Bullock, 2019), we suggest that fluency – the feeling of ease and smoothness while processing stimuli – can play a major role in how individuals process and react to persuasive narratives. However, while the metacognitive experience of fluency can produce a more immersive experience, it is also associated with superficial processing and overconfidence in preexisting attitudes (Pieger, Mengelkamp, & Bannert, 2017). Thus, we argue that disfluent narratives, those that elicit the metacognitive experience of difficulty, can actually *facilitate* persuasion in cases in which individuals have strong preexisting attitudes that run counter to the persuasive message embedded in the narrative. We test this proposition in two experiments that manipulated people's exposure to narratives that varied in perceptual fluency (varying the visual clarity with which the narrative message is presented), using the controversial context of physician-assisted suicide (PAS).

Narrative persuasion and preexisting attitudes

Narrative-based messages are often advanced as most conducive to persuasion in the case of value protective processing of information (Slater, 1997). In light of such arguments, one might expect to find substantial evidence for the ability of narratives to mitigate or nullify preexisting attitudes. However, extant research is fairly minimal, and the results are mixed. For example, Slater et al. (2006) examined the effects of narratives on support for gay marriage and death penalty – two controversial topics that closely correspond to liberal and conservative ideologies. For the death penalty, the authors found that exposure to the narrative eliminated the relationship between prior ideology (political affiliation) and death penalty support, whereas an engaging narrative did not affect conservative participants' view of gay marriage. Obviously, these equivocal outcomes may result from the fact that preexisting attitudes were measured in general terms (political affiliation) rather than in relation to the issue (i.e., preexisting attitudes toward gay marriage). It is also possible, however, that politically conservative participants reacted negatively to a narrative that contradicts their ideological beliefs.

Similarly, Wojcieszak et al. (2017) tested whether narrative messages are more effective than statistical evidence in encouraging receptiveness toward Western European norms among Muslim immigrants. Much like Slater et al. (2006), the study produced mixed evidence for the ability of narratives to promote acceptance of counter-attitudinal values. Specifically, narratives

about gender equality, sexual minority rights, and secularism in public life generated greater openness among Dutch-born Muslims, whereas statistical messages were more effective among those born in Muslim countries. A potential explanation for the ambiguity of these results may be the unique psychological processes associated with each approach – but it is equally feasible that narratives were optimal for those individuals who had favorable preexisting views of Western European norms (i.e., Dutch-born Muslims) and ineffective, or counterproductive, for those with less favorable attitudes (i.e., those born in Muslim countries).

A possible explanation for these contradictory results may stem from the reader's metacognitions – thoughts about one's own thinking (Schwarz, 2015) – when making attitude judgments about an issue. Narrative processing is often accompanied by metacognitive feelings of ease, familiarity, and fluency. Being able to process a narrative easily and smoothly is usually connected to an increase in persuasion, because the focus on the narratives (rather than critical thinking) is supported (e.g., Busselle & Bilandzic, 2008). However, fluency may actually limit the ability of narratives to challenge preexisting attitudes. In the following sections, we briefly summarize the literature on (dis) fluency, focusing on its potential benefits and possible manifestation in persuasive narratives. Then, we suggest that, in cases where strong preexisting beliefs are involved, disfluent (difficult-to-process) narratives can be desirable in mitigating partisan perceptions.

The potential benefits of narrative disfluency

The literature suggests that easy-to-process stimuli receive positive judgments, including liking (Reber, Winkielman, & Schwarz, 1998), trust (Newman et al., 2014), truth (Schwarz, 2018), and beauty (Reber, Schwarz, & Winkielman, 2004). Indeed, statements are judged as true when they appear in high rather than low color contrast (Reber & Schwarz, 1999), when they are delivered in a familiar rather than an unfamiliar accent (Levy-Ari & Keysar, 2010), and when they are presented in a rhyming rather than nonrhyming form (McGlone & Tofighbakhsh, 2000).

The experience of ease while processing a narrative has been theoretically linked to a variety of positive outcomes, including greater transportation (Vaughn, Childs, Maschinski, Paul Niño, & Ellsworth, 2010) and successful construction of mental models (Busselle & Bilandzic, 2008). In fact, processing fluency has become almost synonymous with narrative involvement as evidenced by the items used to measure it, including "While I was reading the narrative, I could *easily* picture the events in it taking place" (transportation scale, in Green & Brock, 2000) and "at points, I had a *hard time* making sense of what was going on in the program" (reversed item from narrative engagement scale, in Busselle & Bilandzic, 2009). At the same time, the literature also

predicts at least three positive outcomes of processing *disfluency* that might be relevant to narrative persuasion: (a) cue for deeper processing; (b) attenuation in attitude certainty; and (c) enhanced thought abstraction.

Cue for deeper processing

Disfluency often serves as a novelty cue, signaling that further analysis is required (Alter, Oppenheimer, Epley, & Eyre, 2007). After all, when something is difficult to understand, individuals are likely to thoroughly attend to the stimulus. To this end, performance in activities that require diligence and deep processing (e.g., generation of incongruent hypotheses or detection of misleading questions) tends to improve under perceived disfluency (Oppenheimer & Alter, 2014). For example, cultural disfluency, arising as a result of a mismatch between cultural expectations and actual situations (e.g., viewing photographs in which the bride wears green and the groom wears purple), can shift one's processing style from heuristic to systematic (Mourey, Lam, & Oyserman, 2015; Oyserman, 2019). Likewise, the elaborate processing linked to disfluency is also corroborated by neuroscientific evidence, indicating enhanced activation of areas responsible for deliberative and effortful thinking (Botvinick, Braver, Carter, Barch, & Cohen, 2001).

Attenuation of attitude certainty

Attitude certainty refers to "the extent to which one is confident or sure of one's attitude" (Tormala & Rucker, 2007, p. 469). Although certainty and intensity represent attitudinal attributes, they are best understood as two different indices that are not part of a single latent construct (for a review, see Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). Simply put, people may be uncertain about their intense attitudes (e.g., PAS should always be illegal) or highly certain about moderate attitudes (e.g., PAS should be legal under certain circumstances). At its core, attitude certainty reflects a metacognitive evaluation (e.g., Sarah is certain that she opposes PAS) attached to a primary cognition or attitude (e.g., Sarah's negative attitude toward PAS). As a secondary cognition, it is unsurprising that experienced fluency is a prime antecedent of attitude certainty (Tormala, Falces, Briñol, & Petty, 2007). While fluent messages are understood to be easy to process and "feel right," disfluent messages attenuate attitude certainty. Simply put, if a fluent message "feels right" and does not contradict current knowledge, preexisting attitudes will not be challenged. Conversely, information processed with a metacognitive experience of difficulty or disfluency will alert individuals that they may have insufficient knowledge (Alter & Oppenheimer, 2009). For instance, Hernandez and Preston (2013), demonstrated that opposing views become less extreme after reading an argument in a disfluent format, both for standard attitudes (i.e., political ideology) and experimentally induced attitudes (i.e., judgment of a court defendant). Assuming that narratives are

likely to be used in cases where people do not process information evenhandedly (Slater, 1997), the potential for disfluency to decrease people's confidence in their preexisting attitudes has a valuable benefit.

Enhanced thought abstraction

Disfluency encourages people to generalize from specific and concrete examples to broader and more abstract ideas. As demonstrated in a series of studies that tested the effects of (dis)fluency on mental construal (Alter & Oppenheimer, 2008), when presented with a name of a city in a difficult-to-read font (rather than an easy-to-read font), individuals tended to describe it in more abstract (rather than concrete) terms (e.g., New York as a "civilized jungle" rather than a "large city"). This abstraction, elicited by disfluency, helps people to distill general principles from an example and discard the irrelevant features (Alter, 2013). While narrative persuasion is generally assumed to be effective through the presentation of concrete events and characters, abstract thinking may still be important in one regard: readers not only learn the details of a story, but also make inferences that go beyond the story. For instance, an effective testimonial message about physician-assisted suicide should not only inform individuals about the events depicted in the narrative, but also urge people to extrapolate the experience to their personal life and broader questions of ethics and freedom of choice.

Overview of current studies

The article presents two studies investigating the potential role of perceptual disfluency in narrative persuasion through narratives about physician-assisted suicide (PAS). These studies are based on two primary research questions: 1) what is the relationship between experienced disfluency, preexisting attitudes, and narrative persuasion? and 2) what is the underlying mechanism of narrative (dis)fluency? After a series of pilot studies that established the appropriateness of our material, Study 1 examined the main effects of narrative disfluency on processing depth, attitude certainty, and thought abstractness. This study also tested the interplay between experienced disfluency, preexisting attitudes, and narrative persuasion. The aim of Study 2 was to replicate the main findings from Study 1, and then identify the boundary conditions for the effectiveness of experienced disfluency, proposing a conceptual model that is informed by prior research on metacognitions and narrative persuasion.

Study 1

The documented benefits of processing disfluency (deeper processing, reduced attitude certainty, and thought abstraction) may help illuminate the potential for narratives to challenge intense attitudes. In particular, while the experience

of fluency is expected to be most effective for ambivalent participants, narrative disfluency is likely to be effective for participants with strong preexisting attitudes. Thus, the following research hypotheses are offered (see Figure 1 for an outline of the research hypotheses):

H1:The effect of experienced disfluency on narrative-consistent attitudes is moderated by preexisting attitudes, such that disfluency affects those with stronger attitudes, as opposed to ambivalent participants.

H2: Exposure to a disfluent (vs. fluent) version of a narrative (a) enhances processing depth, (b) reduces attitude certainty, and (c) increases thought abstraction.

H3: The indirect effect of experienced disfluency on narrative-consistent attitudes through (a) processing depth; (b) attitude certainty; and (c) thought abstraction is moderated by preexisting attitudes, such that stronger effects are observed for those with stronger preexisting attitudes.

Method

Pilot experiments

Stimulus selection. Eighty-four undergraduate volunteers from a large Western University in the US completed a questionnaire designed to investigate whether the experimental stimulus was emotionally and cognitively engaging. The stimulus, "My right to death with dignity at 29" (see Appendix A), was a nine-paragraph (847 words) testimonial (Maynard, 2014). The testimonial portrays the personal experience of Brittny Maynard, a young woman suffering from terminal brain cancer, following the decision to end her life by seeking physician-assisted suicide (PAS). Although often considered to be a less sophisticated form of storytelling, testimonials offer

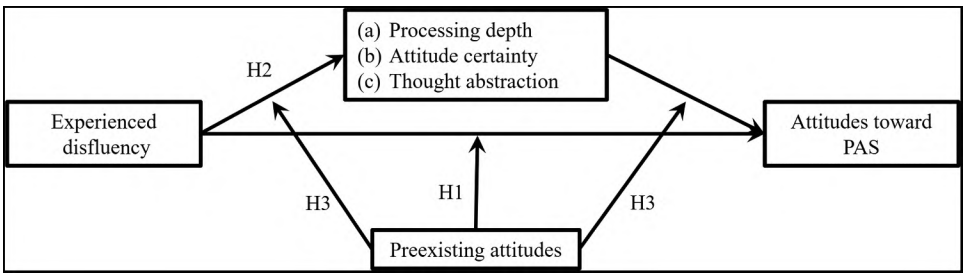

Figure 1. The hypothesized relationship between experienced disfluency and attitudes toward PAS as mediated through processing depth, attitude certainty, and thought abstraction, and moderated by preexisting attitudes.

an emotional and engaging experience (Kreuter et al., 2007). PAS was considered a suitable context, as it remains a highly controversial issue, evoking moral and ethical considerations (Emanuel, Onwuteaka-Philipsen, Urwin, & Cohen, 2016).

After exposure to the stimulus, a convenience sample judged the ability of the testimonial to induce narrative engagement (Busselle & Bilandzic, 2008) and identification with Brittny Maynard (Cohen, 2001). As expected, on average, individuals perceived the narrative to be engaging (M = 5.14, SD = 1.46) and were able to identify with the character (M = 5.31, SD = 1.38), both measured on a seven-point scale.

Narrative disfluency. A separate sample of 96 undergraduate students were recruited to a pilot study to investigate whether the manipulation of disfluency had the intended effect. The testimonial text was visually distorted and presented in a blurred and overexposed font to induce experienced disfluency (Figure 2). Specifically, an online software (www.befunky.com) was utilized to blur and overexpose the image, applying the following adjustments: brightness (+88), contrast (−100), highlights (+100), and shadows (+14). Beyond the fact that conceptually similar manipulations were successfully utilized in previous research (e.g., Yue, Castel, & Bjork, 2013), out-of-focus and overexposed text is not uncommon in printed narratives. Moreover, unlike manipulations to narrative structure or its coherence, distortion of text or deletion of words have been repeatedly used to manipulate disfluency without confounding the content of the story with the difficulty with which it is processed (e.g., McDaniel, 1984; McDaniel, Einstein, Dunay, & Cobb, 1986). Finally, the choice of manipulating perceptual disfluency (i.e., varying the ease with which individuals are able to perceive the target stimuli) rather than linguistic (i.e., varying the complexity of words and sentence structures) or conceptual (i.e., varying the degree of required thinking skills) disfluency was guided by the primary objective of the current study. Namely, the intention was to establish proof of concept for experienced disfluency in narratives. Thus we

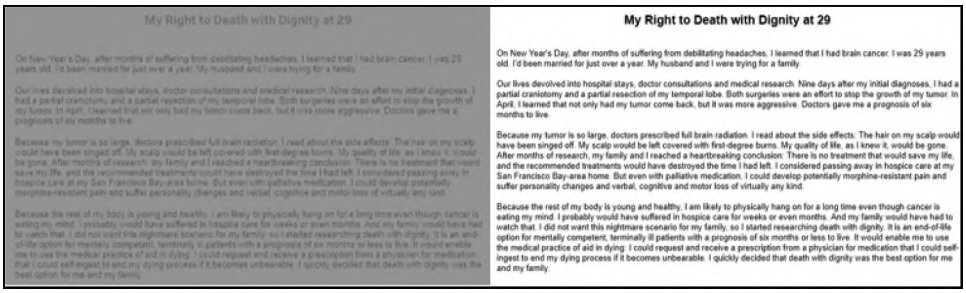

Figure 2. The first page of the stimulus testimonial in conditions with disfluent (left display) and with fluent text (right display).

employed an easier and cleaner manipulation while acknowledging that there are a variety of metacognitive cues that are more specific to narratives, which cannot be investigated with perceptual disfluency. For instance, while using complicated words and sophisticated sentence structures can certainly induce disfluency without changing the main idea of the narrative, it would be much more challenging to determine whether any potential effects on research outcomes should be attributed to confusion and misunderstanding that stem from varying levels of literacy or to the metacognitive experience that accompanies the reasoning process.

After exposure to the testimonial, three Likert-type scale itemsa dapted from Alter et al. (2007), ranging from 1 ("completely disagree") to 7 ("completely agree"), instructed participants to indicate the extent to which it was easy to read, understand, and remember the text (M = 5.25, SD = 1.42, α = .96). The scale was then reversed to represent the level of experienced disfluency. As predicted, participants in the disfluent condition experienced more disfluency while reading the testimonial (M = 2.94, SD = 1.41) than their counterparts in the fluent condition (M = 2.27, SD = 1.35); $t(94) = 2.23$, $p = .01$, $d = 0.46$).

Main experiment

Design, participants, and procedures. This study employed a pretest-posttest design where participants recruited from Qualtrics were randomly assigned to read either a fluent or a disfluent version of the PAS testimonial. After removing nine participants who did not dedicate sufficient time to reading the testimonial message (< 50 seconds), the final sample included 204 participants (75.5% female). The sample was diverse in terms of age (M = 36.78, SD = 15.12), education (M = 13.23 SD = 3.60), and political ideology (M = 3.95,[1] SD = 1.17). Overall, 63.7% (130) identified as White, followed by Black (17.2%, 35), Hispanic (6.9%, 14), Other (3.9%, 8), and Asian (3.4%, 7). In terms of religious affiliation, 59.3% (121) were Christian, followed by Other (11.8%, 24), Unaffiliated (10.3%, 21), Jewish (3.9%, 8), and Muslim (2.9%, 6).

After consenting to participate, the questionnaire assessed individuals' preexisting attitudes toward PAS. To minimize any influence of the pretest, the specific item ("I believe that physician-assisted suicide is an important option for patients suffering from an incurable and painful disease") was presented alongside questions on other health and science topics. Participants were then randomly assigned to read either the fluent or the disfluent version of the testimonial. Following exposure to the testimonial, participants responded to a series of questions regarding their perception of the testimonial and post-exposure attitude toward PAS. At its conclusion, all participants were debriefed on the true purpose of the experiment.

Measures. Participants' *attitudes toward PAS* were assessed both before and after exposure to the testimonial. The pretest measured attitudes by level of agreement with a single item, ranging from 1 "strongly disagree" to 7 "strongly agree" (M = 4.40, SD = 2.13). At the posttest, attitudes were gauged with a 10-item Likert type scale (Wasserman, Clair, & Ritchey, 2005), ranging from 1 "strongly disagree" to 7 "strongly agree". The items included "If a dying patient requests it, a doctor should remove their life support and allow them to die" (M = 4.08, SD = 1.27, α = .81). Keeping in mind that preexisting attitudes were considered a possible moderator and not compared to participants' attitude post-exposure, we preferred to use two different measures in order to avoid the effects of repeated measurements.

In line with standard thought-listing procedures (e.g., Petty & Cacioppo, 1981), immediately after reading the testimonial, participants were given unlimited time to list up to 10 thoughts they had while reading the message. Then, each participant was asked to revisit their own listed thoughts and code each one as positive (in agreement with the author), negative (not in agreement), or neutral/irrelevant (neither in agreement nor disagreement). An *elaboration index* was calculated by adding up all issue-relevant thoughts (M = 5.50, SD = 3.92). *Attitude certainty* was based on Petrocelli and Dowd (2007) and assessed with a six-item scale, where 1 means "completely disagree" and 7 means "completely agree." One item was "I have a firm opinion toward the issue of physician-assisted suicide" (M = 5.10, SD = 1.42, α = .92). Finally, the measurement of *thought abstraction* was adapted from Alter and Oppenheimer (2008). Specifically, based on participants' response to the thought-listing items, two independent coders assessed whether each issue-relevant thought was concrete ("refers to specific, tangible objects, events, policies, or actions"; e.g., "Assisted suicide needs to be legal nationwide") or abstract ("refers to higher order concepts, ideas, or values"; e.g., "Everything is done for a reason") (*kalpha* = .89). Then, the thought abstraction index was calculated by subtracting the number of concrete thoughts from the number of abstract thoughts (M = 0.27, SD = 4.33).

Results

With respect to the manipulation check, there was a significant difference between the disfluent and fluent narrative condition; $t(192.86) = 2.26$, $p = .025$, d = 0.33, such that participants in the disfluent condition tended to report greater experienced disfluency while processing the narrative (M = 2.93, SD = 1.67) compared to those in the fluent condition (M = 2.45, SD = 1.37). In terms of the main effects of manipulated disfluency on attitude toward PAS, the independent samples t-test did not identify a significant difference between participants exposed to the disfluent version of the narrative (M = 4.07,

SD = 1.29) and their counterparts in the fluent condition (*M* = 4.09, *SD* = 1.25); $t(202) = 0.13$, $p = .89$, $d = 0.02$.

To examine a potential interaction between experienced disfluency and preexisting attitudes on attitudes toward PAS (H1), we performed a moderation analysis. Using PROCESS Model 1 (Hayes, 2018), the analysis treated experienced disfluency as the predictor (see O'Keefe, 2003, for arguments in support of utilizing psychological states, rather than message features), attitudes toward PAS as the outcome, and preexisting attitudes toward PAS as a continuous moderator. In line with our prediction, the model retrieved a significant moderation for preexisting attitudes ($b = -.05$, $SE = .02$, $p = .04$, 95% CI [−.09, −.01], $\Delta R^2 = .03$). Probing the moderation with the Johnson-Neyman technique showed a pattern, whereby those who held highly favorable (> 5.50, on a 7-point scale) or highly unfavorable (< 2.20) preexisting views of PAS were significantly influenced by experienced disfluency – no such effect was recorded for ambivalent (2.20– 5.50) participants. Further, although there was no direct effect of experienced disfluency on attitudes toward PAS ($b = .07$, $SE = .10$, $p = .49$, 95% CI [−.14, .29]), preexisting attitudes were highly predictive of post-exposure attitudes toward PAS ($b = .45$, $SE = .06$, $p = .005$, 95% CI [.32, .57]). The moderation model was able to explain 37.8% of the variance in attitudes toward PAS ($F(3, 200) = 40.46$, $p = .005$).

To test whether a disfluent narrative can influence processing depth (H2a), attitude certainty (H2b), and thought abstraction (H2c), a series of independent samples *t*-tests were conducted. In the case of processing depth, although participants in the disfluent narrative condition tended to list more issue-relevant thoughts (*M* = 5.79, *SD* = 3.99), compared to their counterparts in the fluent narrative condition (*M* = 5.21, *SD* = 3.85), this difference was not statistically significant; $t(202) = 1.05$, $p = .29$, $d = 0.15$. As predicted, participants in the disfluent condition were significantly less certain in their attitudes toward PAS (*M* = 4.86, *SD* = 1.48), compared to their counterparts in the fluent condition (*M* = 5.34, *SD* = 1.32); $t(202) = 2.45$, $p = .02$, $d = 0.34$. While those in the disfluent condition, on average, scored slightly higher on the thought abstractness measure (*M* = 0.38, *SD* = 4.22) compared to participants in the fluent condition (*M* = 0.17, *SD* = 4.45), these differences were non-significant ($t(202) = 0.35$, $p = .73$, $d = 0.05$).

Using the moderated-mediation model in PROCESS (Model 59; set to 20,000 bootstrapped samples), we tested whether the recorded effects can be explained by the presumed capability of disfluency to reduce attitude certainty (H3b). In particular, the moderated-mediation model treated experienced disfluency as a predictor, attitudes toward PAS as an outcome, preexisting attitudes as a continuous moderator, and attitude certainty (the only significant outcome of narrative disfluency) as a mediator. Echoing the results of H2b, experienced disfluency significantly reduced attitude certainty ($b = -.31$,

SE = .14, *p* = .02, 95% CI [−.59, −.04]), which significantly influenced attitudes toward PAS (*b* = −.21, *SE* = .11, *p* = .05, 95% CI [−.43, −.01]. More importantly, the model recorded an interaction between attitude certainty and preexisting attitudes on attitudes toward PAS (*b* = .06, *SE* = .02, *p* = .03, 95% CI [.01, .11], ΔR^2 = .02). As illustrated in Figure 3, reduced attitude certainty due to experienced disfluency played an important role for those with stronger preexisting attitudes. Further, experienced disfluency attenuated partisan differences by reducing attitude certainty, evidenced by the nonsignificant effect of preexisting attitudes on attitudes toward PAS at the low end of attitude certainty (*b* = −.05, *SE* = .07, *p* = .46, 95% CI [−.19, .08]) and the significant effects of preexisting attitudes on narrative-consistent attitudes at moderate (*b* = −.10, *SE* = .05, *p* = .03, 95% CI [−.20, −.01]) and high levels (*b* = −.16, *SE* = .07, *p* = .03, 95% CI [−.30, −.02]) of attitude certainty. Overall, the moderated-mediation model was able to explain 39.2% of the variance in attitudes toward PAS (*F*(5, 198) = 25.55, *p* = .005).

Discussion

The results of this study suggest that narrative disfluency may have a mainstreaming effect on extreme attitudes, especially when addressing controversial topics. Though engaging narratives tend to be inherently easier to process compared to equivalent nonnarrative messages (Busselle & Bilandzic, 2009), fluency may actually reduce narrative effectiveness by signaling to readers that the message does not contain new information. In contrast, disfluent, or difficult-to-process, narratives can potentially reduce rejection

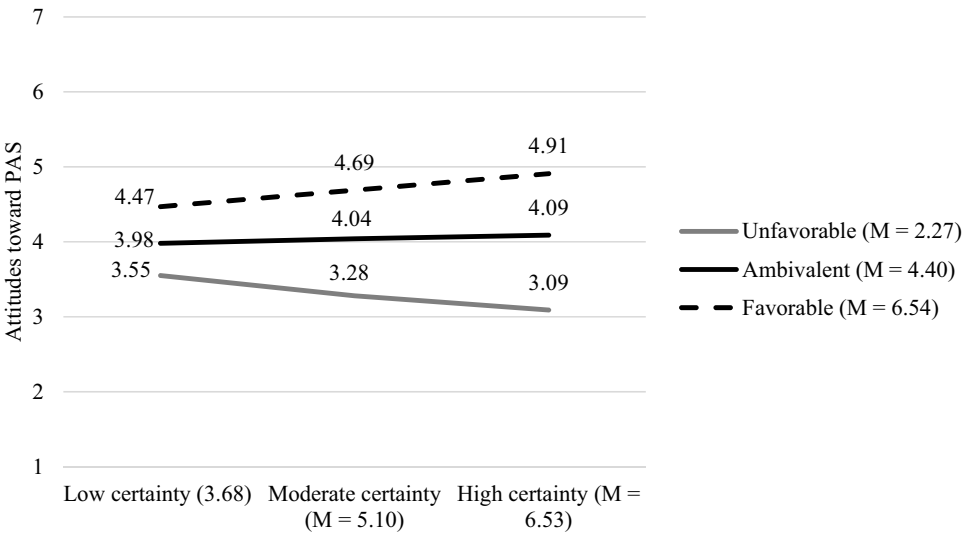

Figure 3. Means for attitudes toward PAS, by attitude certainty (-SD, M, +SD) and preexisting attitude (-SD, M, +SD).

of counter-attitudinal information by signaling to readers that the arguments in the narrative require additional processing and need to be considered in detail. Indeed, the ability of disfluency to prompt additional processing and reduce overconfidence has been well-documented in a variety of contexts, including success in a cognitive reflection test (Thompson et al., 2013), improved syllogistic reasoning (Alter et al., 2007), detection of misleading implicatures (Song & Schwarz, 2008), and reduced confirmation bias (Hernandez & Preston, 2013). With that in mind, although disfluency has shown to improve performance on tasks that require more careful processing, narratives tend to attract attention and provide vivid imagery that helps readers both process and retrieve the information (Green & Brock, 2000). To this end, narratives offer a more challenging test for assessing some of the benefits associated with disfluency.

Despite the presumed benefits of experienced disfluency, only attitude certainty was directly influenced by exposure to a difficult-to-read narrative. The ability of narrative disfluency to mitigate the influence of preexisting attitudes was supported by the data, as evidenced by the nonsignificant differences in message-consistent attitudes between partisans on both sides of the PAS issue. Importantly, there was no evidence that narrative disfluency can enhance processing depth or thought abstraction. This may be potentially explained by the fact that the literature on disfluency tends to focus on nonnarrative stimuli – thus, it is unclear whether the benefits of disfluency translate into the narrative context. Narratives are usually effective to the extent that they are able to emotionally engage the audience and facilitate identification with characters (Cohen, 2001; Green & Brock, 2000); hence, cognitive elaboration may not be indicative of narrative persuasion. Similarly, the lack of significant findings supporting the ability of disfluent narratives to induce thought abstraction may also stem from the unique characteristics of narratives. As Mar and Oatley (2008) argued, narratives are simulations of social situations, allowing a similar emotional and cognitive experience for readers as in the actual world. Within this simulation, experienced disfluency may not necessarily trigger more abstract thoughts, but possibly only more effort to sustain the simulation.

Although this study suggests that experienced disfluency can mitigate the impact of preexisting attitudes in narrative persuasion by reducing certainty, there are several important limitations. First, the manipulation check established that participants in the disfluent condition found the testimonial more difficult to process compared to their counterparts who read the fluent version of the narrative. Yet, the experimental procedure failed to provide evidence that the observed differences were due to a metacognitive process of experienced disfluency as opposed to a simple case of cognitive load or violations to perceived realism. This is especially worrisome because previous studies have established the role played by cognitive load and violations to perceived

realism in narrative persuasion (e.g., Green & Brock, 2000). Consistent with prior work on metacognitive processes in persuasion (e.g., Perfecto, Galak, Simmons, & Nelson, 2017; Schwarz et al., 1991), this gap can be addressed by including a misattribution manipulation, which will allow some participants to attribute the experienced difficulty to an external stimulus (e.g., background music), while others will attribute the difficulty to the testimonial. Second, although the study attempts to introduce experienced disfluency into narrative persuasion, it sets aside the process variables that explain *why* and *how* narratives persuade. Thus, to truly test the potential of disfluencyin mitigating the influence of preexisting attitudes, experienced disfluency and attitude certainty should be tested in concert with more established underlying mechanisms of narrative persuasion, including flow, narrative engagement, and counterarguing.

Study 2

Metacognitive inputs, such as experienced disfluency, guide further thinking, judgment, and action only to the extent that the experience is perceived as diagnostic for the judgment at hand (Winkielman, Schwarz, Fazendeiro, & Reber, 2003). If people find a narrative difficult to process but attribute this difficulty to fatigue or distracting background music, the experienced disfluency is no longer informative for judgments of the narrative – it may merely reflect that one is tired or distracted. Such attributions attenuate or eliminate the influence of metacognitive experiences (a discounting effect). On the other hand, finding a narrative easy to process despite fatigue or distracting music would enhance the informational value of the metacognitive experience (an augmentation effect). Hence, fluency researchers often use attribution manipulations to identify the influence of metacognitive experiences (Schwarz et al., 1991; for a review, see Schwarz, 2012). For example, people are more confident in their judgments and decisions when they experience the process as easy rather than difficult (e.g., Novemsky, Dhar, Schwarz, & Simonson, 2007; Perfecto et al., 2017). However, the influence of their metacognitive experience is attenuated when they attribute the ease or difficulty to an external factor (such as the nature of the presentation format or the phrasing of the answers), and enhanced when they have the experience despite allegedly counteracting influences.

We draw on this strategy in the present study by including a misattribution manipulation. We do so for two reasons. First, evidence is needed to demonstrate that it is the experienced disfluency in processing the story rather than failure to understand the story that led to the effects. Ostensibly, it can be argued that manipulation of perceptual disfluency can influence judgment not only by reducing the ease of processing but also by reducing participants' ability to understand the story. A successful misattribution manipulation

could parse out these effects by showing that participants who misattribute their difficulty to an external factor report on different narrative-consistent attitudes compared to participants in the no-misattribution control condition. After all, the cognitive load imposed by perceptual attributes of the text does not change through the misattribution information, all that changes is the informational value of the experience. Second, inclusion of a misattribution manipulation can help differentiate narrative disfluency from related concepts that disrupt narrative persuasion (e.g., cognitive load and violations to perceived realism). While both cognitive load and violations to perceived realism can presumably engender disfluency, there is no reason to expect that attributing difficulty to external or transient factors will decrease demand on working memory (cognitive load) or help make sense of an incoherent narrative (perceived realism). Following this logic, this hypothesis is proposed:

H4: The effect of narrative disfluency on attitude certainty is moderated by participants' anticipation, such that stronger effects are recorded for individuals who anticipated easy processing but are exposed to a disfluent narrative (due to a misattribution manipulation).

The underlying mechanism of fluent and disfluent narratives

The persuasiveness of narratives is often linked to their ability to induce an imaginative process called transportation (Green & Brock, 2000) or narrative engagement (Busselle & Bilandzic, 2009). As mental resources are committed to the narrative, they are not available for critical scrutiny of the story assertions and messages, reducing defensive responses and counterarguing (Green & Brock, 2000). Since the state of immersion is generally perceived to be pleasant, readers are not motivated to spoil their enjoyable experience by critiquing the story (Moyer-Gusé, 2008; Slater & Rouner, 2002). To this end, two meta-analyses demonstrate that transportation and narrative engagement increase narrative effects (Tukachinsky & Tokunaga, 2012; van Laer, de Ruyter, Visconti, & Wetzels, 2014).

Both transportation and narrative engagement have links to the metacognitive experience of fluency, through their striking similarities to the flow experience (Csikszentmihalyi, 1991). Flow is a state with an intense attentional focus on an activity, accompanied by a loss of self-awareness and special-temporal perception (Keller, Bless, Blomann, & Kleinbohl, 2011). Green and Brock (2002) state that the phenomenological experience of flow is similar to that of transportation and that both experiences are rewarding and pleasurable, motivating to seek out and sustain the activities underlying them. Busselle and Bilandzic (2008) go even further by defining narrative engagement as flow, which is experienced when processing a story in a smooth and

undisturbed way. Bilandzic and Busselle (2017) point out that while flow lacks some of the specifics of narrative engagement (such as emotional ties to characters), flow in a narrative may be conceived as a general processing experience marked by high intensity and effortlessness.

Finally, narratives are presumed to be effective vehicles of persuasion not merely because they enhance involvement with the story and its characters but also due to their ability to reduce resistance and counterarguing. Specifically, counterarguments–defined as thoughts that are either inconsistent or explicitly reject the persuasive argument (Greenwald, 1968)–are the primary cognitive form of resistance in the narrative persuasion literature. As such, reduction in counterarguing serves as an important path to effective narrative persuasion and researchers have advanced different reasons for why narratives may promote fewer counterarguments (Kim, Ratneshwar, & Thorson, 2017). In particular, when individuals are exposed to narrative messages, the cognitive resources required to process a narrative promote a tradeoff between attention and message scrutiny that is likely to impair people's ability to counterargue (Green & Brock, 2000). Likewise, from a practical point of view, if narratives succeed in engaging the audience, attempts to discount or challenge the lived experience of others should be disrupted or, at least, less activated (Slater et al., 2006). Based on this introduction and the findings from Study 1, the following hypotheses are proposed (see Figure 4 for an outline of H5-H6):

H5: The effect ofexperienced disfluency on narrative-consistent attitudes is mediated by (a) attitude certainty; (b) narrative flow; (c) narrative engagement; and (d) counterarguing, such that disfluency reduces attitude certainty, narrative flow, and narrative engagement, while increasing counterarguing.

H6: The mediated effect of experienced disfluency on attitudes toward PAS is moderated by preexisting attitudes toward PAS, such that stronger effects are observed for those with stronger preexisting attitudes.

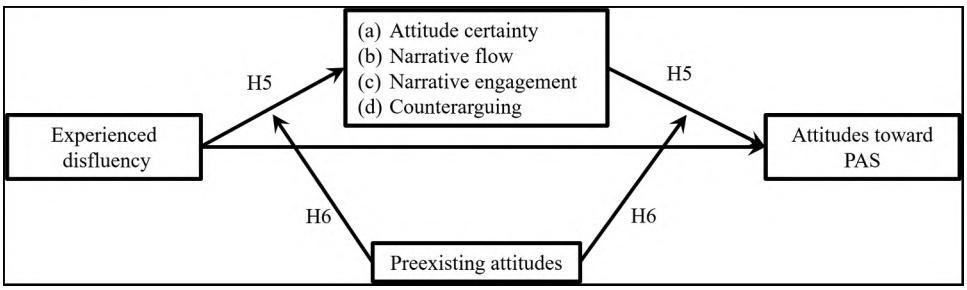

Figure 4. The hypothesized relationship between experienced disfluency and attitudes toward PAS as mediated through attitude certainty, narrative flow, narrative engagement, and counterarguing, and moderated by preexisting attitudes.

Method

Design, participants, and procedures

The experiment was conducted using a 2 (Narrative: fluent/disfluent) x 3 (Misattribution: ease/difficulty/no misattribution) fully-crossed factorial design. Participants were recruited from Qualtrics. After removing 12 participants who did not dedicate sufficient time to read the testimonial message (< 50 seconds), the final sample included 558 consenting participants (73.3% females). The mean age was 46.06 (SD = 16.86) and, on average, participants reported on 13.84 (SD = 3.44) years of schooling.

After indicating their attitude toward PAS, participants were randomly assigned to a misattribution manipulation. Namely, one-third of participants were led to believe that processing the narrative would be easy, one-third of participants were led to think that processing would be difficult, and the remaining participants were not exposed to any misleading information. The misattribution manipulation involved exposure to a 30-second clip of an optical illusion involving counter-rotating spirals along with a misleading explanation about the experience (for the complete instructions of the manipulation, see Appendix B). A similar manipulation was tested and shown to effectively induce anticipated ease or difficulty of processing (Walter & Cohen, 2019). Given concerns over potential confounds and considering the fact that an identical manipulation was validated in other studies, we decided not to include a misattribution manipulation check.

Following the manipulation, participants were exposed to a testimonial that advocated for access to PAS. As in Study 1, the testimonial was presented in either a disfluent format or a fluent format. Keeping in mind that experienced disfluency is likely to influence reading, the program unobtrusively recorded how much time participants spent on the screen with the testimonial. Then, participants were exposed to measures of experienced disfluency, attitudes toward PAS, various process variables, and relevant demographic variables.

Measures

The questionnaire assessed participants' *attitudes toward PAS* (both before [M = 4.55, SD = 2.09]and after [M = 4.26, SD = 1.45, α = .89] exposure), *attitude certainty* (M = 5.19, SD = 1.50, α = .94), and *experienced disfluency* (M = 2.25, SD = 1.38, α = .84) using the same measures from Study 1. In addition, participants reported the extent to which they engaged with the testimonial (Busselle & Bilandzic, 2008; 12 items, M = 4.99, SD = 0.98, α = .76), experienced flow while reading the testimonial (Bilandzic & Busselle, 2017; 10 items, M = 5.23, SD = 1.38, α = .94), and counterargued against the information presented in the testimonial (Moyer-Gusé & Nabi, 2010; 4 items, M = 2.85, SD = 1.77, α = .92). A sample of the items included "While reading the testimonial, my body was in the room, by my mind was

inside the testimonial world (narrative engagement)," "Reading was fluent and smooth (narrative flow),"and "I found myself looking for flaws in the way information was presented in the testimonial (counterarguing)".

Results

The results suggested that the manipulation was successful; $t(556) = 2.13$, $p = .03$; participants who were exposed to the disfluent version of the testimonial reported greater difficulty in reading, understanding, and remembering the text ($M = 2.43$, $SD = 1.35$), compared to those exposed to the fluent version ($M = 2.02$, $SD = 1.24$). Likewise, the unobtrusive indicator of time elapsed indicated that participants in the disfluent condition ($M = 222.64$, $SD = 203.56$) spent nearly 40 seconds more on reading the same text compared to their counterparts in the fluent condition ($M = 182.66$, $SD = 166.56$); $t(556) = 1.92$, $p = .045$. Echoing Study 1, there was not main effect of manipulated disfluency on attitude toward PAS; $t(556) = 1.26$, $p = .21$, $d = 0.11$), with participants exposed to the disfluent version of the narrative ($M = 4.18$, $SD = 1.50$) and those exposed to the fluent version ($M = 4.34$, $SD = 1.39$), reporting on comparable levels of support.

To examine the role played by disfluency under different conditions of metacognitive misattribution (H4), a two-way ANOVA was conducted with the message type (disfluent vs. fluent) and misattribution (ease vs. difficulty vs. no misattribution) as fixed factors and attitude certainty as the dependent variable. This analysis recorded a significant interaction effect ($F(2, 557) = 6.36$, $p = .002$, $\eta_p^2 = .02$). A Tukey HSD test revealed that participants in the disfluent condition who anticipated an easy experience reported greater uncertainty toward PAS ($M = 4.76$, $SD = 1.55$), compared with participants in the disfluent condition who anticipated a difficult experience ($M = 5.36$, $SD = 1.38$), $M_{diff} = .60$, $p = .045$; and those in the fluent condition who anticipated a difficult experience ($M = 5.48$, $SD = 1.38$), $M_{diff} = .71$, $p = .015$. Thus, H4 was supported, demonstrating the effect onattitude certainty when the metacognitive input was amplified by subverted expectation (i.e., when participants anticipated an easy-to-process stimulus but received a difficult-to-process one). Figures 3–5 outlines the means (95% CIs) for attitude certainty by message type and misattribution condition.

H5 hypothesized that the effect of experienced disfluency on attitudes toward PAS will be mediated by attitude certainty, narrative flow, narrative engagement, and counterarguing. To examine these hypotheses, we employed PROCESS (Hayes, 2018) with a 95% CI (Model 4, 20,000 bootstrapped samples). As Figures 4–6 demonstrates, experienced disfluency reduced narrative engagement ($b = -.34$, $SE = .03$, $p = .001$, CI [−.40, −.29]), narrative flow ($b = -.60$, $SE = .04$, $p = .001$, CI [−.67, −.54]), and attitude certainty ($b = -.32$, $SE = .04$, $p = .001$, CI [−.40, −.23]), while increasing counterarguing ($b = .23$,

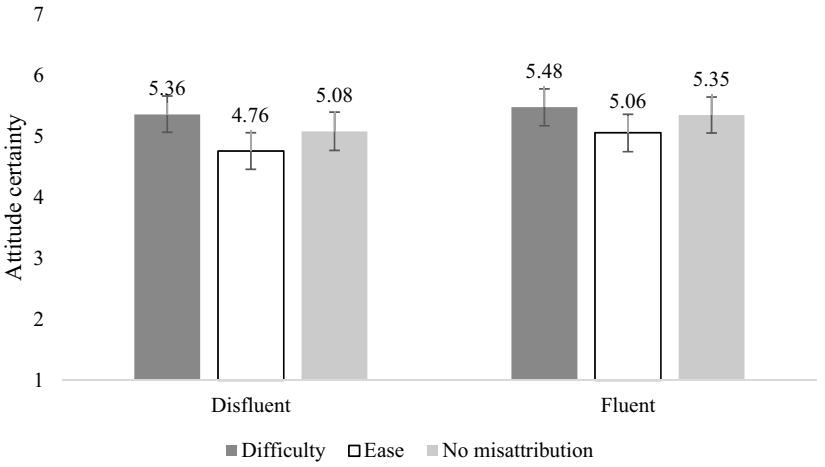

Figure 5. Means (95% CIs) for attitude certainty by experimental condition.

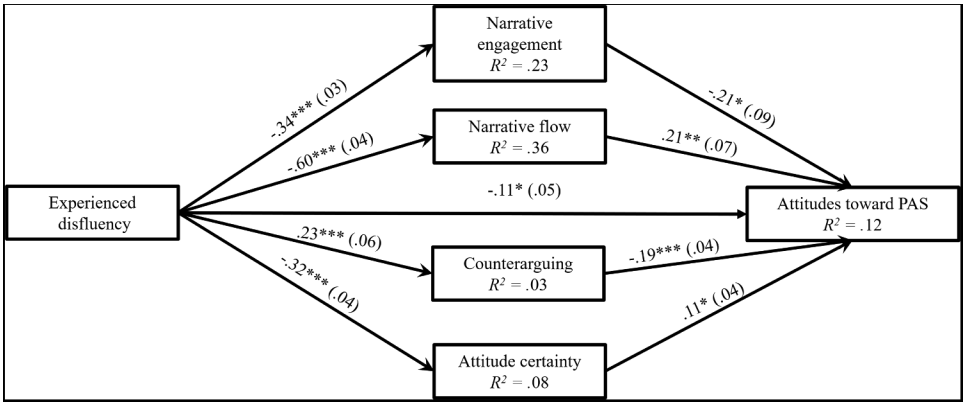

Figure 6. Unstandardized coefficients for the prediction of attitudes toward PAS, by experienced disfluency, narrative engagement, narrative flow, counterarguing, and attitude certainty.
Note. *p <.05; **p <.01; ***p <.001

SE = .06, *p* = .001, CI [.12, .33]). The direct effects on narrative engagement,[2] narrative flow, counterarguing, and attitude certainty, in turn, were significantly associated with attitudes toward PAS (see Figures 4–6). More importantly, the indirect effects tested using PROCESS were statistically significant for narrative engagement (*b* = .07, *SE* = .03, CI [.01, .14]), narrative flow (*b* = −.13, *SE* = .04, CI [−.21, −.04]), counterarguing (*b* = − .04, *SE* = .02, CI [−.08, −.02]), and attitude certainty (*b* = −.03, *SE* = .02, CI [−.07, −.01]), thus supporting H5. Overall, the parallel mediation model accounted for 11.34% of the variance in attitudes toward PAS; $F(5, 552) = 14.12$, $p = .001$.[3]

The moderated-mediation hypothesis (H6) was assessed with PROCESS (Model 59, 20,000 bootstrapped samples), treating preexisting attitudes as a continuous moderator that can potentially influence any of the direct links

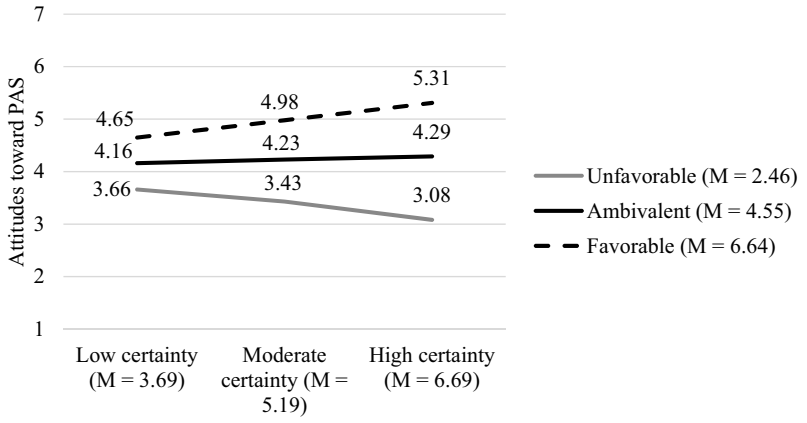

Figure 7. Means for attitudes toward PAS, by attitude certainty (-SD, M, +SD) and preexisting attitude (-SD, M, +SD).

in the model. As expected, there was a significant interaction between preexisting attitudes and attitude certainty (b = .08, SE = .02, p = .005, CI [.05, .12]). In particular, preexisting attitudes moderated the effect of attitude certainty on attitudes toward PAS, such that reduced attitude certainty had a mainstreaming effect on participants' attitudes, whereas greater attitude certainty accentuated the role played by preexisting attitudes (see Figure 7). Simply put, while the average difference between highly certain partisans was 2.23, a reduction in certainty was able to substantially diminish this difference (0.99). Importantly, the mediation of experienced disfluency on attitudes toward PAS through attitude certainty was only significant for those with favorable (b = −.09, SE = .03, CI [−.16, −.04]) or unfavorable (b = .03, SE = .01, CI [.01, .06]) preexisting attitudes, but not for ambivalent participants (b = − .01, SE = .02, CI [−.04, .01]).

Additionally, the analysis retrieved a significant interaction between narrative flow and preexisting attitudes (b = −.06, SE = .02, p = .01, CI [−.11, −.02]).

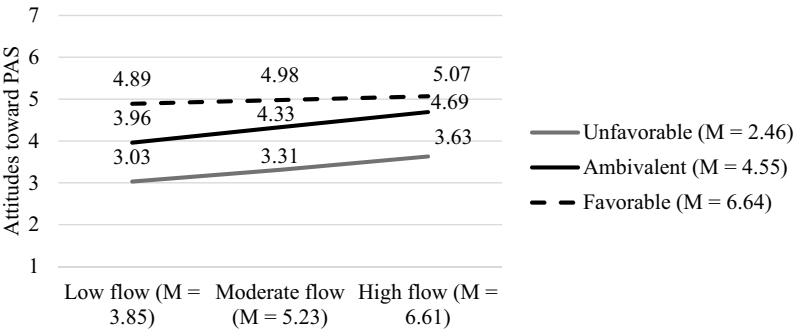

Figure 8. Means for attitudes toward PAS, by narrative flow (-SD, M, +SD) and preexisting attitude (-SD, M, +SD).

In stark contrast to the role played by attitude certainty, narrative flow emerged as a significant mediator only for ambivalent participants ($b = -.12$, $SE = .03$, CI [−.19, −.05]), but not for those with favorable ($b = -.04$, $SE = .05$, CI [−.14, .06]) or unfavorable ($b = -.19$, $SE = .10$, CI [−.39, .06]) preexisting attitudes (see Figures 6–8). Preexisting attitudes did not significantly moderate the influence of narrative engagement ($b = .04$, $SE = .03$, $p = .23$, CI [−.02, .10]) and counterarguing ($b = .02$, $SE = .01$, $p = .27$, CI [−.01, .04]). Overall, the moderated-mediation model accounted for 42.25% of the variance in attitudes toward PAS; $F(11, 546) = 36.32$, $p = .001$.

Discussion

This study attempted to replicate and expand upon the findings of Study 1. Echoing Study 1, the findings supported the ability of disfluent narratives to attenuate attitude certainty and demonstrated that the effects were guided by a metacognitive process. In other words, the effects of narrative disfluency on attitude certainty were clearer when a misattribution manipulation was included. When participants in the disfluent narrative condition were led to believe that the processing of the testimonial will be easy, they tended to report less certainty in their attitudes toward PAS. Previous studies have shown that disfluency decreases people's confidence in their performance, especially when the task is expected to be easy (e.g., Koriat, 1993). Conversely, when participants in the fluent testimonial condition were told that processing would be difficult, they had greater confidence in their attitude.

These results carry two important implications. First, the fact that the influence of exposure to a disfluent testimonial was affected by a misattribution manipulation provides further credence to the assumption that the effects are guided by metacognitive inferences rather than an objective challenge to read or understand the text. Namely, the only real influence of the optical illusion was on the diagnostic value of experienced disfluency and it did not affect the actual difficulty or ease with which the narrative was processed. Put differently, the disfluent version of the testimonial was not easier to process due to the manipulation, but the diagnostic value of disfluency was amplified due to the expectation that processing will be easy (Schwarz et al., 1991). Second, the successful integration of the misattribution manipulation helped to alleviate concerns regarding proposed alternative explanations: cognitive load and violations to perceived realism. If the influence of disfluency can be either augmented or attenuated by manipulating people's expectations, it helps to establish a clear distinction between the metacognitive experience of narrative disfluency and other experiences of difficulty (i.e., cognitive load and violations to perceived realism).

When situated within the broader understanding of how narrative persuasion works, it becomes clear that experienced disfluency is not universally

desirable and that there are considerable benefits to narrative fluency. Keeping all else equal, the mediation analysis suggests that experienced disfluency may be counterproductive as it reduces narrative engagement and narrative flow while enhancing counterarguing. However, the benefits of narrative disfluency emerge when accounting for the role played by preexisting attitudes. As illustrated by a significant moderation of attitude certainty, experienced disfluency can have a mainstreaming effect on attitudes by attenuating certainty and reducing confirmation bias. Indeed, partisans on both sides of the issue reported more moderate attitudes after their certainty was attenuated by the disfluent narrative. By the same token, however, these finding indicate the narrative disfluency can be counterproductive for people with highly positive initial attitudes.

Moreover, a closer look at the pattern of results associated with ambivalent participants, reveals another interesting interplay between metacognitive processing and narrative persuasion: While attitude certainty is not affected for those who do not exhibit partisan preexisting attitudes, ambivalent or indifferent participants seem to benefit more from a fluent and smooth experience when processing a narrative. As evidenced by the interaction between narrative flow and preexisting attitudes toward PAS, flow has only limited ability to affect individuals with strong attitudes. Presumably, those with favorable attitudes do not need the experience of flow to support the message, and those with unfavorable attitudes cannot be moved by the experience of flow. In contrast, when preexisting attitudes do not factor into subsequent judgment, narrative flow can help amplify the persuasive message for ambivalent participants by directing focus to the narrative (Csikszentmihalyi, 1991). Thus, the current results are best summarized as two different paths to narrative persuasion – one that leverages narrative disfluency as a way to attenuate certainty and limits confirmation bias among partisans, and one that leverages narrative fluency by maintaining the experience of flow, directing ambivalent individuals toward the story, its characters, and its underlying message.

There are important limitations worth noting. Namely, our ability to generalize the results to other contexts is somewhat limited due to our focus on the single issue of physician-assisted suicide. The choice to focus on this particular context was guided by the following rationale. First, given the visibility of PAS in US political and health-related discourse, we assumed that a typical online convenience sample will be able to provide a relatively equal distribution of people who support PAS and those who oppose PAS. Second, previous studies that focused on metacognitive judgment used the same context (e.g., Haddock, Rothman, Reber, & Schwarz, 1999). Third, the specific testimonial used in the study was considered highly suitable because pilot studies showed that it can generate relatively high levels of cognitive and emotional engagement. While such arguments support the use of this particular context, they also highlight its potential idiosyncrasy and limited external

validity. Relatedly, it is important to note that text distortion is only one way to induce experienced disfluency; thus it will be useful to replicate the current results with different operationalizations of disfluency. These attempts may include integration of words and sentences embedded in a nonpredictive semantic context (Whittlesea, 1993) or manipulating the prototypical structure of a narrative (Winkielman, Halberstadt, Fazendeiro, & Catty, 2006). Altogether, the findings provide proof of concept offering support for the ability of experienced disfluency to guide narrative processing, affecting the experience of reading the narrative, as well as having downstream consequences on narrative-consistent attitudes. Notwithstanding this contribution, it remains to be seen whether disfluency that results from processing the content of a narrative has similar effects to disfluency that results from perceptual challenges.

General discussion

Though the bulk of the narrative persuasion literature focuses mainly on cognitive and emotional mechanisms, there are considerable reasons to suspect that second-order thoughts regarding the relative ease or difficulty with which narratives are processed may account for some of the variance in its effects. When metacognitions are explicitly linked to narrative persuasion, fluency is assumed to generate a desirable experience of ease that may benefit narrative persuasion (Busselle & Bilandzic, 2008; Vaughn et al., 2010). The aim of the present studies was to provide further nuance to this assertion and to outline the potential advantages of disfluent, or difficult-to-process, narratives. Although some of the leading theoretical frameworks in narrative persuasion, such as the extended elaboration likelihood model (E-ELM, Slater & Rouner, 2002) and the transportation-imagery model (Green & Brock, 2000) have argued that topic involvement should be reduced in importance when processing narratives, this argument seems to hold true mainly for narratives that are able to disguise their persuasive intent. In reality, however, the growing use of entertainment-education to influence knowledge, attitudes, and behaviors in a variety of value-laden contexts, ranging from health and science to politics, suggests that in many instances audiences are aware of narratives' persuasive intent and thus may resist it. In such cases, thepotential implications of narrative disfluency become especially relevant. Keeping in mind that a less direct approach such as narrative persuasion might be counterproductive for individuals with weak attitudes (Dal Cin, Zanna, & Fong, 2004), disfluency is ideally positioned to benefit narrative persuasion in challenging strong attitudes – those that truly elicit resistance – and thus demand more effective persuasive tools.

Notes

1. Ranging from 1 ("extremely liberal") to 7 ("extremely conservative").
2. When analyzing the relationship between attitudes toward PAS and the sub-scales of narrative engagements, the bivariate correlation retrieved a positive and significant relationship with narrative presence (r =.23, p =.001) and emotional engagement (r =.32, p <.001) but negative and nonsignificant correlations with narrative understanding (r = −.08, p =.234) and attentional focus (r = −.08, p =.251).
3. Due to concerns over multicollinearity associated with the overlap between narrative flow and narrative engagement, we reran the model entering each variable separately. When excluding narrative engagement, the total explained variance of the model dropped to.10 but all direct and indirect paths were still significant. When excluding narrative flow, the total explained variance of the model again dropped to.10. This time, however, the direct effect of narrative engagement on attitudes toward PAS were nonsignificant. Beyond that, all direct and indirect paths remained significant (for an outline of all direct paths, see Appendix C).

Acknowledgment

The authors thank Dr. Amy Nathanson and two anonymous reviewers for their constructive comments and thorough evaluations. We also thank James Schwoch and Nicholas Diakopoulos for their helpful suggestions on earlier versions of this article.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Northwestern University.

ORCID

Helena Bilandzic http://orcid.org/0000-0002-9694-9653

References

Alter, A. L. (2013). The benefits of cognitive disfluency. *Current Directions in Psychological Science*, *22*(6), 437–442. doi:10.1177/0963721413498894

Alter, A. L., & Oppenheimer, D. M. (2008). Effects of fluency on psychological distance and mental construal. *Psychological Science*, *19*(2), 161–167. doi:10.1111/j.1467-9280.2008.02062.x

Alter, A. L., & Oppenheimer, D. M. (2009). Using the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review*, *13*(3), 219–235. doi:10.1177/1088868309341564

Alter, A. L., Oppenheimer, D. M., Epley, N., & Eyre, R. N. (2007). Overcoming intuition: Metacognitive difficulty activates analytic reasoning. *Journal of Experimental Psychology: General*, *136*(4), 569–576. doi:10.1037/0096-3445.136.4.569

Bilandzic, H., & Busselle, R. (2017 May). Narrative engagement as flow. Presentation at the ICA-Preconference "Narrative persuasion: From research to practice", Los Angeles.

Botvinick, M. M., Braver, T. S., Carter, C. S., Barch, D. M., & Cohen, J. D. (2001). Conflict monitoring and cognitive control. *Psychological Review*, *108*(3), 624–652. doi:10.1037/0033-295X.108.3.624

Busselle, R. W., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing stories: A model of narrative comprehension and engagement. *Communication Theory*, *18* (2), 255–280. doi:10.1111/j.1468-2885.2008.00322.x

Busselle, R. W., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology*, *12* (4), 321–347. doi:10.1080/15213260903287259

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication and Society*, *4*(3), 245–264. doi:10.1207/S15327825MCS0403_01

Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience*. New York, NY: Harper Trade.

Dal Cin, S., Zanna, M. P., & Fong, G. T. (2004). Narrative persuasion and overcoming resistance. In E. Knowles & J. Linn (Eds.), *Resistance to persuasion* (pp. 175– 191). Mahwah, NJ: Lawrence Erlbaum Associates.

Emanuel, E. J., Onwuteaka-Philipsen, B. D., Urwin, J. W., & Cohen, J. (2016). Attitudes and practices of euthanasia and physician-assisted suicide in the United States, Canada, and Europe. *Jama*, *316*(1), 79–90. doi:10.1001/jama.2016.8499

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*(5), 701–721. doi:10.1037/0022-3514.79.5.701

Green, M. C., & Brock, T. C. (2002). In the mind's eye: Imagery and transportation into narrative worlds. In M. C. Green, J. J. Strange, & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations* (pp. 315–341). Mahwah, NJ: Erlbaum.

Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion, and attitude change. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological foundations of attitudes* (pp. 147–170). New York, NY: Academic Press.

Haddock, G., Rothman, A. J., Reber, R., & Schwarz, N. (1999). Forming judgments of attitude certainty, intensity, and importance: The role of subjective experiences. *Personality & Social Psychology Bulletin*, *25*(7), 771–782. doi:10.1177/0146167299025007001

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based perspective* (*2nd* ed.). New York, NY: The Guilford Press.

Hernandez, I., & Preston, J. L. (2013). Disfluency disrupts the confirmation bias. *Journal of Experimental Social Psychology*, *49*(1), 178–182. doi:10.1016/j.jesp.2012.08.010

Hinyard, L. J., & Kreuter, M. W. (2007). Using narrative communication as a tool for health behavior change: A conceptual, theoretical, and empirical overview. *Health Education & Behavior*, *34*(5), 777–792. doi:10.1177/1090198106291963

Igartua, J. J., Cheng, L., & Lopes, O. (2003). To think or not to think: Two pathways towards persuasion by short films on AIDS prevention. *Journal of Health Communication*, *8*(6), 513–528. doi:10.1080/716100420

Keller, J., Bless, H., Blomann, F., & Kleinbohl, D. (2011). Physiological aspects of flow experiences: Skills-demand-compatibility effects on heart rate variability and salivary cortisol. *Journal of Experimental Social Psychology*, *47*(4), 849–852. doi:10.1016/j.jesp.2011.02.004

Kim, E., Ratneshwar, S., & Thorson, E. (2017). Why narrative ads work: An integrated process explanation. *Journal of Advertising*, *46*(2), 283–296. doi:10.1080/00913367.2016.1268984

Koriat, A. (1993). How do we know that we know? The accessibility model of the feeling of knowing. *Psychological Review*, *100*(4), 609–639. doi:10.1037/0033-295X.100.4.609

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*(3), 221–235. doi:10.1007/BF02879904

Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Kronsnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1–24). Hillsdale, NJ: Lawrence Erlbaum.

Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., & Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology*, *65*(6), 1132–1151. doi:10.1037/0022-3514.65.6.1132

Levy-Ari, S., & Keysar, B. (2010). Why don't we believe non-native speakers? The influence of accent on credibility. *Journal of Experimental Social Psychology*, *46*(6), 1093–1096. doi:10.1016/j.jesp.2010.05.025

Mar, R. A., & Oatley, K. (2008). The function of fiction is the abstraction and simulation of social experience. *Perspectives on Psychological Science*, *3*, 173–192. doi:10.1111/j.1745-6924.2008.00073.x

Maynard, B. (2014 November). *My right to death with dignity at 29*. Retrieved from http://www.cnn.com/2014/10/07/opinion/maynard-assisted-suicide-cancer-dignity/index.html

McDaniel, M. A. (1984). The role of elaborative and schema processes in story memory. *Memory & Cognition*, *12*(1), 46–51. doi:10.3758/BF03196996

McDaniel, M. A., Einstein, G. O., Dunay, P. K., & Cobb, R. E. (1986). Encoding difficulty and memory: Toward a unifying theory. *Journal of Memory and Language*, *25*(6), 645–656. doi:10.1016/0749-596X(86)90041-0

McGlone, M. S., & Tofighbakhsh, J. (2000). Birds of a feather flock conjointly (?): Rhyme as reason in aphorisms. *Psychological Science*, *11*(5), 424–428. doi:10.1111/1467-9280.00282

Mourey, J. A., Lam, B. C. P., & Oyserman, D. (2015). Consequences of cultural fluency. *Social Cognition*, *33*(4), 308–344. doi:10.1521/soco.2015.33.4.308

Moyer-Gusé, E. (2008). Toward a theory of entertainment persuasion: Explaining the persuasive effects of entertainment-education messages. *Communication Theory*, *18*(3), 407–425. doi:10.1111/j.1468-2885.2008.00328.x

Moyer-Gusé, E., & Nabi, R. L. (2010). Explaining the persuasive 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

Newman, E. J., Sanson, M., Miller, E. K., Quigley-McBride, A., Foster, J. L., Bernstein, D. M., & Garry, M. (2014). People with easier to pronounce names promote truthiness of claims. *PloS One*, *9*(2), e88671. doi:10.1371/journal.pone.0088671

Novemsky, N., Dhar, R., Schwarz, N., & Simonson, I. (2007). Preference fluency in choice. *Journal of Marketing Research*, *44*(3), 347–356. doi:10.1509/jmkr.44.3.347

O'Keefe, D. J. (2003). Message properties, mediating states, and manipulation checks: Claims, evidence, and data analysis in experimental persuasive message effects research. *Communication Theory*, *13*(3), 251–274. doi:10.1111/j.1468-2885.2003.tb00292.x

Oppenheimer, D. M., & Alter, A. L. (2014). The search for moderators in disfluency research. *Applied Cognitive Psychology*, *28*(4), 502–504. doi:10.1002/acp.3023

Oyserman, D. (2019). Cultural fluency, mindlessness, and gullibility. In R. Baumeister& & J. Forgas (Eds.), *The social psychology of gullibility* (pp. 255–278). London, UK: Routledge.

Perfecto, H., Galak, J., Simmons, J. P., & Nelson, L. D. (2017). Rejecting a bad option feels like choosing a good one. *Journal of Personality and Social Psychology*, *113*(5), 659–670. doi:10.1037/pspa0000092

Petrocelli, J. V., & Dowd, K. (2007). Ease of counterfactual thought generation moderates the relationship between need for cognition and punitive responses to crime. *Personality & Social Psychology Bulletin*, *35*(9), 1179–1192. doi:10.1177/0146167209337164

Petty, R., & Cacioppo, J. (1981). *Attitudes and persuasion: Classic and contemporary approaches*. Dubuque, IA: Wm. C. Brown.

Pieger, E., Mengelkamp, C., & Bannert, M. (2017). Fostering analytic metacognitive processes and reducing overconfidence by disfluency: The role of contrast effects. *Applied Cognitive Psychology*, *301*(3), 291–301. doi:10.1002/acp.3326

Reber, R., & Schwarz, N. (1999). Effects of perceptual fluency on judgments of truth. *Consciousness and Cognition*, *8*(3), 338–342. doi:10.1006/ccog.1999.0386

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review*, *8*(4), 364–382. doi:10.1207/s15327957pspr0804_3

Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, *9*(1), 45–48. doi:10.1111/1467-9280.00008

Schwarz, N. (2015). Metacognition. In M. Mikulincer, P. R. Shaver, E. Borgida, & J. A. Bargh (Eds.), *APA handbook of personality and social psychology: Attitudes and social cognition* (pp. 203–229). Washington, D.C.: APA.

Schwarz, N. (2018). Of fluency, beauty, and truth: Inferences from metacognitive experiences. In J. Proust & M. Fortier (Eds.), *Metacognitive diversity. An interdisciplinary approach* (pp. 25–46). New York: Oxford University Press. doi:10.1093/oso/9780198789710.003.0002

Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology*, *61*(2), 195–202. doi:10.1037/0022-3514.61.2.195

Shen, F., Sheer, V. C., & Li, R. (2015). Impact of narratives on persuasion in health communication: A meta-analysis. *Journal of Advertising*, *44*(2), 105–113. doi:10.1080/00913367.2015.1018467

Shulman, H. C., & Bullock, O. M. (2019). Using metacognitive cues to amplify message content: A new direction in strategic communication. *Annals of the International Communication Association*, *43*(1), 24–39. doi:10.1080/23808985.2019.1570472

Slater, M. D. (1997). Persuasion processes across receiver goals and message genres. *Communication Theory*, *7*(2), 125–148. doi:10.1111/j.1468-2885.1997.tb00145.x

Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory*, *12*, 173–191. doi:10.1111/j.1468-2885.2002.tb00265.x

Slater, M. D., Rouner, D., & Long, M. (2006). Television dramas and support for controversial public policies: Effects and mechanisms. *Journal of Communication*, *56*(2), 235–252. doi:10.1111/j.1460-2466.2006.00017.x

Song, H., & Schwarz, N. (2008). Fluency and the detection of distortions: Low processing fluency attenuates the Moses illusion. *Social Cognition*, *26*(6), 791–799. doi:10.1521/soco.2008.26.6.791

Thompson, V. A., Turner, J. A. P., Pennycook, G., Ball, L. J., Brack, H., Ophir, Y., & Ackerman, R. (2013). The role of answer fluency and perceptual fluency as metacognitive cues for initiating analytic thinking. *Cognition*, *128*(2), 237–251. doi:10.1016/j.cognition.2012.09.012

Tormala, Z. L., Falces, C., Briñol, P., & Petty, R. E. (2007). Ease of retrieval effects in social judgment: The role of unrequested cognitions. *Journal of Personality and Social Psychology*, *93*(2), 143–157. doi:10.1037/0022-3514.93.2.143

Tormala, Z. L., & Rucker, D. D. (2007). Attitude certainty: A review of past findings and emerging perspectives. *Social and Personality Psychology Compass*, *1*(1), 469–492. doi:10.1111/j.1751-9004.2007.00025.x

Tukachinsky, R., & Tokunaga, R. S. (2012). The effects of engagement with entertainment. *Communication Yearbook*, *37*, 287–321. doi:10.1080/23808985.2013.11679153

vanLaer, 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*(5), 797–817. doi:10.1086/673383

Vaughn, L. A., Childs, K. E., Maschinski, C., Paul Niño, N., & Ellsworth, R. (2010). Regulatory fit, processing fluency, and narrative persuasion. *Social and Personality Psychology Compass*, *4*(12), 1181–1192. doi:10.1111/j.1751-9004.2010.00325.x

Walter, N., & Cohen, J. (2019). When less is more and more is less: The paradoxical metacognitive effects of counterarguing. *Communication Monographs*, *86*(3), 377–397. doi:10.1080/03637751.2019.1580378

Wasserman, J., Clair, J. M., & Ritchey, F. J. (2005). A scale to assess attitudes toward euthanasia. *Journal of Death and Dying*, *5*(3), 229–237. doi:10.2190/FGHE-YXHX-QJEA-MTM0

Whittlesea, B. W. A. (1993). Illusions of familiarity. *Journal of Experimental Psychology. Learning, Memory, and Cognition*, *19*(6), 1235–1253. doi:10.1037/0278-7393.19.6.1235

Winkielman, P., Schwarz, N., Fazendeiro, T. A., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. In J. Musch& & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 189–217). Mahwah, NJ: Lawrence Erlbaum Associates.

Winkielman, P., Halberstadt, J., Fazendeiro, T., & Catty, S. (2006). Prototypes are attractive because they are easy on the mind. *Psychological Science*, *17*(9), 799–806. doi:10.1111/j.1467-9280.2006.01785.x

Wojcieszak, M., Azrout, R., Boomgaarden, H., Alencar, A. P., & Sheets, P. (2017). Integrating Muslim immigrant minorities: The effects of narrative and statistical messages. *Communication Research*, *44*(4), 582–607. doi:10.1177/0093650215600490

Yue, C. L., Castel, A. D., & Bjork, R. A. (2013). When disfluency is—and is not—a desirable difficulty: The influence of typeface clarity on metacognitive judgments and memory. *Memory & Cognition*, *41*(2), 229–241. doi:10.3758/s13421-012-0255-8