



## The Experience of Emotional Shifts in Narrative Persuasion

Julia R. Winkler, Markus Appel, Marie-Luise C.R. Schmidt & Tobias Richter

To cite this article: Julia R. Winkler, Markus Appel, Marie-Luise C.R. Schmidt & Tobias Richter (2023) The Experience of Emotional Shifts in Narrative Persuasion, *Media Psychology*, 26:2, 141-171, DOI: [10.1080/15213269.2022.2103711](https://doi.org/10.1080/15213269.2022.2103711)

To link to this article: <https://doi.org/10.1080/15213269.2022.2103711>



© 2022 The Author(s). Published with license by Taylor & Francis Group, LLC.



[View supplementary material](#)



Published online: 02 Aug 2022.



[Submit your article to this journal](#)



Article views: 15912



[View related articles](#)



[View Crossmark data](#)



Citing articles: 30 [View citing articles](#)

## The Experience of Emotional Shifts in Narrative Persuasion

Julia R. Winkler <sup>a</sup>, Markus Appel <sup>a</sup>, Marie-Luise C.R. Schmidt <sup>b</sup>,  
and Tobias Richter <sup>b</sup>

<sup>a</sup>Human-Computer-Media Institute, Psychology of Communication and New Media, Julius-Maximilians-Universität Würzburg, Würzburg, Germany; <sup>b</sup>Institute of Psychology, Department of Psychology IV, Julius-Maximilians-Universität Würzburg, Würzburg, Germany

### ABSTRACT

Recent theory on narrative processes suggests that changes in recipients' emotional responses (emotional shifts) are characteristic of immersed story processing and precursors of narrative impact. In two experiments and a pilot study, a novel *self-probed emotional retrospection task* was used to measure emotional shifts. We examined the link between transportation and emotional shifts and the association of these processes with story-consistent attitudes, social sharing intentions, and behavior. We manipulated transportation via positive and negative reviews prior to story exposure. Consistent with theory, and across both experiments, we found that transportation was positively associated with the number and intensity of emotional shifts. Transportation was linked to affective-level attitudes in particular. While emotional shifts were not related to attitudes in Experiment 1, they were related to affective-level attitudes and social sharing intentions in Experiment 2. We further discuss the validity of emotional shifts measured through self-probed retrospections in light of the results of the presented studies.

The experience and impact of stories is a growing field of research in communication science, psychology, and related disciplines. Meta-analyses and narrative reviews underscore the potential of stories, fictional or nonfictional, to change recipients' attitudes, beliefs, and behavior (e.g., Green et al., 2020; Ratcliff & Sun, 2020; Van Laer et al., 2014). The persuasive influence of stories is typically explained by their ability to immerse recipients, a mental state referred to as transportation or narrative engagement. Recent theorizing has directed attention toward the role that the shifting emotional responses recipients experience throughout a story may play in the narrative persuasion process. The notion that emotion and transportation mutually facilitate each other has been advanced by many scholars in the past (e.g., Carroll, 1999; Oatley, 1994; Tan, 1996). According to recent theoretical work by Nabi and Green (2015), the emotional shifts that recipients of a story experience act as

**CONTACT** Julia R. Winkler  [julia.winkler@uni-wuerzburg.de](mailto:julia.winkler@uni-wuerzburg.de)  Human-Computer-Media Institute, Julius-Maximilians-Universität Würzburg, Oswald-Külpe-Weg 82, Würzburg 97074, Germany  
 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/15213269.2022.2103711>.

© 2022 The Author(s). Published with license by Taylor & Francis Group, LLC.  
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

indirect motors of narrative persuasion by reinforcing transportation. Furthermore, emotional shifts are hypothesized to affect engagement with the narrative after exposure, such as information seeking or interpersonal communication, thereby extending narrative impact beyond message exposure. The purpose of this paper is to provide an empirical test of some of the core predictions put forward by Nabi and Green (2015; see also Nabi, 2015). Specifically, we focus on the relationship of emotional shifts with narrative transportation (Green & Brock, 2000) and the role emotional shifts play for story-consistent outcomes and social sharing intentions.

Empirical research on the dynamic experience of primary emotions when following a story is rare, which can be traced back to a scarcity of appropriate methodological approaches. We present the *self-probed emotional retrospection method* as a method to assess dynamic emotional experiences during story exposure. This method is first examined in a pilot study. In two subsequent experiments, levels of transportation are manipulated through positive vs. negative reviews. Experiment 1 tests the expected relationships between transportation, emotional shifts, and story-consistent attitudes using a fictional love story. Experiment 2 aims to replicate and extend the results of Experiment 1 using a different narrative stimulus, a journalistic reportage. Furthermore, it takes on a more fine-grained view on story-consistent outcomes by examining the effects of cognitive- and affective-level attitudes, donation behavior, and social sharing intentions.

## Experiencing Narrative Worlds

Narrative effects are typically attributed to an immersed experiential state that is characteristic of story experience: Stories have the power to capture recipients' attention, to evoke a rich mental representation of the events unfolding, and to elicit strong emotions. Over the last two decades, several concepts have been developed to describe the state of being psychologically immersed in a story. A large amount of research on story experience is based on *narrative transportation* (Gerrig, 1993; Green & Brock, 2000) and the related construct of *narrative engagement* (Busselle & Bilandzic, 2008). Both concepts include the understanding of a story, constructing mental models, and building mental imagery (Busselle & Bilandzic, 2009; Gerrig, 1993). Transportation is argued to be a key mechanism for narrative persuasion to occur: In a state of heightened transportation, participants experience rich imagery of the story events, take over the perspective of the protagonists, and suspend processes (such as counterarguing) that lead to a resistance to change (Green & Brock, 2000; Moyer-Gusé, 2008; Slater & Rouner, 2002). Indeed, meta-analytic evidence shows that transportation plays a crucial role for persuasive outcomes (Tukachinsky & Tokunaga, 2013; Van Laer et al., 2014). Based on this foundational work, recent theory and research has increasingly acknowledged the

intra-individual changes in recipients' experiential states during the course of a story (e.g., Appel et al., 2019; Bezdek & Gerrig, 2017; Nabi & Green, 2015). Our focus here is on affective responses, in particular the emotional ups and downs when reading or watching a story.

## Emotional Shifts

Characteristic changes in events throughout the course of a story and related emotional content have been described in narrative theories since Aristotle (Aristotle, 367–322 B.C.E./2001; see for example Bordwell, 1985; Cutting, 2016; Freytag, 1863). In recent years, software-based corpus analyses have provided evidence of typical narrative patterns: For example, sentiment analyses of books in the Project Gutenberg fiction database show that stories generally follow one of six basic narrative arcs, which are characterized by dynamic changes in emotional content (Reagan et al., 2016). By getting swept up in a story, audiences therefore become susceptible to the dynamic emotional experiences implied by the narrative events. A major theoretical approach at reconstructing affective changes on the part of the recipient is provided by Nabi and Green (2015) who highlight the role of emotional shifts as part of narrative experience and persuasion before, during, and after story exposure. Emotional shifts are conceived as changes in the audience's emotional experience when following a narrative, “from negative to positive (e.g., fear to relief), from positive to negative (e.g., happiness to sadness), and even from one negative or positive emotional state to another of a similar valence (e.g., fear to anger or happiness to pride)” (p. 143). Nabi and Green use the term *emotional flow* to describe the succession of the emotional shifts that recipients experience. We rather prefer the term *emotional shifts* to avoid confusion with the concept of Csíkszentmihályi's *flow* which has also been applied to narrative persuasion research, but is a distinct concept (Green et al., 2020).

Narratives are an effective means to evoke different emotions because stories usually follow the journey of a protagonist faced with and overcoming obstacles or conflict. Audiences are inclined to evaluate the actions of the characters in a story and form affective dispositions toward them (Zillmann, 2006). This is bound to create dynamic emotional responses throughout the story as the characters face events and outcomes the audiences hoped for or feared. Nabi and Green (2015; see also Nabi, 2015) suggest that emotional shifts drive narrative persuasion; first, by attracting audiences to specific content, second, by reinforcing narrative transportation, and third, by promoting post-narrative engagement. Furthermore, emotions have different action tendencies and implications for information processing, and may therefore serve different aspects of the persuasive message in a complementary way (Nabi, 2015). For example, the careful information processing and problem-

solving tendency elicited by sadness may benefit long-lasting attitude changes, whereas the passiveness it is associated with may be alleviated by the activating properties of a positive emotion like happiness, which is related to more heuristic processing, feelings of trust, and sharing behavior (Nabi, 2002).

The influence of emotional shifts extends beyond story exposure: Narrative experiences characterized by emotional shifts may prompt audiences to different forms of post-narrative engagement. These may include processes like retrospective imaginative involvement with a story or parasocial relationships with its characters (Slater et al., 2018), and behaviors such as repeated reception of a story, information seeking, or social sharing and thereby extending persuasive influence into one's social network (Nabi & Green, 2015). Some studies highlight the role of emotion for stimulating interpersonal communication and information diffusion in social networks: Bartsch (2012) identified the social sharing of emotions (i.e., being inspired to talk about a movie with others) as one of the emotional gratification viewers gain from movies and television series and suggests that social sharing may play an important role for emotion regulation. Other studies show that emotionally charged content is more likely to be shared and spreads faster on social media than more neutral content (e.g., Stieglitz & Dang-Xuan, 2013).

Following Nabi and Green (2015), we assume that emotional shifts and the experience of transportation are processes that reciprocally drive one another: On the one hand, emotional shifts help sustain attention to a narrative and facilitate states that are critical for persuasive effects (e.g., transportation) through excitation transfer (Zillmann, 1996), by creating suspense (e.g., Bezdek & Gerrig, 2017), and by prompting orienting responses that direct cognitive resources to the evolving story (Clayton et al., 2021). Conversely, the likelihood to experience emotional shifts consistent with the story should increase with one's narrative transportation (Appel et al., 2019; Nabi & Green, 2015). Busselle and Bilandzic (2008) describe narrative engagement in terms of deictic shifts theory (Segal, 1995), highlighting that the story world becomes the world of reference to the recipients, which is a requirement for emotional engagement. Particularly for written stories, in which blatant visual and auditive cues are missing, attentional focus, narrative understanding, and vivid imagination of the events unfolding are prerequisites for experiencing the emotional shifts implied by the story. These aspects are core components of narrative transportation. Therefore, transportation should facilitate audiences' experience of the emotional ups and downs of a story.

Emotional shift theory leads to a range of testable predictions (Nabi & Green, 2015), but assessing emotions that are experienced at different time points in a story is a methodological challenge. Thus, research on the dynamic experience of emotions when reading, watching, or listening to a story and its role for persuasive outcomes is scarce. Several studies manipulated the emotional content of a narrative and assessed the influence

on narrative persuasion (Appel & Richter, 2010; Carrera et al., 2008, 2010; Hamby & Brinberg, 2016; Rossiter & Percy, 1991; Rossiter & Thornton, 2004). Some health communication studies suggest that storylines with changing emotional content, such as a shift from negative to positive (Carrera et al., 2010; Rossiter & Thornton, 2004) or from positive to negative valence (Carrera et al., 2008), are more persuasive than a story with negative valence throughout.

These studies manipulated story content which may have led to a range of psychological effects, including, but not limited to, emotional shifts. Moreover, whether or not emotional shifts were affected by these manipulations remains an open question, because no measure of emotional shifts was employed. To date, there is little empirical evidence on the link between recipients' experience of emotional shifts and transportation or between emotional shifts and story-consistent attitudes and behavior. To address this research challenge, we introduce and apply a method that measures emotional responses in the moment they occur.

### **Measuring Emotional Shifts**

There are several ways to assess online emotional responses to a narrative, for example, psychophysiological measures to capture the arousal (and, to some extent, valence) dimension of emotion, observations of facial expressions, or assessment of brain activity (Mauss & Robinson, 2009). However, all of these options are resource intensive and require complex data analysis. Furthermore, scholars disagree on the question if any of these methods is suitable as a stand-alone measure of emotional reactions beyond their basic affective dimensions (i.e., valence and arousal; Kreibig, 2010; Mauss & Robinson, 2009; Siegel et al., 2018).

Self-report measures offer insights into the subjective feeling component of emotion and are commonly used due to their easy implementation and interpretation (Lang & Ewoldsen, 2011). The study of emotional dynamics as narrative processes requires a method that allows for assessing emotional states multiple times during story exposure while keeping interference with the narrative experience itself to a minimum. On the other hand, retrospective accounts of emotions felt during different parts of a story are likely to be impaired by different biases. Importantly, the accessibility of episodic memories may decrease with time, causing participants to rely on generalized beliefs about emotions instead (Robinson & Clore, 2002, cf. Walentynowicz et al., 2018). Real-time response (RTR) measures that allow participants to indicate their experiences using a rating dial provide one way to approach this problem (Biocca et al., 1994; see Siegenthaler et al., 2021, for

an implementation within the emotional shifts framework). However, to avoid interference with narrative experiences, assessment of emotion is limited to one dimension (Lang & Ewoldsen, 2011).

The work presented here utilizes a method to investigate emotional changes as they occur in an efficient and accessible way: The *self-probed emotional retrospection method*. This method is based on Larsen and Seilman (1988, 1989) who were interested in story-cued reminders during reading: Whenever a memory occurred, readers had to mark an “M” (for memory) at the text margins. This method was adapted by Eng (2002, described in Mar et al., 2011) who aimed at capturing emotional responses to expository texts and written narratives while minimizing interference with narrative engagement. Participants were instructed to mark an “M” at the text margin for a memory, and an “E” to signify an emotional response. After they finished reading, they returned to their e-markings to elaborate on their experiences. Self-probed retrospections – focused on emotional experiences – allow for a richer assessment of readers’ emotional experiences than RTR procedures. At the same time, the “E”s participants draw on the text margin act as cues that later enable the recall of one’s emotional experiences rather than their retrospective (and more likely to be biased) reconstruction. Similar cued-recall procedures have been validated as approximative measures of real-time assessments of emotion. For instance, Mauss et al. (2005) found that online-ratings of amusement and sadness obtained with a rating dial participants operated during film viewing correlated strongly with continuous cued-recall ratings of these emotions. Furthermore, cued-recall ratings were coherent with physiological arousal measures obtained during the initial viewing of the film. Similarly, McCall et al. (2015) measured physiological arousal (skin conductance and heart rate) of participants who were immersed in a threatening scene via virtual reality. Afterward, participants re-watched the scene on a computer and provided continuous ratings of their arousal during the virtual reality setting. The study found high coherence between the physiological arousal patterns and the retrospective reports. Overall, there is strong evidence of the concurrent validity of cued-recall measures of continuous emotional experience, which should apply to self-probed emotional retrospections as well. Furthermore, a few studies have successfully applied this method to capture varying affective responses to narratives (Eng, 2002; Koopman, 2016). For instance, Koopman (2016) used self-probed retrospections to assess the effects of different literary techniques. This study found that stories using foregrounding resulted in more reports of ambivalent emotions, and both imagery and foregrounding led to more reports of aesthetic emotions, which speaks to the sensitivity of the measure to capture emotional experiences of different quality.

## Study Overview and Predictions

We present a pilot study and two experiments that examined emotional shifts with the help of the *self-probed emotional retrospection method*. Emotional shifts were quantified using two indicators: the number and the intensity of emotional shifts. Based on this method, we were able to investigate the theoretically proposed reciprocal relationship between transportation and emotional shifts and their respective roles for enhancing story-consistent attitudes, behavior, and post-narrative engagement (Nabi, 2015; Nabi & Green, 2015).

We predicted that with higher levels of transportation, the number of experienced emotional shifts and the intensity of the shifts should increase (Hypothesis 1). We further expected that the higher the number and intensity of emotional shifts, the more recipients endorsed story-consistent attitudes (Hypothesis 2a), reported the intention to share the story (Hypothesis 2b), and engaged in story-consistent behavior (Hypothesis 2c).

Given the difficulties associated with manipulating the emotional content of a story independently from the persuasive messages conveyed with it, the experiments incorporated an experimental manipulation of transportation as a causal anchor in our model. Transportation was manipulated with the help of negative versus positive reviews presented in advance, a method that has shown consistent and reliable effects on narrative transportation (e.g., Isberner et al., 2018; Shedlosky-Shoemaker et al., 2011; Tiede & Appel, 2020). According to Tan (1996), the extent to which media users invest cognitive and emotional resources in the processing of a stimulus depends on their expectations of the gratifications to be derived from it. Reviews shape these expectations: If readers assume they are about to read a bad story, they are less likely to invest resources while reading and therefore experience lower levels of transportation (see Tiede & Appel, 2020, for a detailed introduction of the theoretical background and empirical support). Thus, we expected that a negative review about the story (vs. positive or no review) before reading the story would decrease levels of transportation (Hypotheses 3a and 3b). Although we intended the reviews mainly for the manipulation of transportation, they may also affect the experience of emotional shifts. However, it is uncertain if the extent to which readers experience emotional shifts is malleable by information other than the narrative itself. Studies manipulating emotional shifts did so by altering story structures and events (e.g., Carrera et al., 2008, 2010). Therefore, we posed the research question: Do negative reviews (vs. positive or no review) have a negative effect on the experience of emotional shifts? Based on prior research (Tukachinsky & Tokunaga, 2013; Van Laer et al., 2014), we expected that transportation predicts story-consistent attitudes, sharing intentions and behavior (Hypotheses 4a, 4b, and 4c). The first four hypotheses constitute a two-step mediation model

with the review manipulation as an independent variable, and attitudes, sharing intentions, and behavior as dependent variables. Transportation and emotional shifts served as sequential, i.e., successive mediators (Hypotheses 5a, 5b, and 5c for the three dependent variables).

## **Pilot Study**

Our work started with a pilot study. The primary goal of this pilot was to test the feasibility of the self-probed emotional retrospection method and to gain insight into its validity. As a means to evaluate the construct validity of self-probed emotional retrospections, we assessed participants' need for affect. This trait explicates "people's tendency to experience, explore, communicate, and use their emotions to guide behavior" (Maio & Esses, 2001, p. 592). Assuming that the self-probed retrospection method is a suitable tool to capture emotional experiences of varying intensity, individuals' need for affect should be positively related to the extent to which participants report emotional experiences. Following Bartsch and colleagues (2010), our expectations concerning emotional experience were focused on the approach component of the need for affect. Moreover, the pilot study was meant to examine the review manipulations and the persuasive effect of the stimulus material. To create favorable versus unfavorable conditions for transportation, we presented participants with either a positive, a negative, or no review about the story beforehand (Shedlosky-Shoemaker et al., 2011; Tiede & Appel, 2020)<sup>1</sup>.

## **Method**

### ***Participants and design***

A total of 146 individuals participated in the study. Participants were students at the University of Koblenz–Landau at Landau, Germany, 22.77 years old on average ( $SD = 4.54$ ), and predominantly female ( $n = 96$ ). The experiment followed a one-factorial design with three conditions (negative review vs. positive review vs. no review introducing the story). In the no review condition, story-related attitudes were assessed before the story as a way to examine non-exposure attitudes.

### ***Story and manipulation of story experience***

All participants read the short story *Das Ende der Reise* (*The end of a journey*, 3180 words, Bjarnason, 2011). The story is set in a retirement home in Iceland. Stina, a widow who lives in a retirement home, feels lonely and frequently engages in daydreaming and reminiscing. Many years ago, she met Jon at a midsummer night festivity, and they had an affair, but they lost track of each other. One day a new resident of the retirement home is introduced – it is Jon. They revive their romantic relationship and spend a joyful time together.

Retirement home officials as well as their families, however, disapprove of their relationship and Stina is scheduled to be relocated to a different place. Facing this involuntary separation, the couple jointly commits suicide.

Before reading the short story, participants were presented with a fictitious review about the story, ostensibly written by a literary critic. The review was positive, negative, or no review was provided (control condition). The positive review praised the story for its vivid descriptions, its ability to immerse the reader and to be touching and moving. The negative review contained negative evaluations of the same aspects and described the story as one-dimensional, superficial, and unable to immerse or touch the reader (see Online Supplement S1 for the exact wordings). After reading the review, participants were asked to summarize it in one or two sentences.

### *Self-probed emotional retrospections*

While reading the story, participants marked any section of the text in which they experienced an emotional response with an “E” on the margin. This task was introduced with a brief practice text before the experimental material was presented. After reading the complete story, participants were asked to specify the emotions they experienced. To this end, they had to number all “E”s and rate the intensity of each of six basic emotions (anger, happiness, sadness, fear, surprise, and disgust) for every “E” using a scale from 1 (not at all) to 7 (completely). We instructed participants to unite “E”s that were placed within three lines of the text and expressed the same emotional response.

### *Measures*

*Emotional experience.* We counted the number of “E”s participants marked during the story as an indicator for individuals’ tendencies to report emotional experiences.<sup>2</sup>

*Need for affect.* We assessed subjects’ need for affect using the Need for Affect Questionnaire-Short Form (NAQ-S, Appel et al., 2012). This measure consists of two subscales comprising five items each (AV = avoidance tendency subscale, e.g., “I would prefer not to experience either the lows or the highs of emotion,” AP = approach tendency subscale, e.g., “I feel that I need to experience strong emotions regularly”). Items were rated on a scale ranging from 1 (not at all) to 7 (very much). Cronbach’s  $\alpha$  was .65 for the approach tendency subscale and .76 for the avoidance tendency subscale.

*Transportation.* Transportation was measured with the German version of the Transportation Scale-Short Form (Appel et al., 2015). The scale consists of six items (e.g., “I could picture myself in the scene of the events described in the narrative”) and a rating scale from 1 (not at all) to 7 (very much). For the two

items capturing the imaginative component of transportation (“While reading the narrative I had a vivid image of [character]”), character names Stina and Jon were inserted ( $\alpha = .81$ ).

**Attitude measures.** From a persuasion perspective, the story addressed two main topics, the acceptance of romantic love among individuals residing in retirement homes and attitudes toward suicide for elderly people as a self-determined end of life. We created five items to assess recipients’ *attitude toward suicide in old age* (e.g., “It should be possible to end one’s life in old age without any greater resistance,”  $\alpha = .67$ ). Five additional items measured recipients’ *attitude toward old-age romance* (e.g., “Romantic relationships in old age should be actively encouraged,”  $\alpha = .60$ ). The attitude items went with 7-point response scales, ranging from 1 (not at all) to 7 (very much). All items are documented in Supplement S2.

### Procedure

Participants entered the lab individually or in groups of up to four. Each participant was randomly assigned to one of the three conditions. First, they completed the Need for Affect Questionnaire. Next, the self-probed emotional retrospection procedure was explained by the experimenter. Participants in the review conditions now read and summarized the review, whereas the control group answered the attitude questions. Then, participants read the story and completed the e-marking task. Immediately after reading, they answered the transportation items and then specified emotional experiences for each “E”. Participants in the review conditions then completed the attitude items. Finally, all participants answered sociodemographic questions and were thoroughly debriefed.

### Results

Overall, the general procedure of the self-probed retrospections appeared to be comprehensible and workable. However, there was great variation in the number of “E”s participants originally marked ( $M = 36.36$ ,  $SD = 25.21$ ,  $\text{min} = 4$ ,  $\text{max} = 122$ ). Due to the high number of “E”s to be qualified for some subjects and a fixed timeframe allocated per session, 50 participants were unable to finish the questionnaire and rate all “E”s, leading to a high number of nonrandom missing values. These cases were excluded from further quantitative analyses. Another participant was excluded because of missing data in the transportation scale, and one participant noted that they did not work on the study conscientiously, leaving a final sample of 94 participants (age:  $M = 22.81$ ,  $SD = 5.18$ ,  $n_{\text{female}} = 58$ ). The number of “E”s in this sample ranged from 4 to 69 ( $M = 22.49$ ,  $SD = 13.16$ ,  $Mdn = 19$ ).

As an indicator for the construct validity of the instrument, we used the remaining sample to examine the relationship between response patterns in the self-probed emotional retrospection task and participants' need for affect. Importantly, the number of "E"s participants stated was positively related to the approach dimension of the need for affect ( $r = .230, p = .025$ ), but unrelated to the avoidance dimension ( $r = -.031, p = .769$ ; see Supplement Table S3a).

Next, we checked whether reading the positive vs. negative reviews affected participants' levels of transportation as intended. Results of a univariate ANOVA show that indeed, groups differed significantly with regard to transportation,  $F(2, 91) = 3.86, p = .025, \omega^2 = .06$ . This effect was driven by the negative review, which lowered participants' transportation (Table S3b). Finally, we were interested if there was a persuasive effect with regard to the attitudes we identified as relevant to the story. Univariate ANOVAs yielded no significant effect of condition with respect to attitudes toward old-age romance,  $F(2, 91) = 2.75, p = .070, \omega^2 = .04$ , and attitudes toward old-age suicide,  $F(2, 91) = 2.99, p = .055, \omega^2 = .04$ . However, for both variables means were lowest in the control condition and highest in the positive review condition. Post-hoc analyses revealed that this difference was significant for attitudes toward old-age romance and approached significance for attitudes toward old-age suicide (Table S3b).

### ***Discussion and Implications for the Main Experiments***

The pilot study provided encouraging results regarding the feasibility and validity of the self-probed emotional retrospection measure. That said, the issues encountered regarding the extreme number of "E"s to be qualified by some participants called for some modifications of the procedure for our main experiments. Whereas limiting the number of "E"s to be assigned by participants before reading the story seemed inappropriate given the likely influence on the task's cognitive demand and the reading experience, we decided to add a step to the procedure. After participants finish reading the story and assigning their "E"s, they are asked to revisit their "E"s and select a maximum of a given number of "E"s that they consider most relevant. These selected "E"s are then qualified with regard to the emotions experienced. The limit of "E"s to be selected greatly depends on the story used. Based on the median of 19 of the number of "E"s in the pilot, we deemed a limit of 24 in Experiment 1 (using the same story) a sufficient number to capture a broad spectrum of emotional experiences of the narrative. This limit allows for more predictable participation times and avoids fatigue on the side of participants, which may otherwise compromise data quality and cause nonrandom missing values resulting from dropouts. Moreover, setting a predefined limit as a frame of reference should help balance out inter-individual differences in subjects' response tendencies to report more or less "E"s.

The results regarding the review manipulation of transportation and the persuasive effects of the story seemed promising. Although we found a significant difference between the positive and the control group with regard to attitudes toward old-age romance only, this may have been due to a lack of power caused by the large number of subjects we had to exclude. Therefore, we retained both attitude variables for the main experiment.

## Experiment 1

Experiment 1 tested the relationships between transportation, the experience of emotional shifts, and story-consistent attitudes. We used the same materials and review manipulations as in the pilot study. Based on the experiences gained from the pilot study, a few changes were made with regard to the procedure of the self-probed emotional retrospections.

### Method

#### Participants

Our main hypothesis was the association between transportation and emotional shifts. A priori sample size was determined with the help of G\*Power (Faul et al., 2009). Given a two-tailed test for a Pearson correlation,  $\alpha = .05$  and power  $(1-\beta) = .80$ , a total of 123 participants would have been required to find a small-to-medium effect size of  $r = .25$ . A second aspect that guided our sample size were the main effects of the review manipulation on transportation. Our pilot study yielded a main effect difference of Cohen's  $f = .31$  (which is similar to the  $\eta^2 = .10$  that Tiede & Appel, 2020, Experiment 1, observed). Given a two-tailed  $F$ -test,  $\alpha = .05$  and power  $(1-\beta) = .80$ , a total sample size of 102 participants were required (i.e., less than for the continuous measures associations). Thus, the sample size was based on the 123 participants required for the focal association. To account for potential exclusions, we set a goal of 140 participants in our lab experiment. Students of the University of Würzburg, Germany, participated for partial course credit. Of the 141 participants in the study, four had to be excluded because the experiment was disrupted by a security alert. We excluded another four because of missing data in the attitude measures, and two participants who did not pick the most relevant "E"s across the whole story but instead the first "E"s in the order of their appearance, thereby ending their e-specifications in the middle of the story (details on the procedure can be found below). One participant was excluded because they specified less than half of the 24 "E"s. One participant recommended that their data should not be analyzed (at the end of the questionnaire, participants were asked if they had answered all questions conscientiously and if they recommended their data to be analyzed or not).

Another one was excluded because they indicated insufficient language abilities. The remaining 128 participants were 20.84 years old on average ( $SD = 2.48$ ), and most of them ( $n = 90$ ) were female.

### *Self-probed emotional retrospections*

After reading the experimental story and completing the e-marking task, participants were instructed to select and number up to 24 of the most relevant “E”s and to specify their emotional experience for each by rating the intensity of six emotions (anger, happiness, sadness, fear, surprise, disgust) on a scale from 1 (not at all) to 7 (completely).

### *Coding of emotional shifts*

We operationalized the degree to which participants experienced emotional shifts (1) by coding the number of emotional shifts reported over the course of the narrative and (2) by computing a measure for the intensity of emotional shifts from the sum of absolute differences across e-specifications (for additional information on the treatment of missing values during the coding of these variables, see Supplement S12).

*Number of emotional shifts.* The occurrence of an emotional shift was computed using the following rules: (1) For each experience, the emotion with the highest score was specified as the dominant emotion. (2) Whenever two or more emotions obtained the highest score, this was specified as a mixed dominant emotion. (3) An emotional shift was coded when the dominant emotion or mixed dominant emotion changed to a different dominant emotion or mixed dominant emotion. We then counted the number of emotional shifts for each participant. Count variables tend to violate common distribution assumptions. In our case, however, the distribution did not substantially differ from a normal distribution (skewness =  $-0.60$ ,  $SE = 0.21$ ; kurtosis =  $0.06$ ,  $SE = 0.43$ ; see Supplement S11 for statistics and a graphical depiction of the distributions of this variable for both experiments).

*Intensity of emotional shifts.* For each emotion, we calculated and summed up the absolute differences between subsequent e-specifications, resulting in six new variables (one each for sadness, happiness, anger, fear, surprise, and disgust). Internal consistency among these variables was good (Cronbach’s  $\alpha = .85$ ). We then summed up the six individual scores into one variable, which indicates the quantity of shifts in emotional intensity ratings while reading the story. We illustrate the calculation of this variable with an example in Supplement S12.

## Measures

The same measures were used as in the pilot study (transportation Cronbach's  $\alpha = .83$ , attitudes toward old-age suicide  $\alpha = .76$ , and attitudes toward old-age romance  $\alpha = .59$ ).

## Procedure

The same procedure was employed as in the pilot study, except that participants in the control group (no review) answered the attitude items at the end of the questionnaire instead of beforehand. Furthermore, we asked participants to pick a maximum of 24 of their most relevant "E"s to specify.<sup>3</sup>

## Results and Discussion

We used two indicators to quantify emotional shifts (number and intensity) and two measures for story-consistent attitudes. To avoid alpha-error accumulation,  $\alpha$  was adjusted respectively prior to the inference statistics (Holm–Bonferroni correction).

Table 1 presents the zero-order correlations between the main variables. As expected in Hypothesis 1, the number of emotional shifts,  $r(126) = .324$ ,  $p < .001$ , as well as the intensity of emotional shifts,  $r(126) = .448$ ,  $p < .001$ , were positively associated with recipients' transportation into narrative worlds. Among the four correlations between emotional shifts and story-consistent attitudes, only the link between intensity of emotional shifts and attitudes toward old-age romance approached significance,  $r(126) = .197$ ,  $p = .026$ . Given that Hypothesis 2a was represented by four associations, the Holm–Bonferroni-adjusted  $\alpha$  was .0125. Thus, Hypothesis 2a was not supported. No evidence was found that experiencing emotional shifts is associated with story-consistent attitudes.

Next, we tested whether reading a negative review prior to the story decreased transportation compared to a positive review and compared to no review (Hypotheses 3a and 3b). Results from a univariate ANOVA show that the three conditions differed significantly in terms of transportation,  $F(2, 125) = 4.47$ ,  $p = .013$ ,  $\omega^2 = .05$ . Post-hoc comparisons using the Games–Howell test (Sauder & DeMars, 2019) revealed that levels of transportation were lowest for participants who read the negative review.

**Table 1.** Zero-Order Correlations of the Continuous Variables (Experiment 1).

Variable	1	2	3	4
(1) Transportation	-			
(2) Number of emotional shifts	.324 (<.001)	-		
(3) Intensity of emotional shifts	.448 (<.001)	.766 (<.001)	-	
(4) Attitude toward old-age suicide	.035 (.698)	-.074 (.407)	.086 (.334)	-
(5) Attitude toward old-age romance	.345 (<.001)	.041 (.648)	.197 (.026)	.208 (.019)

*N* = 128. Correlation *p*-values are shown in brackets.

The significant difference in transportation was driven by the difference between the negative review and the no review group (see Table 2 for group means and group comparison *p*-values). Thus, results provide support for H3b but not for H3a.

Supporting Hypothesis 4a, transportation was related to attitudes toward old-age romance,  $r(126) = .345, p < .001$ , but transportation was unrelated to attitudes toward old-age suicide,  $r(126) = .035, p = .698$ .

To test for a mediation of the effect of reading a story with either a positive, a negative, or no review on story-consistent attitudes via transportation and emotional shifts (H5a), we estimated four sequential mediation models using PROCESS v3.5 (Model 6, 5000 bootstrap samples; Hayes, 2018). Review conditions served as independent variables ( $X1 =$  negative review vs. no review,  $X2 =$  negative review vs. positive review), transportation ( $M1$ ) and number or intensity of emotional shifts ( $M2$ ) as mediators, and one of the two attitude measures as the dependent variable. The results of these two-step mediations are depicted in detail in Supplement S4. The total effect of the treatment on attitudes was not significant in any of the models. Thus, no evidence was found that emotional shifts mediate the influence of transportation on attitudes as predicted by Hypothesis 5a. Further, the findings from these mediation models can be related to our research question whether reviews affect not only transportation but also emotional shifts more directly. While a negative review affected transportation negatively compared to no review and transportation was positively related to both the number and intensity of emotional shifts, there was no direct effect of the review conditions on either of the two emotional shift variables.

In sum, the results of this study provide some initial evidence of the link between transportation and the experience of emotional shifts as postulated by Nabi and Green (2015). However, we did not find evidence of a relationship between shifts and story-consistent attitudes.

**Table 2.** Descriptives, Post-Hoc Group Comparison *p*-Values and Cohen’s *ds* (Experiment 1).

Measure	Negative Review ( <i>n</i> = 43)	Positive Review ( <i>n</i> = 42)	Control ( <i>n</i> = 43)	Negative vs. Positive		Negative vs. Control		Positive vs. Control	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>p</i>	<i>d</i>	<i>p</i>	<i>d</i>	<i>p</i>	<i>d</i>
Transportation	4.77 (1.05)	5.03 (1.14)	5.44 (0.94)	.510	0.24	.007	0.67	.179	0.39
Number of emotional shifts	13.19 (4.95)	13.71 (3.47)	13.93 (3.77)	.836	0.12	.714	0.17	.959	0.06
Intensity of emotional shifts	154.58 (65.93)	183.62 (66.49)	176.84 (59.78)	.113	0.44	.235	0.35	.874	−0.11
Attitude toward old-age suicide	4.02 (1.13)	3.70 (1.22)	4.01 (1.15)	.425	−0.27	.997	−0.01	.472	0.26
Attitude toward old-age romance	6.21 (0.73)	6.12 (0.75)	5.92 (0.57)	.863	−0.12	.110	−0.44	.345	−0.30

*N* = 128. The Games-Howell post-hoc test was used to determine *p*-values.

## Experiment 2

Experiment 2 extended and refined the design of our previous experiment in several ways. To increase generalizability, we used a different stimulus text that represents a different narrative genre (journalistic reportage). Again, the experimental treatment included a positive vs. negative review of the experimental story. This time, we included a third group where participants read a text unrelated to the dependent variables to enable a control of the overall persuasive impact of the main stimulus story. Finally, we refined our assessment of narrative impact. In Experiment 1 our attitude measures did not allow us to examine whether the experience of transportation and emotional shifts is related to outcomes on different levels. However, meta-analytic evidence suggests that the persuasive potential of narratives pertains to affective outcomes and intention in particular (Zebregs et al., 2015). Therefore, we included measures for story-related cognitive- and affective-level attitudes and a behavioral measure of persuasive effects in this study. Taking up Nabi and Green's (2015) prediction that the experience of emotional shifts fosters post-narrative engagement, we further included a measure for social sharing intentions as a dependent variable.

## Method

### Participants

A priori sample size determination was the same as for Experiment 1. Participants ( $N = 139$ ) were recruited on campus of the University of Würzburg, Germany, and participated for a monetary compensation of €12. Two participants were excluded because errors in completing the self-probed emotional retrospection task rendered their responses unusable. One participant was excluded from the sample because consent was retracted after the experiment and another one for missing data in all dependent variables, leaving a final sample of 135 participants. Participants were 23.42 years old on average ( $SD = 6.09$ ), mostly female ( $n = 89$ ), and students of the university ( $n = 126$ ).

### Design

The experiment was based on a three-group between-subjects design. Participants in two conditions read a text about a farmer in Burkina Faso who revolutionized harvesting techniques in the Sahel region. The text was preceded by a positive or a negative review to manipulate narrative transportation. In the third condition, participants read a different story that was unrelated to the dependent variables in this study. Story-consistent attitudes were assessed at the cognitive, affective, and behavioral level. We further included a measure for social sharing intentions.

### ***Stories and manipulation of story experience***

All participants read a journalistic reportage employing storytelling techniques. Participants in the two review conditions read a version of the story *Der Mann, der die Wüste aufhielt* [The man who stopped the desert] (Jeska, 2012). The original text was slightly shortened to 2547 words. The text tells the story of Yacouba Sawadogo, a farmer from Burkina Faso who developed techniques to improve harvest and stop desertification of the Sahel region by planting and cultivating several hectares of forest. Furthermore, the reportage addresses the history and dysfunctionality of most Western developmental aid in the Sahel region. Yacouba's techniques attract international attention and cause a shift in the United Nation's developmental aid strategies. However, Yacouba's success story features setbacks caused by locals' initial skepticism toward his techniques and bureaucratic hurdles that threaten the existence of his forest.

The third group read the reportage *Bis zum Letzten* [To the last] (Buhl, 2018) which tells the stories of a group of unsuccessful but persevering marathon runners. This control story was similar to the experimental story in length (2601 words) and quality (both stories won the same journalism award in the same category), but unrelated to the issues addressed by the experimental story.

Like in Experiment 1, we used positive and negative reviews to manipulate levels of transportation. The reviews were presented as background information about the text participants were about to read. The positive review praised the story for its coherence, vivid descriptions, and for being able to move and immerse the reader, while the negative review criticized it for a lack thereof. Both reviews made references to the author's (lack of) skillfulness and professionalism to manipulate quality expectations while being careful to not cast doubts on the truthfulness and plausibility of the story itself (see Online Supplement S5).

### ***Self-probed emotional retrospections***

The task was administered like in Experiment 1. The number of "E"s participants were asked to pick and rate was limited to 18. This amount was estimated by generously counting the number of events and passages in the text that held emotional potential.

### ***Measures***

***Cognitive- and affective-level attitude measures.*** Four items measured the extent to which participants endorsed cognitive-level story-consistent attitudes concerning the inappropriateness of European agricultural standards in Africa (e.g., "Solutions to improve harvests in Africa have to come from European industrial nations," reverse-coded,  $\alpha = .87$ ). This issue is explicitly addressed in the story. Another core issue in the experimental story is the lives and struggles of the people living in the Sahel. Therefore, four items were created to reflect the degree to which participants felt a sense of emotional involvement with this

group (e.g., “I feel close to the people living in the Sahel region,”  $\alpha = .78$ ). All items were assessed on 7-point rating scales from 1 (disagree completely) to 7 (fully agree). The item wordings of all scales can be found in Supplement S6.

***Social sharing intentions.*** Participants indicated the likelihood of engaging in different social sharing activities. Two items specifically addressed activities on social media (e.g., “I would share this story on social media [e.g., Facebook, Twitter]”), another three described more general modes of communication (e.g., “I would discuss the issues addressed in the story with friends, acquaintances, or family members”). Internal consistency of this measure was good in both the experimental groups (Cronbach’s  $\alpha = .82$ ) as well as the control group ( $\alpha = .88$ ).

***Behavior.*** Participants in all groups were given the option to donate a freely chosen share of their 12€ compensation to the nonprofit organization Terra-Verde e.V. They received a brief description of the goals of this organization, which pertain to the issues addressed in the experimental story (stopping desertification of the Sahel region). Participants were asked to note the amount they wished to donate (see Supplement S12 for additional information).

### ***Procedure***

Participants entered the lab individually or in groups of up to 10 and were assigned to one of the three conditions randomly. After providing sociodemographic information, participants were introduced to the e-marking task and practiced the procedure using an example story. Participants in the review conditions then read and summarized either a positive or a negative review of the following stimulus story. Participants who read the Marathon reportage received neutral background information regarding the story. After reading the story and completing the e-marking task, participants immediately answered the transportation items. Then, they proceeded with the e-specification task. Lastly, dependent variables were assessed. In a separate room, participants were compensated, were given the opportunity to make a donation, and were debriefed.

### ***Results and Discussion***

Again, because two indicators served as measures of emotional shifts, we adjusted the alpha-level (Holm–Bonferroni) to account for  $\alpha$ -error accumulation where appropriate. Comparisons to the control story show that our stimulus story was indeed persuasive (positive or negative review condition) with regard to cognitive-level attitudes. Affective-level attitudes and social sharing intentions were significantly higher in the positive review group compared to the control story, but not in the negative review group.

Donations were not affected by the treatment. For detailed results on the persuasive effect of our stimulus story versus the control story, see Supplement S8.

The following main analyses pertain to the groups that read the desertification story. Zero-order correlations between key variables are reported in Table 3. Consistent with Hypothesis 1 and the results from Experiment 1, transportation was positively associated with both the intensity,  $r(89) = .368$ ,  $p < .001$  (Holm–Bonferroni-adjusted  $\alpha = .025$ ), and the number of emotional shifts,  $r(89) = .222$ ,  $p = .035$  (Holm–Bonferroni-adjusted  $\alpha = .05$ ), for readers of the desertification story.<sup>4</sup> Hypothesis 2a predicted a positive relationship between emotional shifts and story-consistent attitudes. However, our two emotional shift indicators were not correlated with cognitive- and affective-level attitudes. Thus, Hypothesis 2a was not supported. As predicted in Hypothesis 2b, social sharing intentions increased significantly with both the intensity,  $r(89) = .346$ ,  $p < .001$  (Holm–Bonferroni-adjusted  $\alpha = .025$ ), and the number,  $r(89) = .216$ ,  $p = .040$  (Holm–Bonferroni-adjusted  $\alpha = .05$ ) of emotional shifts. Thus, Hypothesis 2b was supported. Hypothesis 2c predicted a positive association between the experience of emotional shifts and the amount donated in favor of a story-related charity (our behavioral measure). We conducted a logistic ordinal regression with the two emotional shift variables and transportation as predictors and donations as the criterion. For readers of the desertification story, odds for a higher donation for a story-related cause did neither increase significantly with the number of emotional shifts ( $OR = 1.03$ , 95% CI [0.84; 1.25],  $\chi^2(1) = 0.068$ ,  $p = .794$ ), nor with the intensity of emotional shifts ( $OR = 1.00$ , 95% CI [0.99; 1.01],  $\chi^2(1) = 0.055$ ,  $p = .815$ ). Therefore, Hypothesis 2c was not supported.

Next, we compared the two review conditions to test whether reading a negative review before reading the story decreased levels of transportation compared to reading a positive review, as postulated by Hypothesis 3a. Results from a univariate ANOVA showed that groups differed significantly in their levels of transportation,  $F(1, 89) = 10.37$ ,  $p = .002$ ,  $\omega^2 = .09$ , and that transportation was significantly lower for participants who read a negative review compared to a positive review (Table 4), supporting Hypothesis 3a.

**Table 3.** Zero-Order Correlations of the Continuous Variables (Experiment 2).

Variable	1	2	3	4	5	6
(1) Transportation	-					
(2) Number of emotional shifts	.222 (.035)	-				
(3) Intensity of emotional shifts	.368 (<.001)	.769 (<.001)	-			
(4) Cognitive-level attitudes (agriculture)	.133 (.210)	-.001 (.992)	-.028 (.792)	-		
(5) Affective-level attitudes (Sahel people)	.314 (.002)	.128 (.228)	.203 (.054)	.076 (.474)	-	
(6) Social sharing intentions	.516 (<.001)	.216 (.040)	.346 (<.001)	.001 (.993)	.482 (<.001)	-

*n* = 91 (desertification story groups only). Correlation *p*-values in brackets.

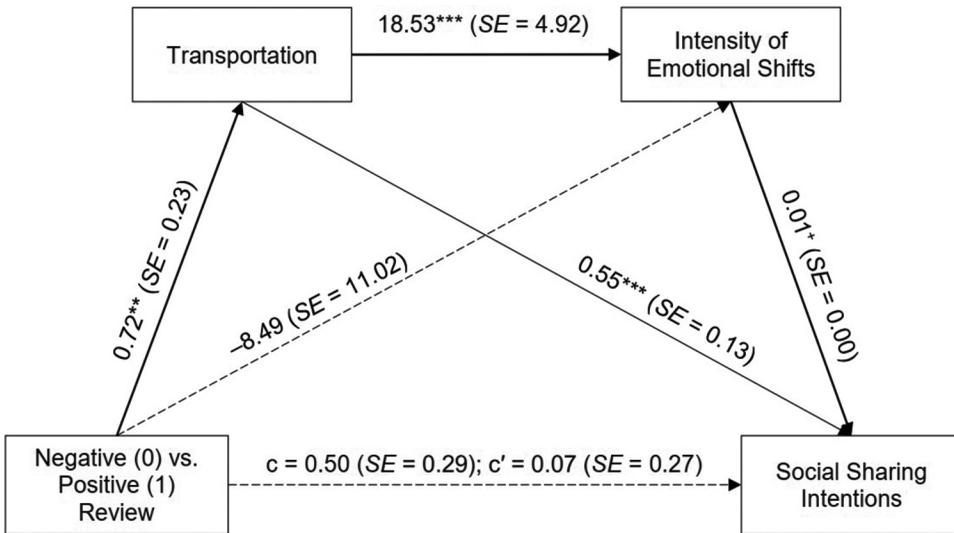
Providing mixed support for Hypothesis 4a, we found that in the desertification story groups, transportation was positively related to affective-level attitudes toward Sahel people,  $r(89) = .314$ ,  $p = .002$ , but not to cognitive-level attitudes toward agricultural techniques,  $r(89) = .133$ ,  $p = .210$ . As postulated in Hypothesis 4b, transportation was substantially associated with social sharing intentions of the desertification story,  $r(89) = .516$ ,  $p < .001$ . Regarding the predicted association between transportation and donations, odds for a higher donation for a story-related cause did not increase significantly with transportation ( $OR = 1.14$ , 95% CI [0.79; 1.66],  $\chi^2(1) = 0.495$ ,  $p = .482$  in the desertification story groups). Thus, Hypothesis 4c was not supported.

Finally, we tested whether transportation and the experience of emotional shifts mediated the relationship of reading a story with positive vs. negative reviews on story-consistent attitudes and social sharing intentions as predicted in Hypotheses 5a and 5b. We estimated six sequential mediation models using PROCESS v3.5 (Model 6, 5000 bootstrap samples) using the subsample that had read the desertification story. The review manipulation served as the independent variable (1 = positive review, 0 = negative review), transportation ( $M1$ ) and number or intensity of emotional shifts ( $M2$ ) served as mediators, and cognitive- or affective-level attitudes or social sharing intentions as the dependent variable. Results are reported in detail in Supplement S7. The total effect of the review treatment was not significant for any of the three outcome variables. Results show no indirect effect of the independent variable on cognitive-level attitudes. Transportation significantly mediated the relationship of the review treatment and affective-level attitudes and social sharing intentions as indicated by the indirect effects. In addition, there was a significant indirect relationship of the review treatment and social sharing intentions through transportation and the intensity of emotional shifts (Figure 1). Therefore, results provide mixed support for Hypothesis 5a and Hypothesis 5b. Again, results of the mediation models provide an answer to our research question whether reviews affect emotional shifts irrespective of the indirect effect through transportation. As in Experiment 1, reviews did not directly affect the number or intensity of emotional shifts.

**Table 4.** Means, Standard Deviations, and Results of Analyses of Variance (Experiment 2).

Measure	Negative Review ( $n = 48$ )	Positive Review ( $n = 43$ )	$F(1, 89)$	$p$	$d$
	$M$ ( $SD$ )	$M$ ( $SD$ )			
Transportation	4.40 (1.22)	5.12 (0.88)	10.37	.002	0.67
Number of emotional shifts	10.71 (3.40)	11.19 (2.71)	0.54	.464	0.16
Intensity of emotional shifts	146.19 (55.77)	151.12 (50.28)	0.19	.660	0.09
Cognitive-level attitudes (agriculture)	4.80 (1.44)	5.01 (1.29)	0.56	.458	0.15
Affective-level attitudes (Sahel people)	4.39 (0.98)	4.54 (1.07)	0.50	.480	0.15
Social sharing intentions	4.11 (1.42)	4.61 (1.38)	2.85	.095	0.36

$n = 91$  (desertification story groups only).



**Figure 1.** Sequential mediation model for the effect of negative review condition (X) on social sharing intentions (Y) through transportation (M1) and the intensity of emotional shifts (M2). *Note.* Results for participants who read the desertification story ( $n = 91$ ). Unstandardized regression coefficients are reported. Bold paths indicate significant sequential mediation. Non-significant paths are marked by dotted lines.  $***p < .001$ ,  $**p < .01$ ,  $*p < .05$ ,  $^{+}p = .063$ .

Hypothesis 5c predicted a mediation of the relationship of reviews and donations through transportation and emotional shifts. We computed another ordinal logistic regression using the positive (coded 1) vs. the negative (0) review group as independent and donations as dependent variables. However, the odds donating a higher amount in the positive review group did not differ significantly from the negative review group ( $OR = 0.71$ , 95% CI [0.33; 1.52],  $\chi^2(1) = 0.792$ ,  $p = .373$ ). Given the missing associations between donations and any of the mediators (see Hypothesis 2c and Hypothesis 4c) necessary for an indirect mediation, Hypothesis 5c was not supported either.

### General Discussion

The experience of emotions is considered a key element to understanding narrative experience and narrative effects. This set of experiments provided one of the first empirical tests of predictions derived from Nabi and Green’s (2015) emotional shifts framework by using a novel empirical approach, self-probed emotional retrospections.

In line with theory, two studies consistently show that transportation is positively associated with the experience of emotional shifts, as indicated by both their quantity and intensity. Moreover, emotional shift experiences are linked to social sharing intentions (recommending a story and talking about

its contents with others both online and offline) as indicated by zero-order correlations and a two-step indirect effect that included transportation as a more proximate mediator. This informs theory on post-exposure engagement, an important ingredient of the persuasion process and media effects more generally (e.g., Slater et al., 2018; Southwell & Yzer, 2007; Thorson, 2014).

Consistent with previous research (e.g., Tukachinsky & Tokunaga, 2013), both studies provide further evidence that in a heightened state of transportation, endorsement of story-consistent attitudes becomes more likely. In Experiment 1, transportation was related to attitudes toward old-age romance, but not to attitudes toward old-age suicide, which may be less malleable for being tied to personal values or moral convictions (e.g., Skitka et al., 2005). In Experiment 2, the degree to which participants reported being transported was positively linked to affective but not cognitive-level attitudes. This finding is consistent with previous research suggesting that the persuasive potential of narratives pertains especially to the affective dimension of attitudes (Zebregs et al., 2015).

### ***Assessing Emotional Shifts via Self-Probed Emotional Retrospections***

With our studies, we refined and tested a continuous self-report measure of emotional experiences based on a method to examine memories by Larsen and Seilman (1988). Even though self-report measures are sometimes dismissed for only capturing the subjective feeling component of emotion that a subject is aware of, overall, they may be the best method currently available to assess emotional experiences efficiently and with the possibility to differentiate between discrete emotions (Barrett, 2016; Scherer, 2009). Assessing dynamic emotional responses to narratives via self-report comes with the challenge of minimizing interference with narrative processes, especially if these processes are also subject of interest in a study. For this reason, continuous response measures (e.g., affect rating dials) are usually limited to one or a maximum of two dimensions of emotion (Lang & Ewoldsen, 2011). However, this method is unable to capture shifts between discrete emotions of similar valence and arousal (e.g., anger and fear). The self-probed emotional retrospection method employed in this experimental series allows researchers to quantify emotional shifts based on different discrete emotions. At the same time, in the manner of a cued-recall procedure, the “E”-markings participants make while reading the text function as reminders of an emotional experience that participants can later come back to. Thereby, some of the memory biases associated with retrospective self-reports of emotional states during multiple times of a story (Robinson & Clore, 2002) are mitigated (Mauss et al., 2005; McCall et al., 2015).

Furthermore, from the way we measured their emotional responses, it is highly improbable that participants inferred that we were interested in their experience of emotional shifts and the relationship of those shifts with transportation. Therefore, assessing emotional experiences this way minimizes the common-method bias that emerges when using the same type of measurement method for different constructs of interest (Podsakoff et al., 2003).

Validating a measure is a process that requires multiple studies and refinements of the procedure before it can be applied in different contexts. Taken together, the results from the pilot study and our two experiments provide some insight into the validity of the self-probed retrospection method and our emotional shifts indicators. The pilot study tested its practicability for a quantitative assessment of dynamic emotional responses while reading. Furthermore, it offers some evidence in support of the construct validity of self-probed emotional retrospections. We included need for affect to assess the sensitivity of the instrument to capture emotional experiences of varying intensity. As expected, individuals with a higher tendency to approach affective experiences also marked more “E”s in response to the story.

In the main studies, we employed two indicators for emotional shifts, both of which represent possible operationalizations of Nabi and Green’s (2015) definition with evident content validity: One quantifies the number of times the emotion participants dominantly experienced changed from one to another during the narrative. The other captures the overall extent to which the intensities of all emotions reported varied throughout the story, whether or not a shift from one dominant emotion to another occurred. Applying two indicators to quantify shifts helps to gain a better understanding of the qualities of emotional shifts that are crucial for narrative impact. Thereby, this study informs theory and provides a starting point for future research on emotional processes during media reception.

The results of Experiment 1 and 2 further provide insights concerning the predictive validity of the emotional shift measures as indicated by their correlations with story-consistent outcome variables. The predictive validity of the intensity measure appears slightly superior to the number of shifts measure across both studies: whereas both indicators were associated with social sharing intentions in Experiment 2, only the intensity of shifts was associated with one attitude measure in Experiment 1. There are further questions to consider regarding the validation of self-probed emotional retrospections, e.g., whether this procedure and the emotional shift measures derived from it approximate to continuous response measures of emotion. However, previous research has demonstrated the criterion validity of different cued-recall procedures (e.g., Mauss et al., 2005), which suggests that similar results may be expected for self-probed emotional retrospections.

### ***Limitations and Directions for Future Research***

The aim of this research was to investigate the link between transportation, emotional shifts, and story-consistent outcomes. In our modeling of the narrative processes, we focused on the question how transportation may facilitate emotional shifts. This does not rule out the notion that emotional shifts stimulate transportation. It is important to note that our intention was not to argue for one perspective over the other. Instead, our research serves as one building block in understanding the relationship between emotional shifts and transportation, which is most likely bidirectional and should therefore be investigated from both perspectives.

The evolving and mutually reinforcing relationship between emotional shifts and transportation may best be scrutinized using continuous measures for both emotional shifts and transportation. In our studies, we measured emotional responses dynamically, whereas we used a global and static measure to capture transportation. We opted for this established and validated scale because it is uncertain how transportation can be captured using a continuous self-report measure without interfering with self-probed emotional retrospections. Therefore, we prioritized our emotional shifts measure. However, the method we presented could be compatible with physiological process measures of transportation (e.g., skin conductance levels, Sukalla et al., 2015). There is evidence that recipients fluctuate from states of high to low transportation during a narrative (e.g., Bezdek & Gerrig, 2017). Combining process measures of transportation and emotional shifts is an important task for future research to disentangle the dynamics of emotional shifts and transportation over the course of a narrative with greater precision. Similarly, future research should investigate the link between emotional shifts and the different subcomponents of narrative engagement or transportation (e.g., attentional focus, presence, emotional engagement) to gain a more nuanced understanding of the mechanisms of narrative processing.

Furthermore, although the self-probed retrospection method is geared to written narratives, similar procedures may be adapted for audiovisual or auditive narratives (e.g., by recording time-stamps which are later revisited by participants to describe their emotional experience). Keene and Lang (2016) have shown that emotional valence has different implications for processing of visual and auditive information. Thus, effects of emotional shifts may vary with media modalities.

The narratives we used as stimulus materials were stories from different genres, which benefits the generalizability of our findings across messages. We chose narratives with a persuasive subtext, although they were not created with the primary purpose of persuasive communication (like health campaigns or advertising). Even so, narratives may shape attitudes no matter their persuasive intent. We deduced what could be

perceived as the main takeaway message from the story in an interpretative process. However, with the exception of one correlation marginally above the Holm–Bonferroni adjusted alpha (Experiment 1), our measures of emotional shifts were not associated with story-consistent attitudes. It is possible that this association may manifest itself more clearly in stories that are primarily created for a persuasive purpose (e.g., health communication narratives). Furthermore, a recent study by Siegenthaler et al. (2021) shows that personal relevance of a message may be a prerequisite for observing persuasive effects of emotional shifts.

We explored the relationship of emotional shifts with story-consistent attitudes using two variables that measured shifts across the whole narrative in terms of their quantity and intensity, without taking into account the kind of emotions involved. Our goal was to apply a general measure that could easily be applied in other research contexts, independent of the particular story and without extensive coding effort. However, the self-probed emotional retrospection method enables researchers to examine more nuanced questions, such as the role of shifts between particular emotions relevant to the narrative or during key moments of the story (e.g., Appel et al, 2019), which may reveal different results with regard to persuasive outcomes. We encourage future studies to explore these questions to specify our understanding of the role emotional shifts play in narrative persuasion.

Finally, the theory predicts influences of emotional shifts not only during but also before (during media selection) and after narrative exposure. We addressed the latter by including a measure for social sharing intentions in Experiment 2. However, we hope this manuscript inspires further empirical tests of the influences of emotional shifts before, during, and after story processing.

## Conclusion

The increased scholarly attention to narrative processes in recent years calls for appropriate methodology to measure these processes. Most research in this domain relies on participants' self-reported retrospective accounts of their experiences that pertain to the narrative as a whole, which often does not live up to the dynamic nature of these experiences. The present research has overcome this limitation. Based on a novel *self-probed emotional retrospection task* we examined emotional shifts and their associations with transportation and story-consistent attitudes. This experimental series advances our understanding of the role of emotional shifts as a mechanism of narrative persuasion. The *self-probed emotional retrospection task* was shown to be a viable methodological approach to study emotional experiences dynamically. We believe that it could play a key role at measuring emotions as they occur in future research.

## Notes

1. Institutional approval is not a requirement for psychological research in Germany, as long as it does not relate to issues regulated by law. However, the studies presented in this article were conducted in full accordance with the Declaration of Helsinki, as well as the ethical guidelines provided by the German Psychological Society (DGPs). Informed consent was obtained from all subjects before taking part in the studies.
2. Note that we only use this measure in the pilot study, not in the main experiments, as an indicator for the extent to which individuals experience and report emotional responses. This pilot study addresses the utility of the self-probed emotional retrospection method to capture varying emotional experiences and its sensitivity to individual differences in subjects' need for affect. The pilot study is not intended to test our predictions regarding emotional shifts. Furthermore, problems encountered in the procedure (see Results of pilot study) led us to discard the emotion ratings.
3. As in the pilot study, we measured participants' need for affect in both experiments. To keep the article concise, all results regarding this individual difference measure are reported in Supplement S9.
4. For readers of the marathon story, both the intensity,  $r(42) = .403$ ,  $p = .007$  (Holm-Bonferroni adjusted  $\alpha$ -level = .025), and the number of emotional shifts were correlated with transportation as well,  $r(42) = .309$ ,  $p = .041$  (Holm-Bonferroni  $\alpha$ -level = .05).

## Disclosure Statement

We have no known conflict of interest to disclose.

## Funding

This work was supported by the Deutsche Forschungsgemeinschaft [AP 207/4-1,RI 1100/8-1].

## ORCID

Julia R. Winkler  <http://orcid.org/0000-0002-3185-5867>

Markus Appel  <http://orcid.org/0000-0003-4111-1308>

Marie-Luise C.R. Schmidt  <http://orcid.org/0000-0001-5656-1841>

Tobias Richter  <http://orcid.org/0000-0002-0467-9044>

## Data Availability Statement

The data described in this article are openly available in the Open Science Framework at <https://osf.io/879gc>.

## Open Scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://osf.io/879gc>.

## References

- Appel, M., & Richter, T. (2010). Transportation and need for affect in narrative persuasion: A mediated moderation model. *Media Psychology, 13*(2), 101–135. <https://doi.org/10.1080/15213261003799847>
- Appel, M., Gnambs, T., & Maio, G. (2012). A short measure of the need for affect. *Journal of Personality Assessment, 94*(4), 418–426. <https://doi.org/10.1080/00223891.2012.666921>
- Appel, M., Gnambs, T., Richter, T., & Green, M. C. (2015). The transportation scale–short form (TS–SF). *Media Psychology, 18*(2), 243–266. <https://doi.org/10.1080/15213269.2014.987400>
- Appel, M., Schreiner, C., Haffmans, M. B., & Richter, T. (2019). The mediating role of event-congruent emotions in narrative persuasion. *Poetics, 77*, Article 101385. <https://doi.org/10.1016/j.poetic.2019.101385>
- Aristotle. (2001). *Rhetoric* W. R. Robert Trans., The Internet Classics Archive. Original work published 367–322 B.C.E. <http://classics.mit.edu/Aristotle/rhetoric.1.i.html>
- Barrett, L. F. (2016). Navigating the science of emotion. In H. L. Meiselman (Ed.), *Emotion measurement* (pp. 31–63). Woodhead Publishing.
- Bartsch, A., Appel, M., & Storch, T. (2010). Emotions and meta-emotions at the movies. The role of the need for affect. *Communication Research, 37*(2), 167–190. <https://doi.org/10.1177/0093650209356441>
- Bartsch, A. (2012). Emotional gratification in entertainment experience. Why viewers of movies and television series find it rewarding to experience emotions. *Media Psychology, 15*(3), 267–302. <https://doi.org/10.1080/15213269.2012.693811>
- Bezdek, M. A., & Gerrig, R. J. (2017). When narrative transportation narrows attention: Changes in attentional focus during suspenseful film viewing. *Media Psychology, 20*(1), 60–89. <https://doi.org/10.1080/15213269.2015.1121830>
- Biocca, F., David, P., & West, M. (1994). Continuous response measurement (CRM): A computerized tool for research on the cognitive processing of communication messages. In A. Lang (Ed.), *Measuring psychological responses to media messages* (pp. 15–64). Erlbaum.
- Bjarnason, B. (2011). *Dorsche haben traurige Augen. Geschichten aus Island. [Codfish have sad eyes. Stories from Iceland]*. Acabus.
- Bordwell, D. (1985). *Narration in the fiction film*. University of Wisconsin Press.
- Buhl, M. (2018, June 8). Bis zum Letzten [To the last]. *SZ-Magazin*. <https://sz-magazin.sueddeutsche.de/sport/bis-zum-letzten-86932>
- Busselle, R., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing stories: A model of narrative comprehension and engagement. *Communication Theory, 18*(2), 255–280. <https://doi.org/10.1111/j.1468-2885.2008.00322.x>
- Busselle, R., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology, 12*(4), 321–347. <https://doi.org/10.1080/15213260903287259>

- Carrera, P., Caballero, A., & Muñoz, D. (2008). Comparing the effects of negative and mixed emotional messages on predicted occasional excessive drinking. *Substance Abuse: Research and Treatment, 1*, 1–7. <https://doi.org/10.1177/117822180800100001>
- Carrera, P., Muñoz, D., & Caballero, A. (2010). Mixed emotional appeals in emotional and danger control processes. *Health Communication, 25*(8), 726–736. <https://doi.org/10.1080/10410236.2010.521914>
- Carroll, N. (1999). Film, emotion, and genre. In C. Plantinga, & G. M. Smith (Eds.), *Passionate views: Film, cognition, and emotion* (pp. 21–47). The Johns Hopkins University Press.
- Clayton, R. B., Raney, A. A., Oliver, M. B., Neumann, D., Janicke-Bowles, S. H., & Dale, K. R. (2021). Feeling transcendent? Measuring psychophysiological responses to self-transcendent media content. *Media Psychology, 24*(3), 359–384. <https://doi.org/10.1080/15213269.2019.1700135>
- Cutting, J. E. (2016). Narrative theory and the dynamics of popular movies. *Psychonomic Bulletin & Review, 23*(6), 1713–1743. <https://doi.org/10.3758/s13423-016-1051-4>
- Eng, A. (2002). *Learning and processing non-fiction genre* [Unpublished doctoral dissertation]. University of Toronto.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41* (4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Freytag, G. (1863). *Die Technik des Dramas [Technique of the drama]*. Hirzel.
- Gerrig, R. J. (1993). *Experiencing narrative worlds. On the psychological activities of reading*. Yale University Press.
- 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. <https://doi.org/10.1037/0022-3514.79.5.701>
- Green, M., Bilandzic, H., Fitzgerald, K., & Paravati, E. (2020). Narrative effects. In M. B. Oliver, A. A. Raney, & J. Bryant (Eds.), *Media effects: Advances in theory and research* (pp. 130–145). Routledge. <https://doi.org/10.4324/9780429491146-9>
- Hamby, A., & Brinberg, D. (2016). Happily ever after: How ending valence influences narrative persuasion in cautionary stories. *Journal of Advertising, 45*(4), 498–508. <https://doi.org/10.1080/00913367.2016.1262302>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis. A regression based approach* (2nd ed.). Guilford Press.
- Isberner, M.-B., Richter, T., Schreiner, C., Eisenbach, Y., Sommer, C., & Appel, M. (2018). Empowering stories: Transportation into narratives with strong protagonists increases self-related control beliefs. *Discourse Processes, 56*(8), 575–598. <https://doi.org/10.1080/0163853X.2018.1526032>
- Jeska, A. (2012, November 29). Der Mann, der die Wüste aufhielt [The man who stopped the desert]. *Die Zeit*. <https://www.zeit.de/2012/49/Hunger-Sahelzone-Baeumeplanzer>
- Keene, J. R., & Lang, A. (2016). Dynamic motivated processing of emotional trajectories in public service announcements. *Communication Monographs, 83*(4), 468–485. <https://doi.org/10.1080/03637751.2016.1198040>
- Koopman, E. M. (2016). Effects of “literaryness” on emotions and on empathy and reflection after reading. *Psychology of Aesthetics, Creativity, and the Arts, 10*(1), 82–98. <http://dx.doi.org/10.1037/aca0000041>
- Kreibig, S. D. (2010). Autonomic nervous system activity in emotion: A review. *Biological Psychology, 84*(3), 394–421. <https://doi.org/10.1016/j.biopsycho.2010.03.010>
- Lang, A., & Ewoldsen, D. R. (2011). The measurement of positive and negative affect in media research. In K. Döveling, C. von Scheve, & E. A. Konijn (Eds.), *The Routledge handbook of emotions and mass media* (pp. 79–98). Routledge.

- Larsen, S. F., & Seilman, U. (1988). Personal reminders while reading literature. *Text – Interdisciplinary Journal for the Study of Discourse*, 8(4), 411–430. <https://doi.org/10.1515/text.1.1988.8.4.411>
- Maio, G. R., & Esses, V. M. (2001). The need for affect: Individual differences in the motivation to approach or avoid emotions. *Journal of Personality*, 69(4), 583–615. <https://doi.org/10.1111/1467-6494.694156>
- Mar, R. A., Oatley, K., Djikic, M., & Mullin, J. (2011). Emotion and narrative fiction: Interactive influences before, during, and after reading. *Cognition & Emotion*, 25(5), 818–833. <https://doi.org/10.1080/02699931.2010.515151>
- Mauss, I. B., Levenson, R. W., McCarter, L., Wilhelm, F. H., & Gross, J. J. (2005). The tie that binds? Coherence among emotion experience, behavior, and physiology. *Emotion*, 5(2), 175–190. <https://doi.org/10.1037/1528-3542.5.2.175>
- Mauss, I. B., & Robinson, M. D. (2009). Measures of emotion: A review. *Cognition & Emotion*, 23(2), 209–237. <https://doi.org/10.1080/02699930802204677>
- McCall, C., Hildebrandt, L. K., Bornemann, B., & Singer, T. (2015). Physiophenomenology in retrospect: Memory reliably reflects physiological arousal during a prior threatening experience. *Consciousness and Cognition*, 38(1), 60–70. <https://dx.doi.org/10.1016/j.concog.2015.09.011>.
- Moyer-Gusé, E. (2008). Toward a theory of entertainment persuasion: Explaining the persuasive effects of entertainment-education messages. *Communication Theory*, 18(3), 407–425. <https://doi.org/10.1111/j.1468-2885.2008.00328.x>
- Nabi, R. L. (2002). Discrete emotions and persuasion. In J. P. Dillard, & M. Pfau (Eds.), *The persuasion handbook: Developments in theory and practice* (pp. 289–308). Sage. <https://doi.org/10.4135/9781412976046.n15>
- Nabi, R. L. (2015). Emotional flow in persuasive health messages. *Health Communication*, 30(2), 114–124. <https://doi.org/10.1080/10410236.2014.974129>
- Nabi, R. L., & Green, M. C. (2015). The role of a narrative's emotional flow in promoting persuasive outcomes. *Media Psychology*, 18(2), 137–162. <https://doi.org/10.1080/15213269.2014.912585>
- Oatley, K. (1994). A taxonomy of the emotions of literary response and a theory of identification in fictional narrative. *Poetics*, 23(1–2), 53–74. [https://doi.org/10.1016/0304-422X\(94\)P4296-S](https://doi.org/10.1016/0304-422X(94)P4296-S)
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Ratcliff, C. L., & Sun, Y. (2020). Overcoming resistance through narratives: Findings from a meta-analytic review. *Human Communication Research*, 46(4), 412–443. <https://doi.org/10.1093/hcr/hqz017>
- Reagan, A. J., Mitchell, L., Kiley, D., Danforth, C. M., & Dodds, P. S. (2016). The emotional arcs of stories are dominated by six basic shapes. *EPJ Data Science*, 5(1), Article 31. <https://doi.org/10.1140/epjds/s13688-016-0093-1>
- Robinson, M. D., & Clore, G. L. (2002). Episodic and semantic knowledge in emotional self-report: Evidence for two judgment processes. *Journal of Personality and Social Psychology*, 83(1), 198–215. <https://doi.org/10.1037/0022-3514.83.1.198>
- Rossiter, J. R., & Percy, L. (1991). Emotions and motivations in advertising. *Advances in Consumer Research*, 18, 100–110. <https://www.acrwebsite.org/volumes/7146/volumes/v18/NA-18>
- Rossiter, J. R., & Thornton, J. (2004). Fear-pattern analysis supports the fear-drive model for antispeeding road-safety TV ads. *Psychology & Marketing*, 21(11), 945–960. <https://doi.org/10.1002/mar.20042>

- Sauder, D., & DeMars, C. E. (2019). An updated recommendation for multiple comparisons. *Advances in Methods and Practices in Psychological Science*, 2(1), 26–44. <https://doi.org/10.1177/2515245918808784>
- Scherer, K. R. (2009). The dynamic architecture of emotion: Evidence for the component process model. *Cognition and Emotion*, 23(7), 1307–1351. <https://doi.org/10.1080/02699930902928969>
- Segal, E. M. (1995). Narrative comprehension and the role of deictic shift theory. In J. F. Duchan, G. A. Bruder, & L. E. Hewitt (Eds.), *Deixis in narrative: A cognitive science perspective* (pp. 3–17). Psychology Press. <https://doi.org/10.4324/9780203052907>
- Seilman, U., & Larsen, S. F. (1989). Personal resonance to literature: A study of reminders while reading. *Poetics*, 18(1–2), 165–177. [https://doi.org/10.1016/0304-422X\(89\)90027-2](https://doi.org/10.1016/0304-422X(89)90027-2)
- Shedlosky-Shoemaker, R., Costabile, K. A., DeLuca, H. K., & Arkin, R. M. (2011). The social experience of entertainment media: Effects of others' evaluations on our experience. *Journal of Media Psychology: Theories, Methods, and Applications*, 23(3), 111–121. <https://doi.org/10.1027/1864-1105/a000042>
- Siegel, E. H., Sands, M. K., Van den Noortgate, W., Condon, P., Chang, Y., Dy, J., Quigley, K. S., & Barrett, L. F. (2018). Emotion fingerprints or emotion populations? A meta-analytic investigation of autonomic features of emotion categories. *Psychological Bulletin*, 144(4), 343–393. <https://doi.org/10.1037/bul0000128>
- Siegenthaler, P., Ort, A., & Fahr, A. (2021). The influence of valence shifts in fear appeals on message processing and behavioral intentions: A moderated mediation model. *PLoS ONE*, 16(9), e0255113. <https://doi.org/10.1371/journal.pone.0255113>
- Skitka, L. J., Bauman, C. W., & Sargis, E. G. (2005). Moral conviction: Another contributor to attitude strength or something more? *Journal of Personality and Social Psychology*, 88(6), 895–917. <https://doi.org/10.1037/0022-3514.88.6.895>
- Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory*, 12(2), 173–191. <https://doi.org/10.1111/j.1468-2885.2002.tb00265.x>
- Slater, M. D., Ewoldsen, D. R., & Woods, K. W. (2018). Extending conceptualization and measurement of narrative engagement after-the-fact: Parasocial relationship and retrospective imaginative involvement. *Media Psychology*, 21(3), 329–351. <https://doi.org/10.1080/15213269.2017.1328313>
- Southwell, B. G., & Yzer, M. C. (2007). The roles of interpersonal communication in mass media campaigns. *Annals of the International Communication Association*, 31(1), 420–462. <https://doi.org/10.1080/23808985.2007.11679072>
- Stieglitz, S., & Dang-Xuan, L. (2013). Emotions and information diffusion in social media – Sentiment of microblogs and sharing behavior. *Journal of Management Information Systems*, 29(4), 217–247. <https://doi.org/10.2753/MIS0742-1222290408>
- Sukalla, F., Bilandzic, H., Bolls, P. D., & Busselle, R. W. (2015). Embodiment of narrative engagement. Connecting self-reported narrative engagement to psychophysiological measures. *Journal of Media Psychology: Theories, Methods, and Applications*, 28(4), 175–186. <https://doi.org/10.1027/1864-1105/a000153>
- Tan, E. S. (1996). *Emotion and the structure of narrative film: Film as an emotion machine*. Routledge.
- Thorson, E. (2014). Beyond opinion leaders: How attempts to persuade foster political awareness and campaign learning. *Communication Research*, 41(3), 353–374. <https://doi.org/10.1177/0093650212443824>
- Tiede, K. E., & Appel, M. (2020). Reviews, expectations, and the experience of stories. *Media Psychology*, 23(3), 365–390. <https://doi.org/10.1080/15213269.2019.1602055>

- Tukachinsky, R., & Tokunaga, R. (2013). The effects of engagement with entertainment. *Annals of the International Communication Association*, 37(1), 287–322. <https://doi.org/10.1080/23808985.2013.11679153>
- Van Laer, T., de Ruyter, K., Visconti, L. M., & Wetzels, M. (2014). The extended transportation-imagery model: A meta-analysis of the antecedents and consequences of consumers' narrative transportation. *Journal of Consumer Research*, 40(5), 797–817. <https://doi.org/10.1086/673383>
- Walentynowicz, M., Schneider, S., & Stone, A. A. (2018). The effects of time frames on self-report. *PLoS ONE*, 13 (8), e0201655. Article e0201655 <https://doi.org/10.1371/journal.pone.0201655>
- Zebregs, S., van den Putte, B., Neijens, P., & de Graaf, A. (2015). The differential impact of statistical and narrative evidence on beliefs, attitude, and intention: A meta-analysis. *Health Communication*, 30(3), 282–289. <https://doi.org/10.1080/10410236.2013.842528>
- Zillmann, D. (1996). The psychology of suspense in dramatic exposition. In P. Vorderer, H. J. Wulff, & M. Friedrichsen (Eds.), *Suspense: Conceptualizations, theoretical analyses, and empirical explorations* (pp. 199–231). Erlbaum.
- Zillmann, D. (2006). Dramaturgy for emotions from fictional narration. In J. Bryant, & P. Vorderer (Eds.), *Psychology of entertainment* (pp. 215–238). Erlbaum.