

The Role of Transportation in the Persuasiveness of Public Narratives

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Transportation was proposed as a mechanism whereby narratives can affect beliefs. Defined as absorption into a story, transportation entails imagery, affect, and attentional focus. A transportation scale was developed and validated. Experiment 1 ($N = 97$) demonstrated that extent of transportation augmented story-consistent beliefs and favorable evaluations of protagonists. Experiment 2 ($N = 69$) showed that highly transported readers found fewer false notes in a story than less-transported readers. Experiments 3 ($N = 274$) and 4 ($N = 258$) again replicated the effects of transportation on beliefs and evaluations; in the latter study, transportation was directly manipulated by using processing instructions. Reduced transportation led to reduced story-consistent beliefs and evaluations. The studies also showed that transportation and corresponding beliefs were generally unaffected by labeling a story as fact or as fiction.

The scientific study of persuasion has reflected an unfortunate displacement of poetics by rhetoric. Advocacy messages rather than narrative messages have been the subject matter of persuasion scholars for the past half-century (e.g., Hovland, Lumsdaine, & Sheffield, 1949; Shavitt & Brock, 1994). This striking imbalance in scientific attention has been sustained even though in the experience of people everywhere, public narrative predominates over public advocacy: Novels, films, soap operas, music lyrics, stories in newspapers, magazines, TV, and radio command far more waking attention than do advertisements, sermons, editorials, billboards, and so forth. The power of narratives to change beliefs has never been doubted and has always been feared. Consequently, censorship has been ubiquitous for centuries: In the United States, one out of three high school students experiences banning of books (Davis, 1979). A film version of *Lolita*, the “fourth best English-language novel published this century” (Modern Library Editorial Board, 1998), was withheld for 2 years from American audiences. Yet, the persuasive impact of public narratives has been virtually ignored by empirical researchers; indeed, persuasiveness of narratives is a nonexistent reference item in a recent authoritative, comprehensive graduate-level textbook with 2,800 references (*The Psychology of Attitudes*, Eagly & Chaiken, 1993). In an attempt to redress the rhetoric–poetics imbalance, we explored the persuasive impact of a narrative in terms of the extent to which recipients

were “transported” into the world of the narrative and became involved with its protagonists.

In essence, a narrative account requires a story that raises unanswered questions, presents unresolved conflicts, or depicts not yet completed activity; characters may encounter and then resolve a crisis or crises. A story line, with a beginning, middle, and end, is identifiable. In Bruner’s (1986) words, “[Narrative] deals in human or human-like intention and action and the vicissitudes and consequences that mark their course. It strives to put its timeless miracles into the particulars of experience and to locate the experience in time and place” (p. 13).

Are the processes that underlie narrative persuasion different from those that mediate the impact of nonnarrative or nonfiction communications on beliefs? When a narrative is explicitly labeled as fiction, under what conditions can it change beliefs about issues entailed in the story? Can a narrative affect broader attitudes, ones only implied by the focal text?

Transportation Theory

To the extent that individuals are absorbed into a story or transported into a narrative world, they may show effects of the story on their real-world beliefs. We conceptualized transportation into a narrative world as a distinct mental process, an integrative melding of attention, imagery, and feelings. Our conceptualization of transportation was based on Gerrig’s (1993) description:

Someone (“the traveler”) is transported, by some means of transportation, as a result of performing certain actions. The traveler goes some distance from his or her world of origin, which makes some aspects of the world of origin inaccessible. The traveler returns to the world of origin, somewhat changed by the journey. (pp. 10–11)

Gerrig used the literal experience of traveling to explain the processes that occur when a reader encounters a text. The feeling of being lost in a story (Nell, 1988) is familiar to many people; one of our theoretical aims was to specify components and consequences of this experience.

Following Gerrig, we conceived of transportation as a convergent process, where all mental systems and capacities become focused on events occurring in the narrative. The first consequence

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of transportation is that parts of the world of origin become inaccessible. In other words, the reader loses access to some real-world facts in favor of accepting the narrative world that the author has created. This loss of access may occur on a physical level—a transported reader may not notice others entering the room, for example—or, more importantly, on a psychological level, a subjective distancing from reality. While the person is immersed in the story, he or she may be less aware of real-world facts that contradict assertions made in the narrative.

Some initial empirical support for the role of immersion in narrative-based belief change comes from work by Strange and Leung (1999). In their study, engagement in a narrative moderated observed belief differences (judgments of responsibility for school dropouts) between readers of two different stories. Their engagement measure included narrative-focused attention, story-cued reminders, story-cued elaboration, and imagery; some of these components overlap with our conceptualization of transportation (discussed later), whereas others are distinct.

Beyond loss of access to real-world facts, transported readers may experience strong emotions and motivations, even when they know the events in the story are not real (see Gerrig, 1993, pp. 179–191). For example, when transported into narratives with unhappy endings, transported individuals are likely to engage in what Gerrig (1993) termed *anomalous replotting*: “actively thinking about what could have happened to change an outcome” (p. 177). A third consequence is that people return from being transported somewhat changed by the experience. Our research attempted to measure these changes as they may be reflected in individuals’ beliefs and attitudes.

Transportation is not limited to the reading of written material. Narrative worlds are broadly defined with respect to modality; the term “reader” may be construed to include listeners, viewers, or any recipient of narrative information. Whether the narrative is fictional or nonfictional, the same processes involved in transportation are theorized to occur. Our research focused explicitly on public narratives. Although informal storytelling and other forms of personal narratives are widespread, our hypotheses addressed the effects of external narratives, those to which numerous people could be exposed on different occasions or at the same time.

Transportation Versus Cognitive Elaboration

Because transportation is hypothesized to be related to belief or attitude change, it is helpful to distinguish between transportation and cognitive elaboration. In recent years, dual-process models such as the elaboration likelihood model (ELM; Petty & Cacioppo, 1981) and the heuristic-systematic model (HSM; Chaiken, 1980) have dominated persuasion research. The critical element in these theories is the amount of thought an individual devotes to the message. In conditions that promote high elaboration, central or systematic route processing ensues: A message recipient thoughtfully considers the central arguments of the message. The alternative route, under low elaboration conditions, is to use peripheral or heuristic processing, whereby attitude change results from either shallow processing of cues or reliance on simple rules.

Rather than amount of thought per se, transportation theory posits processing that is qualitatively different from the traditional systematic or heuristic modes described in dual-process models of persuasion (e.g., Chaiken, 1980; Petty & Cacioppo, 1981). Elaboration implies critical attention to major points of an argument,

whereas transportation is an immersion into a text. Elaboration leads to attitude change via logical consideration and evaluation of arguments, whereas transportation may lead to persuasion through other mechanisms. First, transportation may reduce negative cognitive responding. Transported readers may be less likely to disbelieve or counterargue story claims, and thus their beliefs may be influenced. Next, transportation may make narrative experience seem more like real experience. Direct experience can be a powerful means of forming attitudes (Fazio & Zanna, 1981), and to the extent that narratives enable mimicry of experience, they may have greater impact than nonnarrative modes. Finally, transportation is likely to create strong feelings toward story characters; the experiences or beliefs of those characters may then have an enhanced influence on readers’ beliefs.

Transportation is considered a convergent process, whereas elaboration might be conceived of as a divergent process. Rather than having a single focus (e.g., the narrative), a person engaged in elaboration might be accessing his or her own opinions, previous knowledge, or other thoughts and experiences in order to evaluate the message at hand. Under high elaboration, connections are established to an individual’s other schemas and experiences. In contrast, under high transportation, the individual may be distanced temporarily from current and previous schemas and experiences.

Stories Versus Persuasive Messages

Our research has focused on stories rather than rhetorical materials because transportation is less likely to occur with rhetorical passages and because stories may be held to different truth standards than rhetorical messages (Bruner, 1986). For example, if a person were told that an advertiser was making false claims, he or she would be unlikely to suspend disbelief when hearing about product attributes from that advertiser. In contrast, people are motivated to at least temporarily accept a fictional world, often for enjoyment purposes (e.g., Rubin, 1994). The power of a narrative format has been demonstrated in domains ranging from jury decision making (Pennington & Hastie, 1988) to likelihood estimates (Gregory, Cialdini, & Carpenter, 1982). Although other forms of communication might also elicit transportation—for instance, a particularly stirring speech might sweep away an audience—transportation more commonly occurs in response to narratives.

Role of Protagonists

“Character is the driving force in fiction” (Surmelian, 1969, p. 139; see also Radway, 1997, p. 282), and therefore attachment to characters may play a critical role in narrative-based belief change. Source credibility is usually an external “given” in rhetorical communications; however, for fictional or narrative communications, attachment to a protagonist may be an important determinant of the persuasiveness of a story. Because a protagonist may serve as an “internal” source of information or beliefs, transportation may lead to greater liking for sympathetic protagonists. Readers may not only enter a narrative world, they may also become highly involved with the people they find there.

Hegemony of Text Versus Transportation

Our own reading of enduring fiction has been transporting in the sense of our theory. The following excerpt from *The Great Gatsby*

(Fitzgerald, 1925; "second-best English-language novel this century," Modern Library Editorial Board, 1998) draws readers into a different place:

One autumn night . . . they had been walking down the street when the leaves were falling, and they came to a place where there were no trees and the sidewalk was white with moonlight. . . . His heart beat faster and faster as Daisy's white face came up to his own. . . . He waited, listening for a moment longer to the tuning fork that had been struck upon a star. Then he kissed her. At his lips' touch she blossomed like a flower. (p. 111)

The controversial text hegemony hypothesis (e.g., Bloom, 1994, p. 191) states that texts of high quality may override the effects of variations in situations and in readers' predispositions to be moved. If hegemony of text is correct, exogenous instructions or manipulations or labeling might have difficulty increasing the level of transportation above the high levels instigated by readings such as the excerpted Fitzgerald passage. However, our intuition is that manipulations or labeling might be able to decrease the levels of transportation experienced by readers of even such canonical fiction. The text hegemony hypothesis proposes that the storyteller's craft is the primary determinant of transportation and that, therefore, when that craft has found a responsive recipient, motivating or demotivating instructions or framing may not affect magnitude of transportation. In contrast to text hegemony, we posit that transportation is the key determinant of narrative impact, and further assume both that transportation may be affected by text-external manipulations and that individuals will vary in their proclivity for transportation.

Text Quality

Two yardsticks are readily available to determine the quality of a text. First, a text may become part of a literary canon; scholars and general readers alike may find a particular text to be absorbing, regardless of how much time has passed since its writing or of the differences in background among the readers (e.g., Modern Library Editorial Board, 1998). On the other hand, some works that may not necessarily last through the ages may be transporting during a certain time period. Best-seller status could be a mark of transportingness. Detective thrillers or romance novels may not be "great" literature, but thousands eagerly devour such books. Indeed, these books may be explicitly designed to elicit transportation (Radway, 1997). "Genre fiction is put together using techniques that allow the reader . . . to disappear into the story, to experience the emotions that are intended by the writer" (Oatley & Gholamain, 1997, p. 278).

Individual Differences and Situational Influences

Of course, not all works of fiction are equally transporting for all readers; even a devoted teacher of literature could be quite bored by some canonical works. Just as there may be individual differences in both the general tendency to become transported and in the types of texts that one finds to be transporting, there may also be situational factors that influence the level of transportation experienced by a reader.¹

Fiction and Belief Change

Theory advanced by Gilbert and colleagues (e.g., Gilbert, 1991; Gilbert, Tafarodi, & Malone, 1993) is consistent with the proposal

that narratives, regardless of their real-world truth status, can change beliefs. Gilbert suggested that the default is for people to believe anything they read or hear, and that "disbelieving" is an effortful correction process. Building on this work, we suggest that transportation into a story causes people to be less motivated (or less able) to disbelieve any particular conclusion; transported individuals are so absorbed in the story that they would likely be reluctant to stop and critically analyze propositions presented therein. Public narratives often imply certain beliefs, but without stating them outright. Furthermore, stories are generally presented as entertainment, rather than as vehicles for attitude change. These qualities of public narratives provide few explicit triggers for critical thinking, and thus counterarguing is less likely to occur. Although some early evidence indicated that facts encountered in a narrative are stored separately from real-world knowledge (Potts & Peterson, 1985), Gerrig and Prentice (1991) showed that readers seemed to be incorporating context-free assertions, even false ones such as "mental illness is contagious," into their real-world belief structures. Fiction-based belief change has now been demonstrated by independent investigators (Prentice, Gerrig, & Bailis, 1997; Strange & Leung, 1999; Wheeler, Green, & Brock, 1999).

Overview

In sum, individuals reading stories may become transported into a narrative world. Transportation is a convergent mental process, a focusing of attention, that may occur in response to either fiction or nonfiction. The components of transportation include emotional reactions, mental imagery, and a loss of access to real-world information; the resulting transportation may be a mechanism for narrative-based belief change.

We first summarize the development of a scale designed to measure the extent of individuals' transportation. We then show that transportation affects the impact of a story on readers' story-implicated beliefs and on their evaluation of protagonists. We also report preliminary evidence regarding the extent to which transportation can be text-driven.

Summary of Scale Development

We relied on Gerrig's (1993) exposition of transportation to create a scale intended to capture its major dimensions, including emotional involvement in the story, cognitive attention to the story, feelings of suspense, lack of awareness of surroundings, and mental imagery.

The final Transportation Scale included 11 general items and 4 imagery items specifically related to the target narrative. The first narrative, titled "Murder at the Mall," was adapted from *How We Die*, a bestseller by Sherwin Nuland (1994, pp. 123–128). (The second narrative is described later, in Experiment 4. Only the first story was used in scale validation.) "Murder at the Mall" is a true story about a little girl, Katie, who goes to the mall with her college-age sibling. While at the mall, Katie is brutally stabbed to

¹ However, a text may be accorded canon status in part because its ability to move readers is relatively independent of the reading context or the backgrounds of most individual readers—for example, *Gatsby's* "ability to tap into and refigure recurring American beliefs and concerns: the myth of the self-made man, for instance, and our ambivalent relationship with the American Dream" (Dettmar, 1998, p. B6).

death by a psychiatric patient. The tragic story is moving and shocking.

All items were measured on a seven-point scale anchored by *very much* and *not at all*. (See scale items in Table 1.) In a sample of 274 undergraduates, the scale had a Cronbach's alpha of .76. Dropping items would not have significantly improved the alpha. The theoretical range of the Transportation Scale was 15 to 105, where higher scores represent greater transportedness. The actual range across Experiments 1–3 (discussed later) was 31 to 99. The lack of extreme low scores was not surprising, given that "Murder at the Mall" was highly involving.

A maximum likelihood exploratory factor analysis was performed on the transportation questionnaire on the basis of 272 observations (data were missing for two cases). Three eigenvalues in the unrotated solution exceeded 1, and examination of a scree plot showed that three factors seemed to precede a sudden drop in values. Examination of fit measures indicated that the three-factor solution provided better model fit than one or two factors. The root-mean-square error of approximation (RMSEA) was .06, indicating an adequate factor solution. Three interpretable factors were extracted and rotated, using direct quartimin (oblique) rotation. These seemed to be tapping into cognitive aspects, emotional-affective aspects, and visual imagery. However, these factors were intercorrelated (r s ranged from .41 to .21).

Table 1
Transportation Scale Items

Item	
Panel 1: General items	
1. While I was reading the narrative, I could easily picture the events in it taking place.	
2. While I was reading the narrative, activity going on in the room around me was on my mind. (R)	
3. I could picture myself in the scene of the events described in the narrative.	
4. I was mentally involved in the narrative while reading it.	
5. After finishing the narrative, I found it easy to put it out of my mind. (R)	
6. I wanted to learn how the narrative ended.	
7. The narrative affected me emotionally.	
8. I found myself thinking of ways the narrative could have turned out differently.	
9. I found my mind wandering while reading the narrative. (R)	
10. The events in the narrative are relevant to my everyday life.	
11. The events in the narrative have changed my life.	
Panel 2: Items specific to "Murder at the Mall" (Experiments 1–3)	
12. While reading the narrative I had a vivid image of Katie.	
13. While reading the narrative I had a vivid image of Joan (John).	
14. While reading the narrative I had a vivid image of the psychiatric patient.	
15. While reading the narrative I had a vivid image of the registered nurse.	
Panel 3: Items specific to "Two Were Left" (Experiment 4)	
12. While reading the narrative I had a vivid image of the boy.	
13. While reading the narrative I had a vivid image of the dog.	
14. While reading the narrative I had a vivid image of the ice island.	
15. While reading the narrative I had a vivid image of the pilot.	

Note. R = reverse-scored.

When treated as subscales of the Transportation Scale, the cognitive (Items 1, 3, and 4 from Table 1), affective (Items 5, 7, 11), and imagery (Items 12–15) items showed acceptable interitem reliability (all Cronbach alphas > .65); however, the subscales generally did not differentially predict relevant outcomes. Therefore, we have reported results using the full scale.

Gender Differences

In this sample, women reported significantly greater transportation than men, $F(1, 273) = 5.06, p < .05$ (M men = 73.47, M women = 76.26). When the subscales were considered, a significant gender difference appeared only for the emotional subscale, $F(1, 273) = 18.27, p < .01$ (M men = 11.13, M women = 12.84), indicating that women reported greater emotional involvement. However, using other stories (e.g., Exp. 4), the gender difference reversed or disappeared, indicating that transportation may not generally be affected by gender.

Discriminant Validation: Need for Cognition

Transportation and cognitive elaboration are hypothesized to be distinct constructs. Thus, the Need for Cognition Scale (Cacioppo & Petty, 1982), which predicts which individuals will be likely to spontaneously elaborate on information, would not necessarily predict transportation. However, individuals who enjoy thinking in general may also be motivated to pay enough attention to the story to become transported. Thus, we expected either no correlation or a small positive relationship between enjoyment of thinking and transportation. Results indicated that the correlation between need for cognition and transportation was small and nonsignificant, $r(272) = .09; p > .10$.² These findings provided some support for the distinctiveness of transportation and elaboration.

Convergent Validation: Tellegen Absorption Scale

Transportation can be expressed as immersion or absorption into a narrative world. Thus, transportation should be related to a general tendency to become absorbed into life experiences. We compared participants' responses on the transportation scale with Tellegen's (1982) Absorption Scale, 34 true-false self-descriptive items (e.g., "I sometimes 'step outside' myself and experience an entirely different state of being"). We found a moderate association between transportation and absorption, $r(59) = .24, p < .05$. Transportation was also significantly correlated with the six items comprising the "disassociative oblivion" factor of the scale, $r(59) = .23, p < .05$; example item: "It is sometimes possible for me to become completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered". The observed association made sense, because transportation is assumed to involve a loss of access to the real world.

Effect of Text Manipulation

To test the sensitivity of the transportation instrument to different stories, we created an alternative version of "Murder at the

² The correlation may have been somewhat attenuated because need for cognition is a dispositional tendency, whereas the Transportation Scale referred to a specific situation (reading "Murder at the Mall").

Mall” intended to be much less compelling. We retained much of the imagery and patterns of social interaction in the story but altered the plot so that rather than being murdered, Katie was overcome with giggles by a clown blowing bubbles. This event was trivial in comparison to the killing described in the original narrative, but the story length was unchanged. We titled this version “Bubbles in the Mall.”

We compared this version of the story with “Murder at the Mall” in a sample of 38 undergraduates (20 male, 18 female) and found that, as expected, readers reported significantly less transportation into “Bubbles in the Mall” than into “Murder at the Mall,” M “Bubbles” = 62.31, M “Murder” = 73.94, $F(1, 36) = 7.36, p < .01$. Thus, the transportation scale was sensitive to alteration in the quality and meaning of the text.

Experiment 1

To observe whether our preliminary measure of transportation would be related to the beliefs of story recipients, we created measures of beliefs that might be affected by the story. These beliefs were logical implications of the story events. We examined whether people who reported higher transportation would have beliefs more consistent with the story. For example, a murder occurring at a shopping mall suggests that malls are not safe places; the fact that the killer was a psychiatric patient implies that such patients should not be left unsupervised; and the fact that the victim was an innocent child implies that the world is unjust. These beliefs were implied rather than stated, because the purpose of *How We Die* (Nuland, 1994), the source of our story, was to describe the physiology of dying from a medical perspective. How people came to meet their deaths was incidental, and so beliefs about these causes were addressed only implicitly.

Because of the central role that character plays in most narratives, we wanted to examine the effects of transportation on evaluation of the characters. We expected that highly transported participants would feel more positively toward the (sympathetic) characters in the narrative. We also manipulated the alleged truth status of the narrative. For some participants, the narrative was represented as fiction, and for others the same story was presented as fact.

Method

Participants

For partial credit, 97 undergraduates participated in groups of 10–15.

Procedure

Participants read “Murder at the Mall” and completed the dependent variable packet.

Experimental narrative: “Murder at the Mall.” The experimental narrative was the previously described story adapted from *How We Die* (Nuland, 1994, pp. 118–139). This nine-page story, “Murder at the Mall,” is about a college student, Joan, whose little sister Katie is brutally stabbed to death by a psychiatric patient at the mall. This narrative was selected because it was plausibly framed as either fiction or nonfiction. Events are presented realistically; however, the author has a rich descriptive style that would not be typical of a straight journalistic account. The narrative also

tends to be highly involving, thus providing scope for a sensitive test of the transportation hypothesis.

Source manipulations. Participants were assigned to either the fiction or nonfiction conditions. These manipulations were not subtle; the information was provided in bold, double-spaced print on the top of the first page of the narrative, and the narratives were formatted to reflect the alleged source. The nonfiction narrative was in small print arranged in columns, resembling a newspaper, and the fiction narrative resembled a literary magazine.

Fiction condition participants were informed that “the events in Murder at the Mall comprise a short story, the *Fiction Feature*, as published in Akron Best Fiction, an Ohio Fiction magazine, in December 1993. Resemblance to real persons and places is of course coincidental.”

In the nonfiction condition, participants were led to believe that the narrative was a journalistic account: “The events in Murder at the Mall occurred recently and were reported in the Akron Beacon Journal, an Ohio daily newspaper, in December 1993.”

Measures

Participants completed the following measures (described later) in the order listed: story-specific beliefs, just-world items, the transportation questionnaire (Table 1), thought listings, character evaluations, reality monitoring, source manipulation checks, and a recall test.

Story-specific belief measures. Participants answered a series of story-specific belief items. They responded to the statements on a 0–60 scale, anchored by *agree completely* and *disagree completely*, with *neither agree nor disagree* as the center point. Topics included freedoms for psychiatric patients and the likelihood of attacks in public places. For the two violence items, participants chose from a series of options. The item “Someone is getting stabbed to death somewhere in the USA” had eight choices, ranging from *every 10 minutes* to *every month* (reverse-scored), and the item “The likelihood of a stabbing death at an Ohio mall is:” had eight choices, ranging from *once every 50 years* to *once every week*.

Just world. We also expected transportation to affect general beliefs implicated by the story. Injustice could be considered a theme of “Murder at the Mall”; an innocent child is randomly murdered because a careless judicial system allowed a man with a history of violence to walk the streets. Thus, it was possible that people’s general perceptions of a just world might be swayed by reading about such blatant injustice. To assess this possibility, we chose global belief items from the Belief in a Just World Scale (Rubin & Peplau, 1975). We selected items most relevant to the story, as well as ones that asked directly about just-world views. These beliefs were assessed on a 0–60 agree–disagree scale.

Creation of dependent variable indexes. To increase the power of our tests, we created three multi-item indexes from conceptually related dependent variables.³ The psychiatric patient index included two items: “Psychiatric patients who live in an institution should be allowed to go out in the community during the day” and “Psychiatric patients who have passes to leave their institution should be free of supervision.” Individuals with story-consistent beliefs would reject these items. The violence index consisted of ratings of the frequency of stabbing deaths in the United States and at Ohio malls. The story could lead individuals to think that stabbing deaths are more likely. The just-world index included “Although there may be some exceptions, good people often lead lives of suffering” and “By and large, people get what they deserve” (reverse-scored). Katie did nothing to bring on her tragic fate; therefore, perceiving an unjust world was story-consistent.

³ The items comprising the dependent variable indexes were also empirically related; within each index, the items were significantly positively correlated. In a dataset combining Experiments 1–3, Cronbach alphas for the indexes were as follows: psychiatric patient index, $\alpha = .69$; just-world index, $\alpha = .28$; and violence index, $\alpha = .47$.

We separately examined another just-world item: "Crime doesn't pay." Although story-relevant, this item appeared conceptually distinct from the other just-world items. Agreeing that crime does not pay indicates a belief in a just world; however, participants have just read a story in which crime truly did not pay. The murderer received no benefit from his actions, and the costs to the girl and her family were immeasurable. Thus, we believed that this item might be affected in the opposite direction from the just-world index.

Character evaluations. Participants rated Joan and Katie on four 60-point semantic differential scales: good–bad, pleasant–unpleasant, attractive–unattractive, and responsible–irresponsible.

Thought-listings. Participants were instructed to list all the thoughts and ideas they had while reading the story, without worrying about spelling or grammar (e.g., Brock, 1967).

Reality–source monitoring. Participants were asked to check whether the story was true, meaning "the events actually happened," or false, meaning "the events did not actually happen."

Source manipulation check. Participants were asked to indicate whether the story was fiction, nonfiction, or "don't know."

Recall test. Participants completed an 18-item true–false recall test of factual information from the story, designed to measure whether participants had read the entire story carefully. It included assertions about Katie's age, the setting of the attack, and the name of the attacker.

Belief Pretesting

We conducted a pretest ($N = 49$) to determine the extent to which participants thought each belief was related to the story and how persuasive the story was regarding each statement. Participants read "Murder in the Mall," and then rated each statement on two scales ranging from 1 (*not at all related/persuasive*) to 7 (*very related/persuasive*). To determine the score for the indexes, we averaged the ratings for the component items. For both story-specific indexes, the mean ratings of relatedness and persuasiveness were above the scale midpoint, indicating high levels of agreement (psychiatric patient, M related = 6.01, M persuasive = 5.45; violence, M related = 4.60, M persuasive = 4.19). As we expected, the just-world items, which were less tightly linked to story content, received somewhat lower ratings (just world, M related = 2.89, M persuasive = 2.24; "crime doesn't pay," M related = 2.67, M persuasive = 2.63). If transportation affected even these distal beliefs, this would be strong evidence for far-reaching impact.

Results

We dropped two participants who missed more than four items on the recall measure from all analyses because these individuals may have read the story partially or carelessly.

Source Effects

Effect of source on reported transportation. The source of the story did not affect reported transportation, $F(1, 94) < 1$, $p > .80$. Participants were equivalently transported into the story whether it was labeled as fiction or as nonfiction.

Effect of source on beliefs and character evaluations. We examined the effect of source on participants' beliefs. Interestingly, responses on the belief indexes did not differ as a function of story source, all $F_s(1, 94) < 2.5$, all $p_s > .20$. Readers responded similarly to fact and fiction.

We averaged the four semantic differential character evaluation items into indexes for analysis purposes (Cronbach's $\alpha = .66$ for Joan; $.78$ for Katie). These indexes were not affected by source, $F_s(1, 93) < 1$, $p_s > .40$ (one participant did not answer

these items). Factual and fictional characters were similarly evaluated.

Source manipulation checks. A number of participants (19 in nonfiction condition, 13 in fiction condition) either misidentified the source of the story or reported that they did not know the story source. However, even if only individuals who correctly recalled the truth status of the narrative ($N = 30$ for nonfiction, $N = 33$ for fiction) were considered, the basic pattern of results remained the same. Fiction–nonfiction status did not affect transportation, $F(1, 62) = 1.92$; $p > .15$. Truth status also did not affect responses on the belief indexes (all $F_s < 1$, all $p_s > .45$) or character evaluations ($F_s < 2.05$, $p_s > .15$), with the exception of the violence index, $F(1, 62) = 4.38$, $p < .05$. Violence beliefs were more consistent with the story (higher likelihood of violence) in the fiction condition ($M = 11.55$) than in the nonfiction condition ($M = 10.37$).

Transportation Effects

Transportation and beliefs. We conducted a median split to divide participants into high and low transportation groups ($mdn = 72$, range = 41–103). Seven participants who scored at the median were excluded (M high transportation = 80.97; M low transportation = 63.17). In an analysis of variance (ANOVA) with source and transportation as factors, there was a significant effect of transportation on the violence index, $F(1, 84) = 3.85$, $p = .05$, in the expected direction, with highly transported participants indicating that violence was more likely (M high transportation = 11.35; M low transportation = 10.26). The psychiatric patient index showed a marginally significant effect of transportation, $F(1, 84) = 3.38$, $p = .07$. As predicted, highly transported participants reported beliefs more consistent with those implied in the story, indicating that psychiatric patient freedoms should be restricted (M high transportation = 95.93, M low transportation = 87.45). Highly transported participants also reported just-world beliefs that were more story-consistent than low-transported participants, but the difference was not reliable ($p > .10$). Means are presented in the rows of Table 2 for Experiment 1.⁴

Transportation and evaluation of characters. In two-way (transportation and source) ANOVAs, transportation had a significant effect on the evaluations of Katie Mason, with highly transported participants reporting greater positivity toward Katie, $F(1, 83) = 10.52$, $p < .01$; M high transportation = 47.96; M low transportation = 43.04. The evaluations of Joan Mason were directionally consistent, but did not achieve statistical significance. Means are given in the rows of Table 3 for Experiment 1. No significant interactions emerged.

⁴ An uninterpretable interaction emerged between transportation and source on the just-world index; no other interactions attained statistical significance. We also examined the effects of transportation and source on source remembering (source manipulation check). These interactions were at best marginally significant and did not replicate across studies. Therefore, they are not discussed in this article. Details are available from the authors on request.

Table 2
Belief Means (and Standard Deviations) as a Function
of Transportation

Item	Transportation		High-low difference	
	High	Low	<i>p</i>	<i>z</i>
Violence				
Experiment 1	11.35 (2.42)	10.26 (2.66)	.025	1.96
Experiment 2	11.12 (3.20)	10.22 (2.93)	.120	1.18
Experiment 3	11.56 (2.48)	10.78 (2.51)	.003	2.75
Combined			.001	3.40
Psychiatric patient				
Experiment 1	95.93 (22.42)	87.45 (19.93)	.030	1.88
Experiment 2	88.73 (20.00)	85.90 (20.66)	.290	0.55
Experiment 3	97.50 (22.10)	94.25 (19.42)	.099	1.29
Combined			.016	2.15
Just world				
Experiment 1	55.89 (19.08)	50.74 (24.53)	.140	1.08
Experiment 2	70.67 (22.06)	65.68 (18.65)	.160	0.99
Experiment 3	66.32 (22.75)	59.57 (23.54)	.013	2.24
Combined			.006	2.49
Crime doesn't pay				
Experiment 1	47.65 (13.49)	46.21 (15.83)	.330	0.44
Experiment 2	50.82 (11.99)	39.97 (15.03)	.001	3.09
Experiment 3	43.99 (15.33)	38.44 (15.76)	.004	2.65
Combined			.001	3.57

Note. Higher numbers indicate beliefs more consistent with the story. For this table, all *ps* were one-tailed, from one-way analysis-of-variance *F* tests. Combined *z* score and associated *p* values were calculated following Rosenthal (1995, p. 44).

Gender

Although transportation was associated with gender in the scale development sample, here gender was not related to transportation, $F(1, 93) = .42, p > .50$.⁵

Ancillary Measures

Thought-listings. We discovered that traditional thought-coding procedures (e.g., Brock, 1967; Petty, Ostrom, & Brock, 1981), which divide thoughts into favorable, unfavorable, and neutral categories, were not appropriate for the responses given to "Murder at the Mall." The thoughts listed in the current study tended to be global reactions or emotions rather than belief-related comments. For example, a participant in a traditional experiment (Petty & Cacioppo, 1986) might read an essay supporting senior comprehensive exams and write thoughts such as "Senior exams are a bad idea" or "If the exams will get me into grad school, I'm all for them." These thoughts can readily be categorized as favorable or unfavorable. In contrast, readers of "Murder at the Mall" wrote thoughts such as "Horrible," and "The sister will be emotionally scarred for life." Although participants were clearly thinking about and reacting to the story, it was impossible to code these thoughts as favorable or unfavorable toward the focal belief items.

Summary of Ancillary Study

Perhaps the causal link that we have proposed between transportation and beliefs was reversed; perhaps individuals who al-

ready have beliefs consistent with the conclusions of the story— for instance, that violence is likely and the world is unjust—were more likely to become transported into the story. To rule out this alternative explanation, we conducted a study ($N = 50$) using a pretest–posttest design. Participants provided story-related beliefs in a mass testing session at the start of the quarter and participated in the study 5 to 9 weeks later. Regression analysis revealed that initial beliefs were not a significant predictor of transportation. Furthermore, separate regression analyses showed strong, significant effects of transportation on belief change scores for the psychiatric patient and just-world items (complete results available in Green, 1996).

Discussion

The data provided initial evidence that transportation is associated with story-consistent beliefs. Highly transported participants showed beliefs more consonant with story conclusions as well as more positive evaluations of the story protagonists. Becoming involved in a narrative world seemed to have measurable consequences. Although these correlational analyses cannot establish causality, a likely possibility is that individuals altered their real-world beliefs in response to experiences in a story world. Furthermore, readers reacted to the people inhabiting the story world, with highly transported readers showing greater positivity toward characters.

Experiment 1 also showed that fact versus fiction labeling did not affect transportation. Individuals were as transported into a narrative world that was perceived as fictional as one that was believed to be factual. Furthermore, individuals did not appear to be differentially persuaded by factual versus fictional narratives. Where a belief difference emerged once between the two conditions, individuals who read a fictional story showed more story-consistent beliefs.

The effects of transportation on beliefs were reliable for our story-specific items, but not for "just world" and "crime doesn't pay." Thus, one impetus for Experiment 2 was to see whether these more distal issues could be reliably affected by degree of transportation.

An interesting problem raised by Experiment 1 was the inability of traditional cognitive responses to map readers' processing. We were unable to code these thoughts in the traditional manner. As noted earlier, readers tended to list more emotion-laden and global thoughts, rather than favorable or unfavorable reactions to specific story-related beliefs. It appeared that a different approach would be needed to accurately capture cognitive responding to stories. A

⁵ In several studies, there were also occasional gender main effects on belief or character evaluation items. These differences were not theoretically interesting and did not typically replicate across studies; therefore, they are not discussed herein. Interested parties may contact Melanie C. Green for details.

The only interaction between transportation and gender in Experiment 1 was on the ratings of Katie, $F(1, 85) = 5.91, p < .05$. Inspection of means suggested that men evaluated Katie similarly regardless of transportation level, whereas women evaluated Katie more positively when highly transported (M high-transportation women = 52.01, M low-transportation women = 43.51; M high-transportation men = 44.60, M low-transportation men = 42.64). This interaction was not predicted, and its interpretation was unclear.

Table 3
Evaluation of Characters as a Function of Transportation

Character	Transportation		High-low difference	
	High	Low	<i>p</i>	<i>z</i>
Katie Mason				
Experiment 1	47.96 (7.28)	43.04 (6.75)	.001	3.09
Experiment 2	47.95 (8.35)	40.43 (9.02)	.001	3.09
Experiment 3	49.45 (7.30)	43.35 (7.54)	.001	3.09
Combined			.001	5.35
Joan Mason ^a				
Experiment 1	40.68 (29.99)	38.39 (20.53)	.080	1.40
Experiment 2	41.38 (8.02)	31.95 (10.97)	.001	3.09
Experiment 3	41.01 (11.68)	36.98 (10.33)	.001	3.09
Combined			.001	4.37

Note. Standard deviations are presented in parentheses after means. High scores indicated more positive evaluations. For this table, all *ps* were one-tailed, from one-way analysis-of-variance *F* tests. Combined *z* score and associated *p* values were calculated following Rosenthal (1995, p. 44).
^a For Experiment 3, protagonist gender was matched to participant gender; this table shows combined results for Joan and John.

primary goal of Experiment 2 was to evaluate a new measure of story processing.

Having demonstrated that measured transportation was related to beliefs and character evaluations, we next attempted to create conditions wherein external instructions might augment or undermine the transporting power of the text.

Experiment 2

Our purpose of Experiment 2 was to subject hegemony-of-text to empirical challenges by manipulating story frame and readers' instructions. Our measurement of transportation scores for undergraduates reading stories of varying length and quality (see Table 4) revealed that stories judged of high quality by external standards, such as inclusion in the literary canon or bestseller status, elicited higher transportation than less-acclaimed tales. Quality of text affected transportation. However, to move beyond textual

Table 4
Mean Transportation Scores for Stories of Varying Quality

Story	Status	Transportation
"Murder at the Mall" (Nuland, 1994; 9 pages): A young girl is brutally murdered in a shopping mall by a psychiatric patient.	Best-selling nonfiction (excerpt)	72.44 (<i>N</i> = 95; Expt. 1) 69.58 (<i>N</i> = 69; Expt. 2) 74.87 (<i>N</i> = 269; Expt. 3)
"The Sniper" (O'Flaherty, 1923; 10 pages): A sniper kills his enemy, who turns out to be his brother.	Anthologized classic fiction	73.52 (<i>N</i> = 44)
"The Kidnapping" (Gerrig & Prentice, 1991; 20 pages): A college student is kidnapped as a birthday prank.	Experimental materials	60.20 (<i>N</i> = 137)
"The Raven" (Twoby, 1985; 20 pages): A clever detective uncovers a murder and finds the killer.	Popular mystery magazine	59.03 (<i>N</i> = 64)
"The Fisherman" (Maxwell, 1991; 8 pages): An outcast fisherman saves others from a storm through his singing.	Anthologized short story	60.75 (<i>N</i> = 149)
"Two Were Left" (Cave, in Berger, 1956; 3 pages): Stranded and starving Eskimo boy and dog resist evil impulses and are then rescued from an ice floe by airplane.	Published short story and text used in research on reading behavior (Cave, in Berger, 1956; Sadoski, Goetz, & Kangiser, 1983)	61.27 (<i>N</i> = 166) 58.97 (<i>N</i> = 87) ^a 63.81 (<i>N</i> = 79) ^b

Note. All samples consisted of Ohio State University undergraduates. For "The Sniper," only Items 1-9 (range = 9-63) of the Transportation Scale were used; each item was weighted by the proportionate contribution of idiosyncratic items as estimated from "Murder at the Mall" data. Expt. = Experiment.
^a Reduced transportation condition. ^b Baseline transportation condition.

differences in content and style, we selected two potentially important real-world variables. First, we again varied the truth status of the narrative—fact versus fiction—as in Experiment 1. We also manipulated the instructions given to participants about how to approach the task of reading; some were encouraged to focus on surface aspects of the story, whereas others were urged to become immersed in it.

For Experiment 2, we also created a new measure to assess questioning or doubtful reactions to a story. Experiment 1 revealed that the traditional thought-listing coding categories (e.g., Petty et al., 1981) were insensitive to actual responding to stories. To shed light on the processes underlying transportation effects, we instructed participants to go back over the story after they had finished filling out the dependent measures and circle any "false notes," or parts of the story that did not ring true to them. We called this task "Pinocchio circling," after the puppet whose nose grew when he told a lie; just as Pinocchio's nose signaled falsehood, so might certain elements of the story. False noting to narrative communication is roughly analogous to counterarguing (Brock, 1967) to rhetorical communication in that they are processes that might undermine the impact of the text.

We hypothesized that participants who were more transported into the story would be less likely to find false notes in the story; they would be less critical of the story. If highly transported participants showed less false noting, this finding would support our theoretical distinction between transportation and cognitive elaboration (Petty & Cacioppo, 1986).

Finally, because need for cognition is often used as an individual difference variable in the persuasion literature (Cacioppo, Petty, Feinstein, & Jarvis, 1996), we wanted to examine the relationship between need for cognition and story-related beliefs. Individuals high in need for cognition are motivated to think, whereas those low in need for cognition tend not to think unless external forces motivate them to do so. High need-for-cognition people will typically be more persuaded by strong arguments and less persuaded by weak arguments, whereas those low in need for cognition will not distinguish between arguments of differing quality. However, there were no arguments per se presented in the story. Because of these differences from rhetorical persuasive messages, we ex-

pected that need for cognition might not be related to beliefs in a narrative context.

An additional aim of the current study was to test whether the Absorption Scale (Tellegen, 1982) could predict narrative-based belief change. Perhaps the more general tendency to become absorbed in experiences was a strong enough predictor to preclude a separate transportation scale.

Design

The study was a 2 (source: fiction, nonfiction) \times 3 (instructions: theater, narrative, fourth grade) factorial design. Students read "Murder at the Mall," as in Experiment 1.

We used three written instruction sets, referred to as theater, narrative, and fourth-grade instructions. Theater instructions were intended to foster higher transportation by encouraging participants to immerse themselves in the text as an actor playing a role might do. Narrative instructions, telling participants to simply pay attention, served as the baseline transportation condition. The fourth-grade instructions were intended to undermine transportation. Fourth-grade directions asked readers to focus on identifying words that would not be understandable to a person reading at the fourth-grade level. This task should not have been a distraction from the content of the narrative, yet it might plausibly reduce transportation.

To manipulate fact versus fiction framing, we told some participants that "Murder" was a nonfiction newspaper account; others were told it was a short story from a fiction magazine.

Method

Participants

In partial fulfillment of course requirements, 69 undergraduates participated. Sessions were run in a classroom setting in groups of 10 to 25 participants.

Procedure

Participants were told that they would be participating in two studies during the session. The "first study" consisted of reading two brief narratives and circling words that were too difficult for a fourth-grade reader. Two experimenters were present, and when participants had finished the first task, one of the experimenters collected the materials and left the room.

Fourth-grade practice circling: "Study 1." Pilot test participants had expressed some doubts in their ability to identify difficult words or phrases. Thus, the first task was designed to be simple enough to give fourth-grade condition participants confidence in their ability to follow the later instructions, while not affecting responses in the other conditions. The practice task, called the first study, presented two stories (one fictional, one based on actual current events) in counterbalanced order. These brief narratives included several difficult or obscure words. An answer page followed each story; the narrative was presented again, with difficult words circled.

Participants were instructed to circle words or phrases that a fourth-grade reader would not understand—for example, "detritus" and "eradication." After finishing, participants checked their answers. All were able to identify the difficult words.

Because of the explicit separation between the warm-up task and the main study, including different experimenters and new sets of instructions, we did not expect the effects of the fourth-grade task to carry over to the primary experiment.

Instructions: "Study 2." The story cover page was titled "Project II." Instructions were varied to encourage, discourage, or neither encourage or discourage transportation.

Theater condition instructions encouraged people to become more transported into the story. Participants were told the following:

Today, you will be reading a narrative that will be used to help actors and actresses become involved in a role. . . . While reading this narrative, use your imagination. Think about the setting, about how the characters are feeling, and how you might feel in the situation. Immerse yourself in the action of the story. You are now Joan Mason!

Narrative condition participants were expected to show baseline levels of transportation. These participants were told the following:

In this study, we are testing several stories for possible use in future experiments. You will be reading one of these stories. . . . Your responses will help us evaluate the story for use in future studies on memory and information processing. . . . While reading this narrative, use your attention. Think about what is happening. You are now ready to begin.

Fourth-grade instructions, designed to reduce transportation, informed participants of the following:

Many adults in adult literacy programs are able to reach fourth-grade level reading. Interesting stories at the fourth-grade level are therefore needed for these adults.

For the fourth-grade reader, it is important to avoid long words (too many syllables), avoid complex sentences (too many clauses), and avoid difficult expressions (familiar words in hard-to-understand combinations). Today, we are asking you to read a narrative and . . . evaluate it for use by adults who read at the fourth-grade level. . . . While reading this narrative, concentrate on the writing style and difficulty level.

Reminder page. To strengthen the impact of the instructions, after the first page of the story we included a page that said, "Reminder! Your job while reading this narrative is to . . ." and then repeated the main point of the instructions (e.g., "look for words and phrases that are too difficult for a fourth-grade reader").

Experimental narrative: "Murder at the Mall." The experimental narrative was the previously described story (Experiment 1).

Source manipulations. Participants were assigned to fiction or nonfiction conditions, as described in Experiment 1. We slightly altered the instantiation of fact-fiction labeling. We retained the wording of the manipulations, but instead of changing the formatting of the text, we reprinted the source information in bold at the top of each page. The appearance of the text was identical in the two conditions and looked like a typewritten manuscript.

Measures

Participants completed the following measures in the order listed: story-specific belief items, manipulation checks for instructions and story source (with order of belief measures and manipulation checks counterbalanced between participants), the Transportation Scale (Table 1), thought-listings, evaluations of characters, just-world items, a recall test, Need for Cognition (Cacioppo, Petty, & Kao, 1984), the Tellegen (1982) Absorption Scale, and the Pinocchio task, described later. Except where described below, all measures were identical to Experiment 1.

Instruction manipulation checks. The manipulation checks used a 0–60 scale to assess participants' attention to instructions. Questions asked about the participants' attempts to become immersed in the story, their attempts to evaluate the story for use in future experiments, and their efforts to identify words and phrases not understandable to a fourth-grade level reader.

Fact-fiction manipulation check. Rather than asking participants whether the narrative was fiction or nonfiction, as in Experiment 1, we asked participants whether the story was "true (these events actually occurred)" or "not true (the events did not actually occur)." We felt that this wording would eliminate any potential confusion between the terms fiction and nonfiction.

Need for cognition. Participants completed the 18-item Need for Cognition Scale (Cacioppo et al., 1984), which assesses individuals' enjoyment of thinking.

Pinocchio instructions. The final page provided instructions for circling "Pinocchios," or false notes in the story. False notes were described as something in the story that contradicts a fact or does not make sense. The instructions explained that sometimes authors leave clues when they are being untruthful, just as Pinocchio's nose grew after he told a lie.

We provided an example paragraph with phrases circled for participants. Additionally, they were given a sample paragraph to do circling themselves. The last sentence on the page instructed participants to go back to "Murder at the Mall" and circle the Pinocchios (false notes). Participants were told they could circle as few or as many Pinocchios as they wanted.

Results

No participants were dropped because of insufficient story recall.

Instructions and Source Effects

Manipulation checks for instructions. The mean responses to the manipulation check items for each condition are shown in Table 5, where higher numbers indicate more agreement with the statement. Five items reliably differentiated between the instruction groups, $F_s(2, 67) > 3.5$, $p_s < .05$, indicating that, in general, our manipulations were successful. Theater participants tried to immerse themselves in the action and "become" Joan Mason; fourth-grade participants looked for difficult words. These checks also indicated that there was no carryover effect from the fourth-grade practice task. Participants in the theater and narrative groups stated that they were not looking for words or phrases that would be difficult for a fourth-grade level reader.

Effect of instruction set on recall. To rule out the possibility that the fourth-grade instructions interfered with comprehension of the story, we examined the relationship between instructions and recall of story facts. A three-way ANOVA including transportation, source, and instructions revealed no significant difference between instruction conditions in misses on the recall test, $F(2, 53) = .56$, $p > .50$ (M theater = 1.05, M narrative = 1.77, M

fourth grade = 1.58); furthermore, there was no effect of source, transportation, or their interactions on recall.

Effect of source and instructions on reported transportation. In an ANOVA on reported transportation using source (fact vs. fiction) and instruction as factors, neither main effects nor the interaction attained statistical significance. Even though the manipulations were effective, the instructional conditions only marginally affected reported transportation, $F(2, 67) = 2.93$, $p < .10$ (M theater = 73.85, M narrative = 70.72, M fourth grade = 65.00). No participants reported difficulty following theater and narrative instructions. In contrast, a number of fourth-grade condition participants spontaneously commented that they had tried to look for difficult words and phrases but had gotten caught up in the story and had been unable to do so. It appeared that the power of the narrative text, for some readers, overwhelmed task intentions.

As expected, and consistent with Experiment 1, there was no significant effect of source on reported transportation, $F(1, 67) = 0.10$, $p > .50$.

Effect of source and instructions on beliefs and character evaluations. We conducted ANOVAs on the belief indexes using source and instruction set as factors. Fiction-nonfiction labeling did not affect beliefs on any of the dependent variable indexes, $F_s(1, 62) < 3.5$, all $p_s > .06$. Instruction set also did not significantly affect beliefs, $F_s < 2$, $p_s > .20$, nor were there any significant interactions between these two factors, $F_s < 2$, $p_s > .10$.

As in Experiment 1, we averaged the four semantic differential items to create an overall evaluation index for both Katie, the murder victim, and her sister, Joan (Cronbach's $\alpha_s = .82$ for Joan and .85 for Katie). ANOVA revealed no effect of source or instructions on character evaluations, nor were there interaction effects ($F_s < 2.0$, $p_s > .10$).

Source manipulation checks. As in Experiment 1, a number of participants could not correctly recall whether the story they read was true (nonfiction) or not true (fiction). In the nonfiction condition, 11 participants failed this manipulation check; in the fiction condition, 14 people failed to correctly identify the truth status of the story. To examine the effects of fiction-nonfiction on beliefs, we considered only people who correctly identified the story source.

Table 5
Means (and Standard Deviations) for Instruction Manipulation Checks (Experiment 2)

Item	Condition		
	Theater ($N = 20$)	Narrative ($N = 22$)	Fourth grade ($N = 26$)
1. Become J. Mason	50.30 _a (12.66)	36.09 _b (16.44)	21.50 _c (19.51)
2. Immersed in action	50.55 _a (13.70)	48.13 _a (7.50)	27.38 _b (20.11)
3. Good for memory studies	13.00 _a (15.84)	23.95 _a (19.31)	17.57 _a (17.03)
4. Evaluate for future	15.60 _a (17.04)	30.63 _b (20.53)	19.46 _{a,b} (18.74)
5. Looking for fourth-grade words	9.10 _a (12.55)	13.52 _a (11.38)	48.80 _b (13.50)
6. Pay attention to help experimenters	37.65 _a (19.83)	51.72 _b (8.97)	32.50 _a (19.92)

Note. One participant was omitted from these analyses as a result of missing data. Scores ranged from 0 to 60, with higher scores indicating more agreement with the statement. Means in the same row that do not share subscripts differed at $p < .05$ in the Tukey honestly significant difference comparison.

There was no significant effect of source on the just-world or violence indexes ($F_s < 1.7$; $p_s > .20$). However, for this subsample, the psychiatric patient and "crime doesn't pay," indexes revealed source effects. For the psychiatric patient index, M nonfiction = 95.71, M fiction = 84.5; $F(1, 41) = 4.40$, $p < .05$. For "crime doesn't pay," M nonfiction = 51.21, M fiction = 38.74, $F(1, 41) = 8.37$, $p < .01$. In both cases, nonfiction readers showed more story-consistent beliefs.

Source did not affect evaluations of Katie, $F(1, 41) = .05$, $p > .50$; however, there was a marginal effect on evaluations of Joan, $F(1, 41) = 3.19$, $p < .10$. Nonfiction readers tended to be more positive toward Joan. Furthermore, even when source was correctly identified, there was no reliable difference in reported transportation between fact and fiction readers.

Transportation Effects

Transportation and beliefs. We again used a median split on transportation (range = 38–94; $mdn = 69$), excluding three participants who scored at the median (M high transportation = 79.70, M low transportation = 58.87). An ANOVA including transportation with the other factors revealed a main effect on "crime doesn't pay," $F(1, 53) = 8.16$; $p < .01$, such that highly transported people were more likely to agree (M high transportation = 50.82, M low transportation = 39.97). The violence index neared significance, $F(1, 53) = 3.68$, $p < .06$ (M high transportation = 11.12, M low transportation = 10.22). Other belief measures were in the expected direction, with highly transported readers reporting more story-consistent beliefs; the pattern of results was identical to Experiment 1. However, no other comparisons or interactions attained statistical significance. See Experiment 2 rows of Table 2.

Transportation and evaluation of characters. Transportation was a significant predictor of positive evaluation—for Joan, $F(1, 53) = 15.85$, $p < .01$; for Katie, $F(1, 53) = 7.71$, $p < .01$. Highly transported participants rated both characters more positively (for Joan, M high transportation = 41.38, M low transportation = 31.95; for Katie, M high transportation = 47.95, M low transportation = 40.43), as shown in Table 3 rows for Experiment 2. No significant interactions between transportation and the other factors emerged.

Transportation and Pinocchio circling. Our measure of story acceptance asked readers to identify parts of the text that rang false. Pinochios were scored two ways—the number of circles made and the number of lines of text on which circles appeared. A circle was considered a single unit, but might correspond to a single word or several sentences. Circles were intended to account for the number of ideas people saw as "false notes," whereas lines provided a measure of the actual amount of text participants rejected. Three participants who did not complete the sample circling task were dropped from the analysis; data were missing for one participant.

The number of circles recorded ranged from 0 to 48, and lines of text circled ranged from 0 to 80. ANOVA using reported transportation, source, and instruction sets as factors revealed only a main effect of transportation on both lines and circles, with highly transported participants drawing fewer circles, $F(1, 53) = 4.75$, $p < .05$ (M high transportation = 4.13; M low transportation = 10.52) and circling fewer lines, $F(1, 53) = 4.92$, $p < .05$ (M high transportation = 6.71; M low transporta-

tion = 17.22). Highly transported participants appeared more accepting of the story. This finding was also consistent with the idea that transported individuals are less likely to doubt, to question, or to engage in disbelieving processing. Transportation increased perception of authenticity.⁶

Gender

Women were more transported than men, $F(1, 68) = 11.47$, $p < .01$ (M men = 66.22, M women = 75.87). However, there were no interaction effects involving gender and levels of transportation.

Ancillary Measures

Thought-listings. As in Experiment 1, we found the results of the thought-listing procedure to be impervious to traditional (Petty & Cacioppo, 1986) coding. Thought-listings were therefore not further examined.

Need for cognition, beliefs, and character evaluations. As expected, ANOVA including need for cognition with source and instructions revealed no relationship between need for cognition and beliefs. Those high in need for cognition (as measured by a median split; $mdn = 58$; M low need for cognition = 46.88, M high need for cognition = 66.92) did not show differences from those low in need for cognition on beliefs, $F_s(1, 56) < 1$, all $p_s > .30$. Similarly, need for cognition was not associated with character evaluations ($F_s < 2.5$, $p_s > .10$). In contrast to transportation, need for cognition did not seem to be a reliable moderator of the impact of a story on beliefs or character ratings.

Need for cognition and Pinocchio circling. Individuals high in need for cognition did not show increased doubting or disbelieving relative to those low in need for cognition. An ANOVA including need for cognition, source, and instructions revealed that Pinochios were not related to need for cognition, $F(1, 56) = 0.70$, $p > .40$ for lines; $F(1, 56) = 0.57$, $p > .50$ for circles.

Absorption, beliefs, and character evaluations. We examined the effect of absorption on beliefs and character evaluations, using a median split ($mdn = 20$; M high absorption = 24.34, M low absorption = 12.91). Three participants scored at the median and were excluded from analyses. ANOVA revealed no significant effect of absorption on either beliefs, all $F_s(1, 65) < 1.05$, all $p_s > .30$, or character evaluations, $F_s(1, 65) < 2.70$, $p_s > .10$.

Discussion

The results of Experiment 2 showed that framing and instructions appear to have negligible effects on felt transportation. Focusing on "surface" elements of the story, such as grammar or word choice, appeared to slightly, but not reliably, lower transportation, while at the same time allowing participants to remain aware of story content.

In the current study, one of the distantly related items, "crime doesn't pay," was reliably related to transportation. However, the low N did not allow a strong test of the degree to which transpor-

⁶ It is possible that the negative cognitive responding captured by the Pinocchio measure was a mediator of the influence of transportation on beliefs. However, the low sample size combined with some unreliable effects of transportation on beliefs did not allow us to test mediation.

tation might affect both highly related and more distantly related items.

As in Experiment 1, story thought-listing responses did not convey evaluations of implied beliefs; rather, they tended to be more global reactions to the narrative as a whole. Thus, we devised a novel measure for assessing responses to a narrative that allowed participants to indicate rejection of as much or as little of the text as they desired. Persons high in transportation identified fewer "false notes" in the story than persons low in transportation. The Pinocchio findings illuminated one possible means by which transportation may influence belief change—specifically, by reducing discounting processes.

The Pinocchio technique also provided further support for the distinction between transportation and cognitive elaboration. Highly transported individuals indicated that they found fewer false notes in the story compared with their less transported counterparts. No such differences emerged between individuals high versus low in need for cognition. These findings lent further support to the distinction made here between transportation and elaboration.⁷

Finally, level of absorption could not account for story-consistent beliefs. Thus, the Transportation Scale provided an advance in predictive power for narrative persuasion.

Experiment 3

Transportation was related to beliefs in Experiment 2 in the predicted directions and thus replicated the results of Experiment 1. However, the only reliable difference was for "crime doesn't pay" (see Table 2). To correct for the relatively small cell sizes of Experiment 2, we conducted a third study with increased power. An additional aim of Experiment 3 was to further challenge the text hegemony hypothesis. We therefore repeated the theater and narrative instructions. We dropped the fourth-grade condition because of the added time burden created by the practice task; similarly, we were unable to include the Pinocchio task in Experiment 3.

We retained our fiction–nonfiction manipulations but added a third source condition—some participants were told the story came from a dream. In the real world, fiction does not always come clearly labeled as fiction. We wanted to test an additional way of describing a narrative as imagined or made-up. Would extending the boundaries of fiction affect readers' reactions to source labeling? Dreams appear to be even further away from real-world events, and thus the dream condition allowed us to explore a different instantiation of fictionality.

Method

Participants

Undergraduates ($N = 274$) participated in partial fulfillment of course requirements. Sessions were run in groups of 10–30 in a classroom setting.

Procedure, Materials, and Measures

Except where otherwise noted, materials and measures were identical to Experiment 2. The fourth-grade circling task and reminder sheet were omitted for this experiment, as were the thought-listing and Pinocchio tasks. All participants read "Murder at the Mall."⁸

Source manipulations. Participants were assigned to either the nonfiction, fiction, or dream source conditions. These conditions form a putative continuum from most to least basis in reality, such that the dream source was intended to be even less "real" than the fiction source. As in Experiment 2, source information was provided on the first page of the narrative and repeated on every page. The fiction and nonfiction manipulations were identical to those in Experiment 2. Dream condition participants were told that "The events in Murder at the Mall comprise a physician's dream, as reported and published in the Akron Dream Proceedings, an Ohio conference on Dreams and the Interpretation of Dreams, in December 1993."

Results

Results did not include five participants who missed more than four recall test items.

Instructions and Source Effects

Manipulation checks for instructions. An ANOVA with instructions as a predictor revealed that three of the four checks on acceptance of the instructions showed significant differences between theater and narrative conditions (see Table 6). As before, participants appeared to be attentive to the instructions.

Effect of instruction set on recall. We did not expect instruction to affect story recall. As predicted, theater participants did not differ from narrative participants in their recall of story facts, $F(1, 243) = 1.17, p > .20$; similarly, source, transportation, and their interactions did not affect recall. Even when participants who missed more than four items on the recall test were included, instruction set did not affect recall, $F(1, 273) = 1.19, p > .15$.

Effect of source and instructions on reported transportation. We conducted a 2 (source) \times 2 (instructions) ANOVA on transportation. Source (nonfiction, fiction, or dream) did not affect reported transportation, $F(2, 268) = 0.77, p > .20$. Comparable transportation occurred in response to fiction, nonfiction, and dream-framed stories. Once again, it appeared that transportation was resistant to external manipulation; the instruction effect was nonsignificant, $F(1, 268) = 0.04, p > .50$. There was no significant interaction between source and instruction set, $F < 1, p > .50$.

Effects of source and instructions on beliefs and character evaluations. A series of 2 (source) \times 2 (instructions) ANOVAs revealed no main effects of either source or instruction set on the dependent variable indexes. Because instructions did not affect transportation, it was not surprising that they also failed to affect the belief measures, all F s < 2 , all p s $> .15$. The lack of

⁷ Our Pinocchio measure captures only negative cognitive responses, whereas elaboration might lead to either positive or negative thoughts. Thus, our comparison between transportation and elaboration assumes that for this story, elaboration should lead to more story-consistent thoughts and fewer negative thoughts. One might predict, then, that need for cognition, the natural tendency to elaborate, would be negatively related to the circling of false notes in the story. (This prediction also assumes that the story-reading context itself evokes low or moderate elaboration likelihood; high elaboration conditions could overwhelm need for cognition effects.) For further investigation of these issues, the technique could be adapted for positive cognitive responses; participants might circle "true notes," or especially compelling parts of the narrative.

⁸ In this study, the gender of the sibling was matched to the gender of the participant, such that male participants read about a brother, "John," and female participants about a sister, "Joan."

Table 6
Means (and Standard Deviations) for Instruction Manipulation Checks (Experiment 3)

Item	Condition	
	Theater (<i>N</i> = 133)	Narrative (<i>N</i> = 136)
1. Become J. Mason	46.75 _a (13.11)	32.82 _b (16.47)
2. Become immersed in action	48.77 _a (10.46)	44.63 _b (12.29)
3. Decide if good narrative for memory studies	18.48 _a (16.97)	21.83 _a (18.01)
4. Evaluate for future experiments	16.58 _a (15.19)	26.52 _b (19.03)

Note. Means in the same row that do not share subscripts differed at $p < .05$ in analysis-of-variance F tests.

source-related findings suggested that material presented as fiction (short story or dream) was about as persuasive as a nonfiction newspaper article (all F s < 3 , all p s $> .05$).

We again created indexes for character evaluation semantic differentials (Cronbach's α s = .84 for Joan/John and .81 for Katie). There were no significant effects of source, instructions, or their interaction on either index, all F s < 1.5 , all p s $> .20$.

Source manipulation checks. Not all participants remembered whether the story they read was fiction or nonfiction. Twenty-two nonfiction condition participants, 29 fiction participants, and 40 dream participants incorrectly identified the truth status of the narrative. When only those who correctly identified the truth status of the narrative were considered, source differences approached significance only on the psychiatric patient index. Nonfiction readers were more likely than fiction readers to endorse restrictions on psychiatric patients, $F(2, 165) = 3.01$, $p < .06$; M nonfiction = 98.28, M fiction = 88.67, M dream = 95.21. There were no effects on character evaluations, F s < 1 , p s $> .50$. Even when source was correctly identified, readers of nonfiction, fiction, and dream did not report different transportation, $F(2, 177) < 1$, $p > .50$.

Transportation Effects

Transportation and beliefs. We again used a median split on transportation (range = 46–99; $mdn = 76$), excluding 14 participants who scored at the median (M high transportation = 83.45; M low transportation = 66.75) as well as participants with missing data. In an ANOVA including the other factors (source and instructions), highly transported participants were significantly more likely to respond in a direction consistent with the story, such as saying that violence was more likely, $F(1, 243) = 6.14$, $p < .01$ (M high transportation = 11.56, M low transportation = 10.78) and that the world was less just, $F(1, 228) = 5.32$, $p < .05$ (M high transportation = 66.32, M low transportation = 59.57). Highly transported participants were more likely to agree that crime does not pay, $F(1, 228) = 6.25$, $p < .01$ (M high transportation = 43.99, M low transportation = 38.44). The psychiatric index difference was unreliable but directionally consistent with Experiments 1 and 2; see the Experiment 3 rows in Table 2. In sum, transportation led to story-consistent beliefs on both specific and general items implied by the narrative. No significant interactions emerged between transportation and the other factors.

Transportation and evaluation of characters. Transportation was significantly related to positive evaluation of both John/Joan and Katie; for Joan, $F(1, 227) = 7.66$, $p < .01$ (M high transpor-

tation = 41.01, M low transportation = 36.98), and for Katie, $F(1, 228) = 40.98$, $p < .01$ (M high transportation = 49.45, M low transportation = 43.35). Transportation was linked to caring for story protagonists.⁹ Transportation did not interact with source or instructions in influencing character evaluations.

Gender

Women were more transported than men, $F(1, 268) = 4.85$, $p < .05$ (M men = 73.69, M women = 76.42), but transportation and gender did not interact in affecting dependent variables.

Ancillary Measures

Need for cognition, beliefs, and character evaluations. As in Experiment 2, we expected that need for cognition would not be related to beliefs. This expectation was confirmed; one-way ANOVAs with need for cognition as an independent variable indicated that individuals high in need for cognition (by a median split; $mdn = 61$) did not significantly differ from individuals low in need for cognition in their beliefs (all p s $> .05$). Similarly, need for cognition did not significantly affect character evaluations (F s < 2.8 , p s $> .10$). As in Experiment 2, need for cognition did not appear to be reliably associated with beliefs or character evaluations.

Discussion

The Experiment 3 results were consistent with the hypothesis that transportation would influence the effect of narratives on beliefs about violence, psychiatric patients' freedom (albeit unreliably), whether the world is just, and whether crime pays. Although the direction of causality cannot be established by correlational results, both closely related items and more distant beliefs were related to extent of transportation. Transportation was also correlated with the evaluation of characters: Individuals who were highly transported into "Murder at the Mall" showed more positive

⁹ Liking for story characters may be a mediator between transportation and beliefs. Following Baron and Kenny (1986), we tested for mediation using evaluations of both Joan (John) and Katie. The only belief measure that showed evidence of mediation—reducing the relationship between transportation and beliefs to nonsignificance—was "crime doesn't pay." None of the other belief indexes suggested mediation, so the degree to which character evaluations mediate transportation effects remains an open question.

evaluations of both Katie, the murder victim, and Joan (John), her older sibling. Neither framing the story (as fiction or as dream) nor motivating instructions (theater performance) systematically moderated the effect of transportation on beliefs. Once again, fiction was as effective as fact in influencing most story-related beliefs (although again, a number of participants had difficulty recalling source information, despite its repeated presentation). As a caveat, the story used here was based on a true story, and thus may have had realistic tones that caused it to have a high impact on the reader. Of course, naturally encountered narrative fiction often exploits realistic and graphic description.

Experiments 1–3 Combined

Strong evidence for these primary findings resulted from an omnibus analysis—statistical combination of results from the three experiments. We used Rosenthal's (1995) *Z*-score method to test the significance of our results across studies as shown in the right-hand panels of Tables 2 and 3. The combined results across Experiments 1–3 supported the theorized relationship of transportation to narrative-related beliefs and to evaluation of the narrative's protagonists. All of the combined belief indexes showed significant differences ($p < .01$), in the predicted directions, between high- and low-transported participants.¹⁰

Experiment 4

The previous three studies presented a convincing case that transportation is associated with more story-consistent beliefs and is related to more positive character evaluations; an independent manipulation of transportation was still needed to establish causality. A primary goal of our final study was to create stronger external manipulations of transportation.

Further, although we repeatedly demonstrated that fact versus fiction did not affect story-consistent beliefs, we did not include concurrent no-message or irrelevant-story control conditions, which would have allowed us to assess the power of the story to change beliefs from baseline. Experiment 4 included two types of control conditions to address this issue. Another concern in our first three studies was the large number of individuals who could not recall the fact–fiction manipulation. Although these findings provided suggestive evidence that fiction is as persuasive as fact, a troubling alternative explanation is that our null-effect replications were simply the result of a failed manipulation. To provide more compelling support for our fact–fiction findings, we strengthened the fact–fiction manipulation by requiring participants to indicate their understanding of the story source before reading the narrative.

Perhaps our findings were limited to the type of narrative that was used. For the present experimental story we chose "Two Were Left" (H. B. Cave, in Berger, 1956). The fable-like story is moderately transporting (Table 4), and, like "Murder," it builds to an involving outcome (see Sadoski, Goetz, & Kangiser, 1983). However, unlike "Murder," evil impulses in "Two Were Left" are always surmounted and the outcome is thoroughly positive. In the tale, an Eskimo boy and his dog are stranded on an iceberg without food or supplies. The boy, fearing starvation, makes a crude knife from a splint on his leg. He considers killing his dog for food, but he is unable to bring himself to kill his friend. Similarly, the dog, though hungry, does not attack the boy, and in the end, they are

rescued by an airplane pilot, whose attention is attracted by the sun glinting on the knife the boy had thrown away. This story implies beliefs about the value of loyalty and friendship; these beliefs comprised our dependent measure.

An additional goal of the current study was to provide empirical support for the distinction between involvement and transportation. Although in lay terminology, transportation and involvement may be synonymous, transportation is distinct from involvement as it has been used in the persuasion literature. Involvement has been conceptualized differently by different researchers (see Eagly & Chaiken, 1993, pp. 288–289 for a discussion). It is frequently used to refer to outcome-relevant or issue involvement, also called personal relevance—the extent to which the communication is likely to personally affect the recipient. In contrast, transportation can create engagement with characters and events that may have no impact on a reader's life: A reader swept away by Shakespeare's *Hamlet* does not need to believe that the outcome of the play will affect current political events. Similarly, the term value-relevant involvement (or ego-involvement) has been used to denote situations where self-defining values are made salient in the communication. Although it is possible that readers may become more transported into stories that tap into important values, we propose that transportation can occur and can affect beliefs even when a story is not immediately relevant to a reader's cherished values.

Method

Participants

Undergraduates ($N = 258$) participated in partial fulfillment of course requirements. Sessions were run in groups of 10–20 in a classroom setting.

Procedure, Materials, and Measures

Procedures were identical to Experiment 2, except that only one experimenter administered all materials. Participants also completed the fourth-grade practice circling task, followed by a one-page filler essay on the benefits of literacy. For the target story, we used the same narrative instructions and slightly altered the fourth-grade instructions described in Experiment 2. Because of its failure to produce any differences in our previous studies, we omitted the theater manipulation. Slight modifications were also made to the source manipulations. In addition to the measures described later, we also included the Transportation Scale (with imagery items keyed to appropriate characters) and manipulation checks for source and instructions. We included two control groups: a no-story control and an irrelevant-story control.

Instruction set modifications. We slightly modified the fourth-grade instructions to include an example sentence with difficult words identified.

¹⁰ We also conducted regression analyses on the combined data from Experiments 1–3, using transportation as a continuous variable predicting beliefs and evaluations, and obtained the same strong pattern of results. For all belief measures and character evaluations, $B_s > .09$, $p_s < .05$.

We conducted regression analyses within each study using transportation as a continuous predictor variable. In general, the same pattern of results emerged as with ANOVA. For the belief measures, some effects were slightly stronger with regression than with ANOVA, whereas others were slightly weaker. The strength of results did not differ for character evaluations depending on the analysis method. For clarity, we have chosen to present ANOVA results here; regression results are available from the authors on request.

We also added a sentence noting that college students are good at identifying difficult grammar and vocabulary. For both narrative and fourth-grade conditions, at the bottom of the page, the main point of the directions was repeated (e.g., "My job today is to focus on finding difficult words and sentences"). Students were instructed to circle "yes" if they understood the task and "no" if they did not. If they circled "no," they were told to read the directions again or to ask the experimenter any questions.

Control groups. One control group ($N = 36$) read a story of similar length to "Two Were Left" called "Pretty as a Flower." This story was about a beautiful but self-centered Japanese shoppirl who comes down with a serious disease and then miraculously recovers. We did not expect this story to be relevant to any of our belief items. Another control group ($N = 99$) completed the belief measures without reading any story, at the end of an unrelated study.

Source manipulations. The fiction manipulation retained the same wording as in previous studies. However, due to the setting of the story, we altered the nonfiction manipulation to refer to a historical account rather than a newspaper story. Specifically, nonfiction participants read that "The narrative you are about to read is an historical account, the *Moments in History Feature*, published in Akron Historical Review, an Ohio book series, in December 1993. All narratives published in the series are reports of actual past events."

We informed participants that it was important to the psychological validity of the study that they be aware of the "background information" about the stories. To ensure that participants understood the source manipulation, they were asked to circle whether the story they were about to read was fiction or nonfiction. The correct answer was then given; participants were told that if they did not understand this information, to read the instructions again or ask the experimenter.

Belief measures. Belief measures were derived from story content. Example items included, "A person should lay down their life for their best friend," "Life is not worth living without sticking to one's values," and "A starving person may betray friends in order to obtain food." Agreement was assessed on a 7-point scale ranging from *not at all* to *very much*.

Character evaluations. The two main characters in the story (the boy and the dog), as well as the minor character (the pilot), were evaluated on semantic differentials anchored by *good-bad*, *pleasant-unpleasant*, and *attractive-unattractive*.

Recall test. Six items tested recall of story facts.¹¹

Involvement measures. We included several items intended to tap the extent of traditional concepts of involvement in the story. To measure outcome relevance or issue involvement, we asked participants to rate their agreement with the statements, "The reading material was personally relevant" and "The events described in the reading material will have an impact on my life." We also attempted to tap value-relevant involvement with the item "This reading material was about a topic that is important to me," and task involvement with the item "While reading this material, I was concentrating on carrying out the instructions given to me."

Results

One participant missed more than four recall test items, and was dropped from analyses.

Differences Between Experimental and Control Groups

There were no significant differences between the no-story and "Flower" story control groups on the dependent variables, all $F_s(1, 133) < 1$, all $p_s > .30$, so we combined these groups for analysis purposes. The belief index, our primary dependent variable, showed significant differences from control in the expected direction, $F(1, 299) = 12.34$, $p < .01$ (M control = 4.50, $SD = 0.55$, M experimental = 4.75, $SD = 0.63$; higher numbers indicate

beliefs more consistent with "Two Were Left"). Clearly, the experimental story changed beliefs from baseline.

Contrasts within a one-way ANOVA comparing the narrative, fourth-grade, and control conditions, $F(2, 299) = 8.69$, $p < .01$, indicated that the narrative condition differed significantly from both the control condition, $t(299) = 4.16$, $p < .01$, and the fourth-grade condition, $t(299) = 2.19$, $p < .05$. The fourth-grade and control conditions were marginally different, $t(299) = 1.83$, $p < .07$.

Instructions and Source Effects

Manipulation checks for instructions. An ANOVA revealed significant differences in the expected direction for the instruction manipulation checks. Fourth-grade condition participants agreed significantly more than narrative participants with the statement "While reading the narrative, I was looking for words and sentences that might not be understood by a fourth-grade level reader," $F(1, 164) = 322.04$, $p < .001$ (M fourth grade = 6.04, M narrative = 2.04). Similarly, narrative participants showed greater endorsement of the statement "I read the narrative carefully, just like I would read a story or article for fun," $F(1, 164) = 24.01$, $p < .001$ (M fourth grade = 4.56, M narrative = 5.83). In sum, participants appeared to understand the instructions.

Effect of instruction set and source on recall. Although instruction set significantly affected story recall, $F(1, 162) = 16.89$, $p < .01$, the means suggested that this difference was small in magnitude: On average, participants in both groups missed less than one recall item (M fourth grade = 0.51, M narrative = 0.11). Both groups seemed to comprehend the story content. Source did not affect recall, $F(1, 162) = 2.07$, $p > .15$, nor did source and instructions interact.

Effect of instructions and source on reported transportation. As expected, instruction set had a significant impact on reported transportation, $F(1, 164) = 6.34$, $p = .01$. Fourth-grade participants reported less transportation ($M = 58.97$) than narrative participants ($M = 63.81$). For this moderately compelling narrative, external instructions affected felt transportation.

Source did not affect reported transportation, $F(1, 164) < 1$, $p > .50$, nor was there a significant interaction between source and instruction set, $F(1, 162) < 1$, $p > .50$.

Effect of instructions on beliefs and character evaluations. Our successful manipulation of transportation was also reflected in the effect of instructions on reported beliefs and character evaluations. Means are reported in Table 7. A two-way ANOVA (Source \times Instructions) revealed that fourth-grade participants, in whom transportation had been reduced, showed beliefs less consistent with the story, $F(1, 163) = 4.34$, $p < .05$. They also showed less liking of the boy, $F(1, 162) = 4.66$, $p < .05$, and the dog, $F(1, 162) = 9.81$, $p < .01$. A similar pattern emerged for ratings of the

¹¹ On further inspection, one item on the original recall test was determined to be ambiguous and was dropped from scoring, leaving a total of five items.

Table 7
Mean (and Standard Deviation) Belief Scores and Character Evaluations as a Function of Manipulated Transportation (Experiment 4)

Index and evaluation	Transportation		
	Lowered (fourth grade)	Normal (narrative)	Low-normal difference (<i>p</i>)
Belief index	4.65 (0.65)	4.86 (0.59)	.02
Character evaluations			
Boy	4.53 (0.79)	4.80 (0.75)	.02
Dog	4.95 (1.03)	5.42 (0.89)	.001
Pilot	4.62 (0.95)	4.77 (0.78)	.14

Note. For this table, *ps* are one-tailed, from Source \times Instruction analyses of variance. Scores range from 1 to 7, with higher scores indicating more story-consistent beliefs and more positive character evaluations. In addition to those items listed in the text, the belief index included the following items (R = reverse-scored): people form relationships with animals that are as real as with other people; a starving dog will no longer be loyal to its master (R); there are very few ways in which humans are different from nonhuman animals; when dogs are starving they become killers (R); the hard road is usually more rewarding than the easy road; and the rules of society must prevail in the final analysis (R).

When controlling for comprehension, using true-false recognition, the two-tailed *p* values for the instruction set differences and true-false covariates were as follows: belief index, *p* = .10 (true-false *p* = .22); boy rating, *p* = .15 (true-false *p* = .04); and dog rating, *p* = .01 (true-false *p* = .10). When controlling for comprehension using coded thought-listings, the *p* values for instruction set differences were as follows: belief index, *p* = .04 (thoughts *p* = .78); boy rating, *p* = .07 (thoughts *p* = .61); and dog rating, *p* = .02 (thoughts *p* = .04). Ratings of the pilot did not achieve statistical significance with either comprehension control.

pilot, $F(1, 162) = 1.22$, *p* > .25, but did not achieve statistical significance.¹²

Mediational analyses. To provide a further test of the causal path we proposed, we conducted mediational analyses (Baron & Kenny, 1986) to examine whether the direct effect of instructions on beliefs and character evaluations was reduced when transportation was included in a regression analysis. As expected, results indicated that instructions affected transportation, which in turn affected beliefs and character evaluations (see Figure 1).

Instructions, comprehension, and beliefs. A possible alternative explanation may be that individuals in the fourth-grade condition did not comprehend the story as well as those in the narrative condition, and this difference was responsible for the belief results. We examined this possibility by considering two proxy measures of comprehension—the true-false recognition test described earlier as “recall,” and a coding of thought-listings¹³—in covariance analyses of Experiment 4 dependent variables. Inconsistently with the proposed alternative explanation, neither proxy measure of comprehension was significantly associated with beliefs (see Table 7). Moreover, comprehension was not consistently associated with character evaluations, although the true-false score was significant for ratings of the boy, and the coded-thoughts score was significant for the dog ratings. Finally, although significance levels of the effects of transportation were changed slightly in these covariance analyses, at least one was still reliable with the true-false measure (ratings of the dog), and all were reliable, or approached reliability, when coded thoughts controlled for comprehension. Thus, although comprehension may have played a role

in the effect of transportation on character evaluations, it did not appear to explain the effects of transportation on story-related beliefs.

Effects of source on beliefs and character evaluations. There were again no main effects of source on either the belief index, $F_s < 1$, *ps* > .30, or on character evaluation, $F_s < 1.7$, *ps* > .15. Fact and fiction had equivalent impact. No significant interactions between source and instructions emerged on the belief measures or on ratings of the dog and boy, $F_s < 1.5$, *ps* > .20.¹⁴

Source manipulation checks. The majority of participants correctly answered the source manipulation checks. In the fiction condition (*n* = 84), only 1 participant answered incorrectly (reporting that source was not specified). In the nonfiction condition (*n* = 81), 8 participants reported that the story was fiction, 1 reported “not specified,” and 1 did not recall the source.

When we considered only people who had successfully identified the story source, the pattern of results remained the same as with the full sample: On reported transportation and on the belief index, source effects did not approach significance (all $F_s < 1$, all *ps* > .50).

Involvement. In contrast to the effects of instruction set on transportation, there was no significant difference between the fourth-grade and narrative conditions on the outcome involvement-personal relevance items or the value-relevance item, all $F_s < 1$, all *ps* > .30. A significant difference emerged only on the task-involvement item, $F(1, 165) = 20.41$, *p* < .001 (*M* fourth grade = 5.21, *M* narrative = 3.95). Fourth-grade readers reported being more involved in the task given to them (finding difficult words). There were no effects of source on involvement, nor were there interactions of source and instructions.

Measured transportation showed significant but moderate correlations with the issue involvement measures (for “personally relevant,” *r* = .26, *p* < .01; for “impact on my life,” *r* = .28, *p* < .01) and the value-relevant item (“topic important,” *r* = .27, *p* < .01). Transportation was negatively correlated with task involvement, *r* = -.20, *p* < .01. Thus, transportation appeared to be distinct from traditional involvement, both conceptually and empirically.

Gender

Reported transportation did not differ across gender, $F(1, 164) < 1$, *p* > .50.

¹² Results using a median split on measured transportation mirrored the effects reported here, with highly transported readers reporting more story-consistent beliefs and more positive character evaluations.

¹³ Thought listings were scored for number of story elements mentioned, regardless of the form of the thought (declarative, interrogative, etc.). Scoring was done by one of the authors (blind to condition) and an assistant (blind to both condition and hypotheses). These raters agreed on 95% of thoughts. Disagreements were resolved by discussion. Fourth-grade condition participants listed an average of 1.11 story elements; narrative condition participants listed a mean of 1.90 story elements, $F(1, 163) = 15.06$, *p* < .01.

¹⁴ For the pilot, a significant interaction emerged, $F(1, 162) = 5.99$, *p* < .05, such that fourth-grade participants liked the pilot better when the story was fiction rather than nonfiction, whereas the reverse was true for narrative participants. Interpretation of this interaction was unclear.

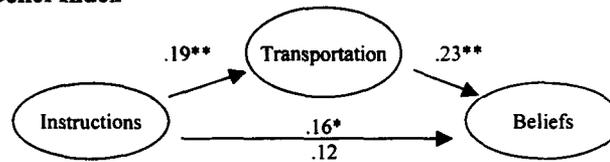
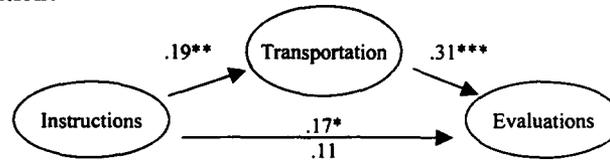
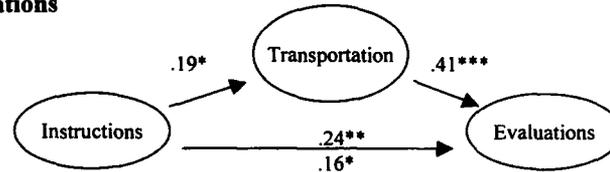
Two Were Left Belief Index**Boy Evaluations****Dog Evaluations**

Figure 1. Mediation of the relationship between instruction set and beliefs (or evaluations) by transportation (Experiment 4). For the instructions to beliefs or evaluations path, the direct effect is indicated by the beta coefficient above the arrow. The coefficient below the arrow represents the strength of the relationship when transportation is also included in the equation. Attenuation of the relationship between instructions and evaluations–beliefs when transportation is simultaneously entered into the regression indicates mediation by transportation. * $p < .10$. ** $p < .05$. *** $p < .001$.

Discussion

By using a positively toned narrative that had a demonstrated buildup of rated imagery and affect during the course of the story (Sadoski et al., 1983), and by means of external instructions that affected the extent of transportation experienced, Experiment 4 showed that transportation may be a mechanism of narrative-based belief change. “Two Were Left” influenced both character evaluations and general beliefs about loyalty and friendship, and these effects were reliably greater than in the control story or no-story conditions. Consistent with the results of Experiments 1–3, there was no effect of fact versus fiction framing on transportation, beliefs, or character evaluations. However, we were able to lower transportation with an external manipulation of processing instructions: Persons in this transportation-lowered condition also showed reduced story-consistent beliefs as well as reduced positivity of character evaluations.

Manipulating transportation and establishing fact–fiction status proved to be difficult in Experiments 1–3; the power of the text or participants’ preexisting reading goals in those experiments seemed to overwhelm external instructions. An important alteration in Experiment 4 was the requirement that participants actively acknowledge their understanding of the instructions and the source information (cf. Strange & Leung, 1999), thus ensuring that they had paid attention to these instructions and that they under-

stood the importance of following them. This change seemed to be critical; the fact–fiction information, for example, could not be dismissed as irrelevant by a student hurrying through the study. Additionally, the story we used in this study was at a more moderate level of transportation. “Murder” was an extremely well-written, gripping tale; it may have drawn readers in despite instructions to focus on a different task (identifying difficult words). “Two Were Left” may have allowed more variation in reading experiences.

Experiment 4 also demonstrated that transportation was only weakly associated with issue- and value-relevant involvement. Moreover, transportation was affected by external instructions, whereas measures of involvement were not.

General Discussion

The present demonstrations of an association between transportation into a narrative world and the reporting of story-consistent beliefs contributed to redressing the emphasis on rhetoric, rather than poetics, in the scientific study of persuasion. The dearth of empirical studies of narrative-based persuasion may be attributable to the failure of mainstream attitude-change theories to offer apposite mechanisms. In their review of the use of dual-process models (ELM, HSM) to explore distinctions between fictional and nonfictional communication, Prentice and Gerrig (1999) wrote that

they "have been hesitant to embrace either of these [dual-process] models . . . because neither of them [the models] seems to capture the phenomenological experience of reading (or hearing or viewing) a work of fiction" (p. 543). Measured transportation (Table 1) attempted to capture that experience and, in so doing, provided evidence that transportation is a mechanism whereby narratives may exert their power to change beliefs. The results were noteworthy in that the belief-change dimensions were not explicitly articulated in the story. In addition, highly transported participants routinely reported greater liking for story protagonists.

Even when the narrative was clearly labeled as fiction, real-world beliefs were affected by magnitude of transportation. Across all four studies, both specific (e.g., extent of violence) and general (just-world) beliefs were affected similarly by fiction and nonfiction.

The inadequacy of traditional thought coding for cognitive responses (Petty et al., 1981) led to the development of the Pinocchio circling technique. Extent of transportation reliably distinguished between participants who circled many false notes (low-transported participants) versus few false notes (highly transported participants). In contrast, need for cognition (Cacioppo et al., 1996), which measures natural enjoyment of (elaborative) cognitive effort, was unrelated to the circling of false notes. Either the "doubting" responses measured by the Pinocchio technique or character liking might be paths through which transportation changes beliefs. Further research is needed to examine the possible mediating role of these variables in explaining the effect of transportation on beliefs (see footnotes 6 and 9).

Nature of Transportation: Cross-Experiments' Evidence

The repeated experimental tests and the use of multiple stories afforded three kinds of evidence that transportation is a distinctive process in which affect, imagery, and cognition play integral roles. First, we noted the inability of an alternative process, need for cognition, to moderate story-consistent beliefs and evaluations. Second, the thought-listing outcomes in these experiments were impervious to traditional (Petty et al., 1981) coding. Participants did not offer favorable or unfavorable commentary on the story-implied beliefs. Inspection of thought listings further revealed negligible evidence that participants were using their other schemas and experiences to evaluate or refute implications of the story. Finally, we examined the belief and evaluation dependent variables as a function of the earlier described Transportation subscales (see Summary of Scale Development section). We found few statistically reliable effects—less than 20% of all appropriate comparisons—and none that replicated for belief measures across Experiments 1–3. In contrast, scores on the entire Transportation Scale were predictive of beliefs and character evaluations across the four experiments. In sum, transportation appeared to be distinct from cognitive elaboration (Petty & Cacioppo, 1986) and to display characteristics consistent with the conceptualization from Gerrig (1993): immersion (involving imagery, emotionality, and attentional focus) in another setting with temporary distancing from a reader's original situation.

Mediators and Moderators

Among potential mediators of the effect of narratives on beliefs are attentional focus, production of imagery, and emotional ex-

pressiveness. As reported earlier, when these factors were allowed to stand in for the entire Transportation Scale they did not consistently predict beliefs and evaluations across the several data collections. A direct test of absorption (Experiment 2) provided no support for its role as a mediator of the observed belief and evaluation scores. It is possible to think of other potential mediators such as field dependence and hypnotic susceptibility. At present, transportation appears to have good predictive value, and it may be more fruitful to explore alternative moderators than mediators.

Experiment 4 suggested that a moderately compelling text ("Two Were Left") may be susceptible to transportation-weakening instructions. It would be worthwhile to explore a fuller range of transportation for subsequent research texts. The present theory also implies that cognitive load might interfere with the convergent attention posited to be associated with high transportation.

Fact-Fiction Manipulations

We attempted to emphasize the truth status of the story in ways such as repeated, boldfaced declarations of the story source and altered formatting of the text to correspond with real-world instantiations of fact and fiction. Nevertheless, many "Murder" readers failed to correctly recall whether the story they read was fact or fiction. Why? The least interesting reason may be that readers simply failed to pay attention to the source information. Most participants, however, were able to correctly recall both the instructions, and details from the narrative itself. Thus, it seemed unlikely that only the fiction–nonfiction manipulation would escape participant attention.

Another alternative is that participants may have misunderstood the manipulation check; they may have interpreted the item as a request for their opinion on whether the story was true, rather than a test of their recall of story source. Participants may have been using a plausibility criterion to determine the story's truth status. If this explanation is correct, the real-world implications are disturbing; individuals may believe realistic fictional programs while discounting news reports that seem implausible (Hofstadter, 1998).

Perhaps the most interesting possibility is a failure of source monitoring. Although failure to recall story source occurred in all conditions, the most frequent error was that readers in the fiction conditions reported that the events were true (nonfiction). Memories for real events tend to be more concrete (Johnson, Hastroudi, & Lindsay, 1993). Narratives often contain rich, concrete descriptions, and our stories were no exception. These vivid images may have made the story seem more like a real event. Rather than attempting to recall the publication venue of the narrative, participants may have simply noted that their recollections matched characteristics of real events in their memory, and concluded that the story must be real.

How readers react to factual and fictional information is a question of critical importance; if individuals can be easily swayed by realistically presented fiction, or if they ignore the sources of the information they receive, they may be at the mercy of manipulative communicators.

Rhetorical Versus Narrative Persuasion

Transportation into narrative worlds is a form of message processing that is distinct from cognitive elaboration; it entails an

experiential component as well as a melding of cognition and affect. Although transportation theoretically could occur with any text, it is far more likely to be experienced in response to narratives, especially well-crafted, high-quality narratives (Table 4).

Could elaboration figure in processing narrative as well as it does in processing rhetoric? Elaboration is currently defined broadly as "effortful consideration and scrutiny of the evaluative implications of attitude-relevant information" (Petty & Wegener, 1998, p. 327). The present narrative treatments (Experiments 2–4) may be considered fair proxies for an elaboration induction; participants expected to answer questions to help evaluate the story for future research use. If elaboration was heightened in the narrative condition in comparison with other conditions (e.g., theater), it was not reflected in differentially higher belief and character evaluation scores. Thus, while elaboration may play some role in response to narrative communication, our results, including the need-for-cognition findings, appeared to favor the transportation alternative.

The present demonstration of the power of fictional narratives highlights an interesting difference between rhetorical communications and narratives. Rhetoric is much influenced by framing: For example, the impact of arguments is affected by source credibility or perception of speaker's intent (Eagly & Chaiken, 1993). In contrast, our findings suggested that once a reader is rolling along with a compelling narrative, the source has diminishing influence. In this fashion, the belief positions implied by the story might be adopted regardless of whether they corresponded with reality (e.g., Wheeler et al., 1999). Thus, narratives might be used to advantage by low-credible sources or by speakers who lack cogent arguments.

Persistence–Resistance of Narrative-Based Belief Change

In the current research, all of the belief or belief change measures were taken during the experimental session in which exposure to the narrative occurred. Perhaps only transitory images of psychiatric patients were activated or individuals' sensitivity to violence was only temporarily increased. Because we did not take delayed measures or confront participants with a message suggesting beliefs opposite to those espoused in our experimental narratives, we did not obtain evidence to address those concerns.

Nevertheless, there is a theoretical basis for differentiating the strength and persistence of narrative- versus rhetoric-based beliefs. The present results suggested that initial belief change based on narrative might not be greater than change based on rhetoric. In fact, because advocacy in propaganda is usually explicit, rhetoric might enjoy an initial advantage over narrative. However, we predict that narrative-based belief change, particularly to the extent that it instigates transportation, would lead to stronger and more persistent beliefs than rhetoric-based change.

The three premises underlying this prediction are (a) the universal human affinity for narrative as the preferred organizing and retrieving mental structure (Schank & Abelson, 1995); (b) other things equal, narrative, more than rhetoric, can effectively marry affective and cognitive contributions to opinion formation; and (c) attitudes based both affectively and cognitively (e.g., Edwards, 1990; Fabrigar, 1995) are more persistent (Rosselli, Skelly, & Mackie, 1995). Previous research suggests that image-evoking descriptions of events conveyed in a narrative had greater impact after a period of time had elapsed than they had immediately after

the information was presented (Reyes, Thompson, & Bower, 1980). The persistence-conferring advantage of narratives may trade on the extent to which narratives instigate transportation and the accompanying integrative imagery (Green & Brock, in press).

Of course, rhetorical persuasion can include both affective and cognitive bases, but the effective blending of these bases is routinely attained in narrative persuasion. Further, transportation is unlikely in response to even very good rhetoric, whereas, as shown herein, it can readily occur in response to a moderately compelling narrative. In sum, the strong form of our proposal is that transportation fosters attitude-change persistence and that transportation is far more likely in response to narrative than it is to rhetorical persuasion.

Role of Liking for the Protagonist(s)

Greater transportation was systematically associated with a more positive evaluation of the main characters of the narrative. The persuasion literature indicates that liked sources can be more effective in inducing attitude or belief change (Eagly & Chaiken, 1993). Transported individuals may have a greater affinity for story characters and thus may be more likely to be swayed by the feelings or beliefs expressed by those characters.

In the current research, we used the term "source" to refer to the fiction or nonfiction status of the narrative; the external source from which the story itself was procured. If characters are considered as sources for given points of view or belief statements, then one might argue that to the extent that persuasion is source-driven, narratives may have an advantage over rhetorical messages. Authors can create sources within a story. Narrative is the quintessential medium for developing a character; rhetoric normally does not possess the structure or scope for doing so.

Transportation and Emotion

Some have argued (e.g., Adaval & Wyer, 1998, p. 240) that the efficacy of narratives may be limited to positive texts. However, in the canons of literature, the bulk of the stories entail human suffering. Indeed, the most powerful tales tend to be those that involve negative aspects, such as dilemmas to be overcome or obstacles to be surmounted.

Demonstration of belief change with a negative text ("Murder in the Mall") challenges Adaval and Wyer's (1998) proposed limitation, and further, we have shown that transportation effects can occur with a positively toned narrative. Evidence that positively toned narratives can be transporting is shown in Table 4; "Two Were Left" contains elements of hardship, but has an uplifting, happy ending. This story was not as transporting as "Murder," but was slightly more transporting than two other stories tested. Furthermore, manipulated transportation affected belief change for this positively toned story. Although emotional reactions may be one consequence of a transportation experience, there is no a priori reason why the instigation of negative imagery by a story should be necessary for story-implicated beliefs to be affected.

Text Versus Transportation Hegemony: A Reappraisal

Although Experiments 1–3 demonstrated the insensitivity of reported transportation to motivational and source manipulations,

our overall finding of an association between high transportation, on the one hand, and story-consistent beliefs and evaluations, on the other, favors transportation rather than text hegemony. Experiment 4 clearly showed that external instructions can affect magnitude of transportation and that transportation, in turn, influenced beliefs.

Beyond instruction sets, some situations may make transportation more or less likely. For example, individuals in a boring or stressful situation may long to be elsewhere and thus might be more motivated to transport themselves into a narrative. Even somewhat dull material may seem more interesting than the immediately available alternatives. On the other hand, "great" literature may fail to be transporting when persons are reading it against their will; high school students, for example, often describe their reading assignments as boring, even though if students had encountered the same readings without prompting, they may have found them transporting.

The text hegemony hypothesis can surely be subjected to more severe challenges than the ones mounted in the present experiments. Of course, any future situational challenges must leave the original text intact and must not cause gross reductions in recall. It is not yet known if there are levels of transportation high enough to override the processing goals of the recipients or other situational (framing) influences. Despite our empirical questioning of text hegemony, the unrelenting banning of certain books and films has long and ardently bespoken agreement with text hegemony. Censorship programs have not typically exempted large categories of recipients; few such programs have specified contexts in which the focal texts may be safely encountered; the devil has always been thought to be in the text, rather than in the recipient or the recipient's situation.

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