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Persuasive Effects of Fictional Narratives Increase Over Time

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Fact-related information contained in fictional narratives may induce substantial changes in readers' real-world beliefs. Current models of persuasion through fiction assume that these effects occur because readers are psychologically transported into the fictional world of the narrative. Contrary to general dual-process models of persuasion, models of persuasion through fiction also imply that persuasive effects of fictional narratives are persistent and even increase over time (absolute sleeper effect). In an experiment designed to test this prediction, 81 participants read either a fictional story that contained true as well as false assertions about real-world topics or a control story. There were large short-term persuasive effects of false information, and these effects were even larger for a group with a 2-week assessment delay. Belief certainty was weakened immediately after reading but returned to baseline level after 2 weeks, indicating that beliefs acquired by reading fictional narratives are integrated into real-world knowledge.

Ever since Aristotle defined the function of the poet "to speak not of events which have occurred, but of the kind of events which *could* occur, and are possible by the standards of probability and necessity" (Aristotle in Halliwell, 1987, p. 40), literary theory has drawn a distinction between fictional and nonfictional texts. In contrast to informational or rhetoric texts, which belong to the category of nonfiction, fictional texts do not claim to provide readers with detailed knowledge about the world. It would be a paradox to oblige authors of novels, for example, to stick to the truth when they are writing their stories. At the same time, however, fictional products cannot but contain a lot of information that may be applied to the real world (cf. Eco, 1994). In novels or television dramas we find true facts mixed with invented

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ones. As no one has ever convincingly argued for an automatic cognitive switch or toggle that prevents fictional information from entering real world belief systems (Gerrig, 1993), it seems possible that fictional information, even if blatantly false, alters our view of the world. Up to now, a small number of studies have established short-term persuasive effects of fiction (for an overview, see Green, Garst, & Brock, 2004). This research extends this work by investigating whether a prototypical and widespread type of fictional texts, the fictional narrative, may also change readers' beliefs in the long term. Recent models of persuasion through fiction (e.g., Gerrig, 1993; Green & Brock, 2002) suggest that belief change caused by the processing of fictional narratives not only persists, but that the magnitude of this belief change may even increase over time. In other words, persuasion through fictional narratives could be the source of a *sleeper effect* (Hovland, Lumsdaine, & Sheffield, 1949). If such a sleeper effect were demonstrated experimentally, this would establish the fictional narrative as a powerful means of altering our view of the world—more powerful indeed than most nonfictional persuasive attempts which often produce at most short-lived persuasive effects that decline rather quickly (e.g., Cook & Flay, 1978; Pratkanis, Greenwald, Leippe, & Baumgardner, 1988).

In this article, we will first discuss the available evidence concerning belief change through fiction, which is connected exclusively with short-term persuasive effects. Nonetheless, specific and contrary predictions about long-term effects are implied by general dual-process models of persuasion (Petty & Cacioppo, 1986; Chaiken, Liberman, & Eagly, 1989) on the one hand and theoretical accounts concerned specifically with persuasion through fictional narratives (Green & Brock, 2002; Prentice & Gerrig, 1999) on the other hand. General models of persuasion suggest that the impact of fictional narratives on readers' beliefs declines over time because reading narratives usually does not include elaborative and evaluative processes, which are regarded as an essential precondition of persistent persuasive effects. In contrast, theoretical accounts concerned specifically with persuasion through fictional narratives imply that the impact of fictional narratives on readers' beliefs increases over time because readers are supposed to be in a special experiential state called *transportation* (Gerrig, 1993) while reading a fictional narrative. We report results from an experiment that provides a direct test of these competing predictions and, at the same time, of a central aspect of the transportation construct.

FICTIONAL NARRATIVES CHANGE BELIEFS

There are numerous anecdotes about pieces of fiction shifting people's beliefs. A famous example is *Uncle Tom's Cabin*. This popular novel by Harriet Beecher Stowe (1853/1981) seems to have changed many readers' beliefs

about equal rights. Its publication might even have contributed to the outbreak of the U.S. Civil War (Strange, 2002). Apart from these anecdotal hints, a small body of experimental research has evolved that reveals profound persuasive effects shortly after recipients encounter fictional stories. Gerrig and Prentice (1991) were among the first who systematically investigated the impact of fictional information on real-world beliefs. Participants in their experiments read a short story labeled *The Kidnapping*. Brad, a student, finds himself taken prisoner by a radical political group. In the end of the story, it turns out to be a mock kidnapping staged by his parents, his friends, and an actor. In the course of the narrative, protagonists exchange pieces of information about various real-world topics. Half of these assertions are true, half of them untrue in the real world (e.g., "Most forms of mental illness are/are not contagious," "Tooth brushing is/is not good for your teeth and gums"). After reading the story, the time it took participants to indicate the real-world truth status of items depended on the formulation of the related story assertion, with assertions presented in an untrue version yielding longer verification latencies (Gerrig & Prentice, 1991).

In later experiments, the persuasive impact of fictional narratives manifested itself in altered agreement scores of story-related items (Prentice, Gerrig, & Bailis, 1997; Wheeler, Green, & Brock, 1999). These studies included potential moderators of the persuasion through fiction-effect. Like in many studies focused on rhetoric texts (ads, political speeches, etc.) setting familiarity was used as a moderator variable and was manipulated experimentally. Results were mixed: In one study, persuasion was lowered when the experimental story took place at the participants' own university, which was supposed to enhance familiarity and personal relevance (Prentice et al., 1997). This interaction effect could not be replicated in later experiments. Instead, persuasive effects emerged across settings (Wheeler et al., 1999), across participants with a low or a high disposition to process information thoroughly (Green & Brock, 2000; Wheeler et al., 1999), and across participants with and without prior experience with the story topic (Green, 2004). Taken together, the results of the existing research indicate that arguments presented in a fictional context have a pervasive short-term impact on beliefs (cf. Green & Brock, 2000; Prentice & Gerrig, 1999; see also Strange & Leung, 1999).

GENERAL MODELS OF PERSUASION AND THE PERSISTENCE OF BELIEF CHANGE

Despite the accumulating evidence of short-term effects, little is known about long-term effects of persuasion through fiction. Does the impact of fiction on recipient's beliefs persist or even increase over several hours, days, or weeks, or does it decline with time? The two most widely accepted models

of persuasion, the Elaboration Likelihood Model (ELM, Petty & Cacioppo, 1986; Petty & Wegener, 1999) and the Heuristic-Systematic Model (HSM, Chaiken, Liberman, & Eagly, 1989; Chen & Chaiken, 1999) clearly imply that persuasion through fiction declines over time. This is because both models incorporate the assumption that the effect of a persuasive message may be expected to last only if it is processed in an elaborative or systematic way. Thinking about the message content helps recipients form additional beliefs they can later use to support the newly acquired beliefs conveyed by the message. In contrast, belief change due to peripheral or heuristic processing, that is, superficial processing based on easily available cues such as the credibility of the source, is assumed and has been found to be relatively instable (e.g., Chaiken, 1980; Mackie, 1987; Priester, Wegener, Petty, & Fabrigar, 1999). According to the ELM, elaborative processing occurs only when ability and motivation to think about a message are high. Ability to engage in elaborative processing is based on message and recipient factors such as message comprehensibility and prior knowledge, whereas motivation is based on variables such as personal relevance and Need for Cognition (Cacioppo & Petty, 1982; Petty & Cacioppo, 1986; for relationships to media exposure see Henning & Vorderer, 2001, and Tsfati & Cappella, 2005). Similar to the ELM, the HSM assumes that people are cognitive misers who generally prefer the application of simple heuristics over systematic and effortful processing of persuasive information. When reading a fictional narrative, recipients are often eager to follow the narration but seldom would they be motivated to systematically evaluate the piggyback information that accompanies the plotline (Prentice & Gerrig, 1999). In addition, when readers perceive a text as a piece of fiction, they may use this text-genre information heuristically as a discounting cue, which leads them to reject any belief-incongruent information. As a consequence, readers may not be expected to devote much elaborative processing to the information presented in a fictional text that in itself may serve as a discounting heuristic cue. In sum, ELM and HSM would agree that, if belief changes are induced by fiction at all, they are the result of peripheral processing and as such will be relatively short-lived.

MODELS OF PERSUASION THROUGH FICTION AND THE PERSISTENCE OF BELIEF CHANGE

Doubts have been raised, however, whether general theories of persuasion such as the ELM and the HSM are adequate for explaining belief change through fiction. Fictional narratives, in particular, differ in important respects from rhetoric texts such as editorials, political speeches, or advertisements, which are the types of texts that have been the typical focus of persuasion research. Whereas these texts present arguments to persuade or convince recipients of the truth of factual claims or the appropriateness of ethical and

political claims, fictional narratives are usually written for purposes other than persuasion (most notably entertainment, Bryant & Miron, 2002) and typically do not contain arguments associated with truth claims. They are stories about fictitious characters in a fictitious narrative world. Instead of a line of argument, fictional narratives usually follow a plot line with more or less schematic elements (e.g., setting, event, attempt, reaction, and consequence, Rumelhart, 1975). Against the background of these textual differences, several authors have proposed that the mechanisms underlying belief change caused by reading fictional narratives are profoundly different from those assumed by the ELM and the HSM. The major approaches in this area are the experiential account by Gerrig (1993) and the Transportation-Imagery Model by Green and Brock (2002). Both approaches employ the metaphor of transportation to describe how readers respond to fictional narratives. *Transportation* means that readers undertake a mental journey into the fictional world of the narrative. The degree of transportation may vary with the degree to which the narrative induces mental images of the events described in a text, which itself depends on various factors such as reading goals, readers' familiarity and involvement with the affairs described in a text, their imagery skills, and the quality and typicality of the narrative (for investigations of these factors, see Green, 2004; Green & Brock, 2000). As a rule, readers of fictional narratives are supposed to experience transportation at least to some extent. For them, the fictional world of the narrative partly replaces the real world while they are reading, a phenomenon often described as "being lost in a book" (Nell, 1988). This mental journey from the real to the imagined world of the narrative critically affects emotional as well as cognitive processes. Emotionally, readers may develop feelings of empathy or identification (Oatley, 1994; Zillmann, 1991). They experience emotions that resemble emotional reactions to real-world events. Cognitively, readers use the fictional world of the narrative as the frame of reference for evaluating assertions encountered in the narrative (Strange, 2002). To a certain extent, doubts about the real-world appropriateness of the fictional world are prevented, which in turn facilitates persuasion. Along with Gilbert's (1991) proposition that the comprehension of an assertion necessarily entails its initial acceptance, Gerrig (1993) assumes that the acceptance of beliefs takes place involuntarily. The rejection of belief-incongruent assertions encountered in a fictional narrative is supposed to require active construction of disbelief, which is unlikely under the conditions of transportation. In terms of the source monitoring approach (Johnson, Hashtroudi, & Lindsay, 1993), readers being transported form representations that are high on perceptual, spatial, temporal, and emotional information, akin to representations of perceived events. At the same time, they carry out very little reflective processing to encode source information that might help them later to correctly attribute remembered information to the story context. As a consequence, fictional narratives may have a strong impact on readers' beliefs (Gerrig &

Prentice, 1991; Prentice et al., 1997), and this impact is based on processes that seem to be characteristic to this specific text genre (Green, 2004; Green & Brock, 2000; see also Slater & Rouner, 2002).

Most important, the idea of transportation implies that fictional narratives may exert not only strong, but also persistent persuasive effects that are completely independent of critical elaboration. If anything, the degree of persuasion through fiction is likely to increase over time, resulting in an *absolute sleeper effect* (Hovland et al., 1949). Absolute sleeper effects are the strongest type of long-term persuasion, and they are to be distinguished from relative sleeper effects where the persuasive effect declines more slowly under certain conditions compared to a control group (Gillig & Greenwald, 1974). Generally, absolute sleeper effects may occur in situations where a persuasive message is combined with a discounting cue, for example the information that the message source is unreliable (Kumkale & Albarracin, 2004). The impact of the persuasive message increases over time when the discounting cue is forgotten or its memory representation is dissociated from the representation of the message content (Hovland & Weiss, 1951), or when the memory trace of the discounting cue decays faster than that of the message content (Pratkanis et al., 1988). Readers of fictional narratives know that it contains information that is to some extent untrue in the real world (Prentice & Gerrig, 1999) and, consequently, may consider the text genre of the source as a discounting cue. In this situation, a sleeper effect will occur if two conditions are met: (a) Memory for the source decays relatively fast or is dissociated from the memory for content of the narrative, and (b) memory for belief-relevant information encountered in the narrative is relatively stable.

To date, a sleeper effect in persuasion through fiction has not been investigated directly, but a number of different approaches provide piecemeal evidence suggesting that the two preconditions of a sleeper effect are indeed met. Shortly after reading a fictional narrative, readers are usually able to attribute information correctly to the story source, whereas the accuracy of such attributions declines after a delay, e.g., 1 week (Marsh, Meade, & Roediger, 2003), a pattern of results indicating either a fast decay or dissociation of memory for the source. Moreover, the intensive experiential processing taking place when readers are transported into the narrative world makes it likely that memory for the content of a fictional narrative is relatively stable (Green & Brock, 2002). Several lines of research endorse the latter assumption. Exemplification theory, for example, predicts a memory advantage of vivid, case-based descriptions compared to base-rate information in influencing people's judgment about the probability of real-world events (Zillmann, 2002; Zillmann & Brosius, 2000). Such case-based descriptions exert a persisting influence on people's beliefs, which may even increase over time. A study by Gibson and Zillmann (1994), who compared the impact of true base-rate information about consequences of car-jackings with the impact of verbal

descriptions of example incidents, found stronger misrepresentations due to verbal examples after a delay of 1 week than immediately after providing the information. One of the reasons for the persisting impact of exemplars might be the difficulty to counter personal experiences, which are also a central element of most fictional narratives. Additional theoretical backing for the assumption of relatively stable representations for the content of fictional narratives comes from Schank and Abelson's (1995) theory of storytelling effects on memory. According to Schank and Abelson, fictional narrations meet the human tendency to organize information in form of stories. As a result, stories are supposed to yield better and longer lasting memory representations than abstract accounts such as those found in rhetoric or expository texts (Schank & Berman, 2002). Based on a society-level analysis, the cultivation hypothesis predicts covariations between the media content and the recipients' world view (e.g., Gerbner, Gross, Morgan, Signiorelli, & Shanahan, 2002). Though fictional narrations have not been the main focus of cultivation theory, a large number of studies indicate long-term effects of violence in television programs on the fear of becoming a victim (see Shanahan & Morgan, 1999, for an overview and a meta-analysis). A final argument for the relative stability of memory representations derived from fictional narratives may be obtained from the success of entertainment-education programs on radio and television, such as radio- or telenovelas. Entertainment-education programs follow a story line that is tailored to change recipients' beliefs and behaviors according to predefined educational objectives. Entertainment education has been applied mostly in Africa, Asia, and Latin America to promote literacy and equal rights for women and minorities, and among other goals, to change HIV-related attitudes and behavior (see Singhal, Cody, Rogers, & Sabido, 2004). Quasi-experimental data suggest large and enduring effects of such programs (e.g., Vaughan, Rogers, Singhal, & Swalehe, 2000).

RATIONALE AND PREDICTIONS OF THE PRESENT EXPERIMENT

The aim of this experiment was to provide a direct test of the absolute sleeper effect based on theories of persuasion through narrative fiction (Gerrig, 1993; Green & Brock, 2002). Because the major general theories of persuasion (ELM, Petty & Cacioppo, 1986; HSM, Chaiken et al., 1989) imply a contrary pattern of results, i.e., a decline of persuasive effects of narrative fiction over time, this experiment also provides an indirect test of the mechanisms that are supposed to underlie persuasive effects of narrative fiction. A sleeper effect would support the assumption of Gerrig (1993) and Green and Brock (2002) that reading a fictional narrative induces a unique experiential state such as transportation, which radically alters the way how real-world information is processed and affects readers' beliefs. The same assumption would be seriously drawn into question if the opposite pattern of results, a decline of

persuasive effects over time, was observed. In this case, persuasion through fiction would turn out not to be distinct from persuasion by rhetoric texts, but a phenomenon that could be readily explained by general models of persuasion.

The set up of this experiment was similar to that of previous experiments on persuasion through fiction, with two major extensions. First, persuasive effects of a fictional narrative were measured either immediately or 2 weeks after reading to allow for estimating the magnitude as well as the persistence of such effects. Second, we measured not only agreement versus disagreement to belief-relevant statements (agreement extremity), but also how confident participants felt in providing each agreement rating (agreement certainty; Gross, Holtz, & Miller, 1995). Belief certainty is an aspect of belief strength, a concept borrowed from the literature on attitude strength (Krosnick & Petty, 1995), which has been widely neglected in previous studies on persuasion through fiction (Green et al., 2004). Beliefs held with a high certainty are especially powerful in predicting behavior: People tend to behave consistent with their beliefs only when they are certain about their beliefs (Franc, 1999; Peterson, 2004). Theories of persuasion through fictional narratives imply different patterns of results for agreement extremity and certainty. For agreement extremity, we expected a persuasion effect consistent with previous studies (Prentice et al., 1997; Wheeler et al., 1999) to begin with. Reading a fictional narrative containing belief-incongruent (false) information about a particular subject matter was expected to reduce the degree to which readers endorse (true) beliefs regarding that subject matter, but no effects on agreement extremity were expected for belief-congruent (true) information (H1). The magnitude of this effect, however, was expected to be greater after 2 weeks compared with immediately after reading, resulting in an absolute sleeper effect (H2). For agreement certainty, an increase in persuasive impact implies a reverse pattern of effects. Here, we expected that immediately after reading, belief-incongruent (false) information in the narrative would reduce the certainty of previously held (true) beliefs whereas belief-congruent (true) information would bolster the certainty of those beliefs. However, certainty values for both types of beliefs were expected to return back to baseline level after a delay of 2 weeks. By then, readers would no longer be aware of the novelty of both belief-congruent and belief-incongruent information conveyed by the narrative, but would have integrated this information into their real-world knowledge (H3).

Furthermore, we included individual differences in *Need for Cognition*, that is, the disposition to enjoy thoughtful, elaborative activities (Cacioppo & Petty, 1982), in the study. The ELM posits that persons high in Need for Cognition have a higher motivation to engage in elaboration of the contents of a persuasive message. In line with this proposition and the further assumption that elaboration enhances persistence, motivation to think about the message moderates the persistence of persuasive effects in rhetoric texts

(cf. the metaanalysis by Kumkale & Albaraccin, 2004). If persuasion through fictional narratives were based on elaboration, the effect of Need for Cognition found in experiments with rhetoric texts would replicate in this study. The transportation model, in contrast, implies no such effects. This rationale is supported by several experiments where Need for Cognition did not moderate persuasion through fiction (Green & Brock, 2000; Wheeler et al., 1999).

Against this background, we expected that, if any such relationships were found at all, correlations of Need for Cognition with agreement extremity or belief certainty would be restricted to conditions where no persuasion occurred, that is, to ratings corresponding to belief-congruent (true) information conveyed by the narrative (H4 and H5).

METHOD

Participants

Eighty-one participants (63 female, 18 male) were recruited in introductory psychology or education classes or otherwise took notice of the experiment at the Psychology Department of the University of Cologne, Germany. Their mean age was 27 years ($SD = 7.5$). Those who did not receive course credit could participate in a lottery (50€ as first prize). The assessment of reading experiences was announced to be the research focus.

Text Material

We adapted the text material employed in the studies of Gerrig and Prentice (1991), Prentice et al. (1997), and Wheeler et al. (1999) for the experimental texts in this study. The story *The Kidnapping* was translated and its setting was changed to Heidelberg, a German city with a well-known university. In a pilot study, 23 students read the translated story, answered connected questions in a brief interview, and filled out a short questionnaire. All participants indicated that they perceived the story as a piece of fiction (as opposed to an expository text). However, the story was seen as moderately atypical of literary texts ($M = -1.3$, $SD = 2.1$, on a 9-point bipolar scale ranging from −4 to 4). To improve the text's typicality as a literary text, a love story was integrated as a subplot and the characterization of persons and places was intensified. In addition, 3 out of the 16 factual topics discussed in the text were exchanged so they would suit the altered plot better. Two different versions of the modified story *The Kidnapping* were constructed. Each version contained 16 assertions, eight of them true and eight of them untrue in the real world (see Appendix). When an assertion was presented in its true variant in version 1, it was presented in its false variant in version 2 and

vice versa. Both experimental story versions were 19 pages in length (version 1: 612 lines, 6366 words; version 2: 607 lines, 6300 words). As a control story, an excerpt of the novel *Thousand Deaths* (*Tausend Tode*, Spindler, 2003) was used. This story contained no information relevant to the dependent measures, but was comparable to the experimental texts in writing style and length (19 pages, 575 lines, 6424 words).

Dependent Variables

Dependent variables were agreement extremity and agreement certainty (Krosnick & Petty, 1995) to the fact-related assertions that participants encountered in the experimental story *The Kidnapping*. *Agreement extremity* was assessed by a questionnaire with 16 items (9-point scale) that referred to the assertions in the experimental story. In addition, the questionnaire included 16 filler items. Two versions of the agreement questionnaire were constructed. In both versions, eight experimental items were formulated as statements that are true in the real world (e.g., "exercise strengthens your heart and lungs") and eight experimental items were formulated as statements that are false in the real world (e.g., "exercise weakens your heart and lungs"). The truth versus falsity of each item statement was changed from one version to the other. The combination of story versions and item versions was counterbalanced across participants. For data analysis, agreement responses to false item statements were recoded so that lower agreement received higher scores. The second dependent variable, *agreement certainty*, was assessed with a questionnaire with statements identical to those used for the assessment of agreement extremity. Participants were asked to indicate their certainty in their (dis)agreement rating to the 16 experimental and 16 filler statements (9-point scales).

Need for Cognition

Need for Cognition was assessed by the German short version of the Need for Cognition scale (Bless, Wänke, Bohner, Fellhauer, & Schwarz, 1994). In our sample, the reliability of this 16-item scale was satisfactory (Cronbach's $\alpha = .80$).

Procedure

Each participant took part in two experimental sessions with two weeks in between. The sessions were conducted in groups of 1 to 12 participants.

In Session 1, each participant received a booklet containing an introduction, the text materials (the experimental text *The Kidnapping* in one of the two versions or the control story), and several questionnaires.

Half of the participants were administered questionnaires for the assessment of the two dependent variables *agreement* and *certainty* in Session 1 (immediate belief assessment), whereas the other half was administered these questionnaires in Session 2 (delayed belief assessment). After reading one of the randomly assigned texts (*The Kidnapping* in version A or version B or the control story) all participants completed two filler questionnaires (experiential states during reading, Appel, Koch, Schreier, & Groeben, 2002; belief in a just world, Dalbert, 1999) and the German short version of the Need for Cognition scale.

Afterward, participants in the immediate assessment condition worked on the belief agreement and belief certainty questions; in the delayed assessment condition they worked on another filler questionnaire (media literacy, Schreier & Appel, 2002) instead of the agreement and certainty measures. At the end of Session 1, all participants provided demographic information and were asked not to discuss the experiment with other (potential) participants.

In Session 2, participants in the immediate belief assessment condition received a booklet containing the media literacy questionnaire, whereas those in the delayed belief assessment condition completed the agreement and certainty measures. Participants were thanked and fully debriefed.

Design

The 81 participants were assigned randomly to one out of two versions of the experimental story *The Kidnapping* (29 read Text A, 29 read Text B) or a control group (23 participants) who received an excerpt of the control story *Thousand Deaths*. The data of the control group were used solely for calculating difference scores for the participants in the experimental conditions. Thus, the experiment followed a 2 (*truth of assertions*: true vs. false) × 2 (*delay of belief assessment*: short vs. long) design with truth of assertions varied within and delay of belief assessment varied between subjects.[1]

RESULTS

All 81 participants who were involved in session 1 returned to Session 2 with an average delay of 14.6 days ($SD = 1.7$). The actual length of delay did not influence any of the results reported in the following sections. For

[1] Originally, the design included an additional between-subjects factor directed at inducing one of two different reading goals. However, extensive treatment checks revealed no effects of this manipulation. In addition, the reading goal manipulation had no effects on the dependent variables and did not interact with any of the other independent variables. For these reasons, the reading goal manipulation was omitted from all analyses reported here. Six participants were excluded because they obviously did not follow instructions.

all significance tests reported here, type-I-error probability was set to .05 (two-tailed, unless indicated otherwise). Partial η^2 is reported as a measure of effect size (Cohen, 1988).

Data Preparation

Agreement ratings to item statements that were false in the real world were recoded so that higher scores indicated lower agreement to false assertions. Further data preparation on the agreement ratings was carried out in line with the procedure used by Prentice et al. (1997) and Wheeler et al. (1999). The mean agreement rating of the control group (agreement extremity) was subtracted from each of the agreement ratings of those participants that had read the experimental story. Then, difference scores for the eight items that corresponded to true assertions in the text and difference scores for the remaining eight items that corresponded to false assertions were averaged. Analyses of effects on agreement ratings (belief shift) were conducted on the averaged agreement difference scores.

For the second dependent variable, agreement certainty, higher ratings always indicated a higher certainty. Therefore, no recoding was carried out on this dependent variable. As for the agreement ratings, averaged difference scores for true and for false text assertions were computed. Analyses of effects on belief certainty were conducted on these certainty difference scores.

Agreement Extremity

H1, H2, and H4 concerning agreement extremity were tested by means of a mixed factors analysis of covariance (ANCOVA) with interaction terms (Judd, Kenny, & McClelland, 2001), which permits simultaneous estimates of the effects of truth of assertions, delay of assessment, and Need for Cognition in one single design.

Overall persuasive effects. H1 predicted that participants' agreement extremity depends on the truth versus falsity of assertions that they encountered while reading the experimental story. Encountering false assertions should lower the endorsement of previously held (true) beliefs relative to the control group, whereas encountering true assertions should neither raise nor lower endorsement of these beliefs. In line with this hypothesis, truth of assertions had a large overall effect on the agreement difference scores. True assertions received higher agreement difference scores ($M = 0.08$, $SE = 0.10$) than false assertions ($M = -0.49$, $SE = 0.09$), $F(1, 54) = 14.7$, $p < .001$, $\eta^2 = .21$. We further tested whether the agreement difference scores after reading true or false assertions in the experimental conditions were different from zero. If the encounter of these assertions had no impact on agreement extremity, agreement ratings of the experimental conditions and the

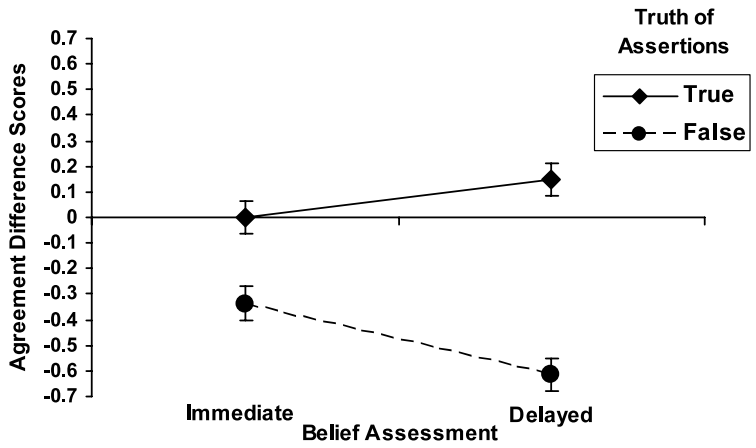
control group would not differ, yielding agreement difference scores which approach zero. Consistent with H1, only agreement difference scores after reading false assertions were significantly different from zero, $t(57) = -5.3$, $p < .001$ (one-tailed), whereas agreement difference scores after reading true assertions were not, $t(57) < 0.8$.

Sleeper effects (agreement extremity). H2 predicted that the influence of false assertions in the experimental story on the endorsement of previously held beliefs would increase over a time period of 2 weeks. Consistent with this prediction, there was a large ordinal interaction between effect of truth of assertions and delay of assessment, $F(1, 54) = 4.8$, $p < .05$, $\eta^2 = .08$ (Figure 1a). In immediate belief assessment, agreement difference scores after reading true assertions were higher ($M = 0.00$, $SE = 0.14$) than those after reading false assertions ($M = -0.34$, $SE = 0.13$), with $F(1, 54) = 4.1$, $p < .05$, $\eta^2 = .07$ for the simple main effect. In delayed belief assessment, agreement difference scores for true assertions were also higher ($M = 0.15$, $SD = 0.14$) than those for false assertions ($M = -0.61$, $SD = 0.13$), but the difference was much larger and associated with a very large simple main effect, $F(1, 54) = 21.1$, $p < .001$, $\eta^2 = .28$. In immediate as well as delayed assessment, only agreement difference scores after reading false assertions were significantly different from zero (immediate assessment: $t(28) = -2.9$, $p < .01$, one-tailed; delayed assessment: $t(28) = -4.6$, $p < .001$), whereas agreement difference scores after reading true assertions were not—immediate assessment $t(28) = 0.2$; delayed assessment: $t(28) = 0.9$. Thus, there was a considerable short-term persuasive influence of false information in the fictional narrative, but the influence of false information was even higher at a delay of two weeks, resulting in a marked absolute sleeper effect.

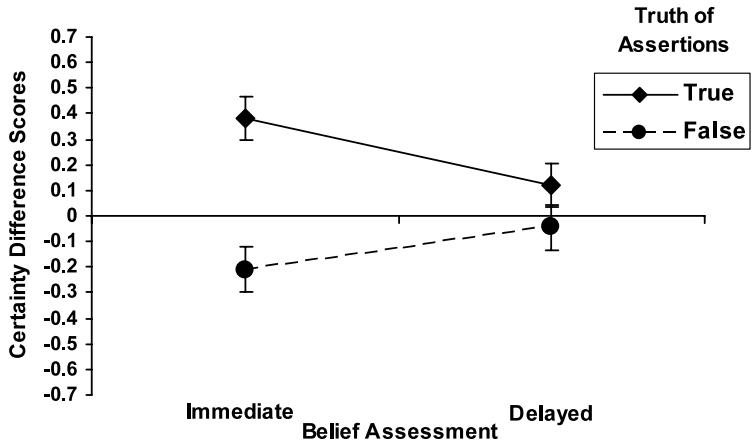
Effects of Need for Cognition. H4 predicted that if Need for Cognition had any effects on agreement extremity at all, these effects would be restricted to statements corresponding to true assertions in the text. No relationship was expected between Need for Cognition and agreement extremity to statements corresponding to false assertions. In support of this prediction, there was a large interaction effect between truth of assertions and Need for Cognition, $F(1, 54) = 9.8$, $p < .01$, $\eta^2 = .15$. Need for cognition was positively related to agreement extremity when participants had read true assertions (standardized simple slope: $\beta = 0.40$, $t(55) = 3.2$, $p < .01$, two-tailed), but there was no relationship when participants had read false assertions ($\beta = -0.08$, $t(55) = -0.6$, $p = .53$, two-tailed). Thus, Need for Cognition had no effect on agreement extremity for statements for which persuasion was expected.

Agreement Certainty

H3 and H5 concerning agreement certainty were again tested by means of a mixed factor ANCOVA with interaction terms, with truth of assertions



(a)



(b)

FIGURE 1 Agreement difference scores (a) and certainty difference scores (b) (deviances from the baseline group) for true versus false assertions in the text and immediate versus delayed assessment. Positive agreement difference scores mean stronger endorsement and negative agreement difference scores mean weaker endorsement of true everyday beliefs relative to the baseline group. (Error bars represent the standard error of the mean.)

and delay of assessment as experimental factors and Need for Cognition as covariate.

Sleeper effects (agreement certainty). According to H3, reading false assertions in the fictional narrative would lower and reading true assertions would increase the certainty of previously held beliefs in immediate assessment, but these effects were expected to diminish in delayed assessment. Although the data seem to follow this pattern (Figure 1b), the correspond-

ing ordinal interaction of truth of assertion and delay of assessment was not significant, $F(1, 54) = 1.0$, $p = .32$. In partial support of H3, however, there was a main effect of truth of assertions, $F(1, 54) = 7.3$, $p < .01$, $\eta^2 = .12$. Certainty difference scores for the agreement ratings after reading true assertions were higher overall ($M = 0.25$, $SE = 0.12$) than those for the agreement ratings after reading false assertions ($M = -0.13$, $SD = 0.13$). However, separate analyses for immediate and delayed assessment revealed that certainty difference scores after reading true and false assertions differed only in immediate assessment (true assertions: $M = 0.38$, $SE = 0.17$; false assertions: $M = -0.21$, $SE = 0.18$), with $F(1, 54) = 13.0$, $p < .001$, $\eta^2 = .19$ for the simple main effect, whereas there was no difference in delayed assessment (true assertions: $M = 0.12$, $SE = 0.17$; false assertions: $M = -0.05$, $SE = 0.18$), $F(1, 54) = 1.0$, $p = .32$. In sum, certainty difference scores after reading true versus false assertions differed markedly immediately after reading, but showed a tendency to converge after a delay of 2 weeks.

H5 predicted that if there were any effects of Need for Cognition on agreement certainty at all, these effects would be restricted to agreement certainty scores for statements corresponding to true assertions in the text. No relationship with agreement certainty to statements corresponding to false assertions was expected. In line with this prediction, there was an interaction of truth of assertions and Need for Cognition, $F(1, 54) = 4.0$, $p < .05$, $\eta^2 = .07$. This interaction, however, was qualified by a large three-way interaction of truth of assertions, delay of assessment, and Need for Cognition, $F(1, 54) = 11.6$, $p < .001$, $\eta^2 = .18$. Analysis of simple slopes revealed that Need for Cognition was positively related to agreement certainty only in immediate assessment and after reading true assertions ($\beta = 0.59$, $t(55) = 3.4$, $p < .001$, two-tailed), whereas there were no relationships of Need for Cognition with agreement certainty in any of the other three conditions ($|\beta| < 0.15$, $t(55) < 0.90$, $p > .38$, two-tailed).

DISCUSSION

The aim of this study was to investigate the persistence of belief change induced by reading a fictional narrative. In line with expectations, agreement to statements expressing everyday beliefs was shifted into the direction of false information conveyed by the fictional narrative. These belief shifts occurred when beliefs were assessed immediately after and 2 weeks after reading the narrative. However, their magnitude increased over time, indicating an absolute sleeper effect. Belief certainty was weakened by false information in the narrative immediately after reading but returned to baseline level after 2 weeks. In sum, long-term persuasive effects of fictional narratives turned out to be stronger than short-term effects in two different ways: The belief

change induced by false information was more pronounced and the changed beliefs were held with a higher certainty after a 2-week delay.

The results of this study are well in line with models of narrative persuasion, which assume that readers are mentally transported into the fictional world of a narrative that temporarily alters the frame of reference for their emotional and cognitive processes (Gerrig, 1993; Green & Brock, 2002). As a consequence, mechanisms that allow for a critical evaluation of text information are partly neutralized, opening the door for persuasive effects. These effects may be expected to increase over time because two conditions for an absolute sleeper effect are likely to be met. First, due to its experiential nature, narrative comprehension yields especially strong and stable representation of information encountered in a narrative. Second, memory for the source, which might serve as a discounting cue, tends to be forgotten over time.

Although our results cohere well with the assumptions of experiential accounts of narrative persuasion, they can hardly be reconciled with general dual-process models of persuasion such as the ELM and the HSM (Chaiken et al., 1989; Petty & Cacioppo, 1986). According to the latter models, sleeper effects occur when arguments are thoroughly evaluated and information is processed in an elaborative manner, which is highly unlikely when people are reading belief-incongruent assertions in fictional narratives. Furthermore, our results show (in line with those of Wheeler et al., 1999, and Green & Brock, 2000) that the magnitude of persuasive effects does not depend on an individual's disposition to engage in systematic, elaborative processing (i.e., Need for Cognition). Thus, fictional stories provide effective means for long-term shifts in people's real-world beliefs although the information contained in these stories are not processed in an elaborative fashion. Quite to the contrary, the assumption that the particular experiential states experienced during reading partially prevent disbelief seems to provide a much better explanation of these effects. Generally speaking, this study contributes a novel aspect to already existing research, which has proven that narrative persuasion relies on processes quite different from those involved in persuasion through rhetoric texts.

A limitation of this study is that it does not provide any results that could shed light on these processes themselves. For this reason, a good starting point for future research would be a replication of the present experiment that includes additional data on the amount and the exact nature of experiential processing during reading a fictional narrative. Although the available retrospective questionnaire measures on experiential states during reading (e.g., Green & Brock, 2000) might be of some value for this purpose, they should be augmented with on-line indicators such as reading times, eye-movement measures, or think-aloud data, as they are routinely used in text-comprehension research (e.g., Haberlandt, 1994). A fully fledged analysis in terms of the transportation model would have to establish that experi-

ential processes mediate short-term as well as long-term persuasive effects of belief-incongruent fact-related information in fictional narratives. Another limitation is that we cannot be absolutely sure whether participants' knowledge that they read a fictional narrative indeed served as a discounting cue, which later gets dissociated from the factual information presented in the narrative. In further studies, this assumption should be tested experimentally. When participants are reminded of the source of the information at the time of belief assessment, for example, a sleeper effect may no longer be expected.

The explanation offered for the absolute sleeper effect found in this study has some further implications, which could be addressed by future studies. For example, both the assumed stability of the memory representations formed during narrative comprehension and the suggested dissociation or decay of cue information over time, as well as the relationships of these variables with long-term persuasive effects deserve to be investigated directly. It might also be worthwhile to conduct belief assessments at several time points to study the gradient of belief shifts over time. Presumably, sleeper effects in narrative persuasion will increase as soon as the source information is forgotten and until an asymptote is reached.

Given the fact that fictional narratives are omnipresent in many different cultures all over the world, the results reported here also have certain practical implications. First of all, fictional narratives conveyed by books, movies, and—perhaps most importantly—television programs play an important part in everyday life and, therefore, in the socialization of children, adolescents, and adults. This study suggests that fictional narratives can have a persistent implicit influence on the way we view the world, and that these effects may last longer than the effects of typical explicit attempts to change beliefs by presenting claims and arguments. Apart from the unintended consequences this instance might have, fictional narratives are a powerful educational tool that on the one hand may be used in a planned and reasonable way to change beliefs and behavior concerning existential topics such as HIV or school education (Singhal et al., 2004). On the other hand, applied fictional persuasion also includes the marketing of political ideas and products in television soap operas without viewers' awareness (e.g., Lilienthal, 2005) and similar phenomena. For this reason, further research is needed on strategies that people can use to actively prevent information in fictional narratives changing their real-world beliefs.

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APPENDIX

True/False Assertions in the Experimental Texts (adapted from Prentice et al., 1997):

1. Sleep has a positive impact/has no impact on knowledge acquisition.
2. Tooth brushing is good/bad for your teeth and gums.
3. Yearly health check-ups help/do not help to diagnose diseases early.
4. Unprotected sunbathing is bad/good for your skin.
5. Exercising is good/bad for your heart and lungs.
6. Psychological disorders are not/are contagious.
7. Reading in darkened rooms is bad/good for your eyes.

8. Seat belts are/are not beneficial in case of car accidents.
9. Wet clothing can/cannot lead to influenza.
10. Eating chocolate makes you gain/lose weight.
11. A low cholesterol diet decreases/increases the risk of a heart disease.
12. The invention of penicillin had dominantly positive/negative consequences for mankind.
13. A university degree increases/decreases the chance to get a job.
14. Tears do/do not contain more toxic substances than water.*
15. Students and professors have/do not have the same rights in university councils.*
16. The number of kidnappings has/has not increased recently.*

*Newly developed items.