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Transportation and Need for Affect in Narrative Persuasion:

A Mediated Moderation Model

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Abstract

Two experiments investigated the idea that individual differences in need for affect are critical

for narrative persuasion. Need for affect, i.e. the disposition to approach emotions, was assumed

to facilitate the experience of being transported into the mental world of the narrative. An intense

experience of transportation, in turn, should enhance the persuasive impact of narrative

information on reader's beliefs. A mediated moderation analysis was used to test these

assumptions. In both experiments ($N = 314$), need for affect (approach) and transportation

moderated the persuasive effects of a fictional narrative compared to a belief-irrelevant control

story (Experiment 1) and the persuasive effects of a story with high emotional content compared

to a story with low emotional content (Experiment 2). The moderator effects of need for affect

were shown to be mediated by the moderator effects of transportation. In sum, the magnitude of a

person's need for affect determines whether and to what extent the person experiences

transportation into the story world and is persuaded by the information presented in the narrative.

Keywords: narrative persuasion, need for affect, transportation, mediated moderation

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Every day, people around the world spend a substantial amount of time with narratives, for example, reading novels and short stories, viewing soap operas, or following journalistic first-hand accounts of individual tragedies. A number of studies have shown that reading or listening to a narrative can alter beliefs that recipients hold about the world, even if the characters and events described in the narrative are fictitious (e.g., Fazio & Marsh, 2008; Gerrig & Prentice, 1991; Green & Brock, 2000; Marsh & Fazio, 2006; Prentice, Gerrig & Bailis, 1997; Strange & Leung, 1999). Despite commonalities between persuasion through narrative and other forms of persuasive messages, some of the mechanisms underlying narrative persuasion are likely to differ from those involved in persuasion through non-fictional, argumentative texts. Gerrig (1993) and Green and Brock (2002) have proposed that the persuasive impact of fictional narratives is based on an experiential state called "transportation," which makes the recipients' beliefs more susceptible to influences by information provided in the narrative. The idea that transportation is a general mechanism that underlies persuasion through narratives has been supported by a number of studies (Escalas, 2004, 2007; Green, 2004; Green & Brock, 2000; Mazzocco, Green, & Brock, 2007; Vaughn, Hesse, Petkova, & Trudeau, 2009). Whereas these studies were primarily concerned with situational influences, the focus of the present article is on individual differences in transportation and narrative persuasion. We will argue that the Need for Affect (Maio & Esses, 2001) is a personality trait that can explain individual differences in narrative persuasion. We assume that for individuals with a strong disposition to approach emotions, the experience of transportation during processing is particularly intense and, as a consequence, persuasive effects are particularly strong (Green & Brock, 2002). These assumptions amount to a

mediated moderation model of the interplay of need for affect, transportation, and the emotional content of the narrative. Two experiments tested the predictions of this model.

Persuasion Through Fictional Narratives

Reading or listening to fictional and non-fictional narratives can alter beliefs that recipients hold about the world. Research has demonstrated persuasive effects in response to the central theme of a narrative (e.g., a dangerous psychiatric patient; Green & Brock, 2000) as well as in response to information that was no central part of the plotline (e.g., Prentice et al., 1997; Wheeler, Green, & Brock, 1999), and such effects seem to be durable (Appel, 2008a; Appel & Richter, 2007). Thus, despite the fact that the authors of narratives often create fictitious worlds in which invented events and characters occur, narratives carry information about the real world that can have a profound influence on recipient beliefs (for a review, see Green, Garst, & Brock, 2004).

Whereas a number of the mechanisms of belief change that have been described in general models of persuasion such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986; Petty & Wegener, 1999) or the Heuristic-Systematic Model (Chen & Chaiken, 1999) also apply to persuasion through fictional narratives, narrative persuasion cannot be fully captured by these models. One reason is that narratives differ from other types of persuasive messages, most notably from texts that present claims whose validity is backed up by arguments. People read or listen to argument texts in order to get an informed world-view. The comprehension of such texts frequently requires active elaboration, and comprehenders often fail to construct an adequate representation of what the text is about. Narratives, in contrast, do not involve any claims about the validity of the presented information, at least not if they are pieces of fiction. They usually describe the actions and experiences of one or more protagonists and a plot line with certain schematic elements (e.g., setting, event, attempt, reaction, and consequence, Rumelhart, 1975). In

many cases, people read or listen to narratives for pleasure (Nell, 1988). The comprehension of

narrative texts normally proceeds smoothly and effortlessly, and comprehenders have no

difficulty to construct and continuously update a situation model of the events that unfold when

the narrative proceeds (Zwaan & Radvansky, 1998). In the light of these differences, alternative

accounts of narrative persuasion have been developed that will be described in the following

section.

<p align="center">*Narrative Persuasion and Transportation*</p>

According to the Transportation-Imagery Model by Green and Brock (2002), recipients of

narrative stories experience a state of *transportation* (Gerrig, 1993) while they are reading,

watching, or listening to a narrative. The term transportation is based on the metaphor that

readers undertake a mental journey into the world of a narrative. When an individual is

transported into the narrative world "all mental systems and capacities become focused on the

events occurring in the narrative" (Green & Brock, 2000). The resulting mental state has been

conceptualized as a co-activation of attention, imagery, and emotions (e.g., Green, 2004; Green &

Brock, 2000). Accordingly, transportation is a rather broad concept incorporating several aspects

of an absorbed reception of information. The construct of transportation and the Transportation

Scale proposed by Green and Brock (2000) for its measurement have been widely used in

research on narrative persuasion. Importantly, the amount of transportation has repeatedly been

found to predict the extent to which information contained in a narrative influenced recipients'

real-world beliefs (e.g., Green & Brock, 2000; see also Wyer, Adaval, & Colcombe, 2002).

Three different ways have been proposed how transportation facilitates narrative belief

change: First, transportation may reduce basic cognitive and elaborative activities that underlie

resistance to persuasion (such as epistemic monitoring, Richter, Schroeder, & Wöhrmann, 2009;

Schroeder, Richter, & Hoever, 2008; or counterarguing, Green & Brock, 2000). Second,

transportation goes along with a vivid mental simulation of the events described in a narrative, with the consequence that these events may be misremembered as if they were actual real-world experiences (Johnson, Hashtroudi, & Lindsay, 1993). Third, transportation involves strong emotional experiences that can facilitate narrative persuasion via positive mood (transportation is usually enjoyable, Green, Brock, & Kaufman, 2004), arousal (Clore & Schnall, 2005), or positive identification with story characters (Oatley, 1994; Zillmann, 1991; cf., Mar & Oatley, 2008).

It is important to note that transportation is distinct from elaboration, the major cognitive mechanism underlying persuasion according to general two-process models of persuasion such as the Elaboration Likelihood Model (Petty & Wegener, 1999) and the Heuristic-Systematic Model (Chen & Chaiken, 1999). Unlike elaboration, the mechanisms that have been proposed to explain the impact of transportation are not based on distanced analytical processes such as propositional reasoning or critical thinking. Quite to the contrary, transportation is conceived as a holistic experiential state characterized by a close connection of the recipient to the story world and emotional components. Summarizing these differences, Green and Brock (2000, p. 702) note that elaboration can be construed as a divergent process because individuals engaged in elaboration use information differently from that presented in a text (e.g., their prior knowledge, opinions, and real-world experiences) to evaluate the arguments presented. By contrast, transportation can be described as a convergent process as the individual is fully focused on the narrative itself.

Transportation and Other Forms of Immersed Reception

The experiential state of transportation is related to other constructs that imply an attentive and absorbed reception of information. In order to clarify our rationale for basing our own research on transportation, we will briefly discuss these other constructs. The first possible conceptual alternative to transportation is the *narrative engagement* which has recently been proposed by Busselle and Bilandzic (2008; 2009) as a multifaceted construct with four

dimensions (narrative understanding, attentional focus, emotional engagement, and narrative presence). Incorporating narrative understanding, narrative engagement is defined even more broadly than transportation. Narrative understanding refers to the extent to which recipients are able to grasp the characters' goals and actions and the events unfolding in a narrative. In contrast, the other three components tapping experiential states (attentional focus, emotional engagement, and narrative presence) directly correspond to central aspects of transportation, creating a large overlap of these two constructs. In fact, Busselle and Bilandzic (2009) report very high correlations of their narrative engagement scale (including all four components) with the transportation scale (ranging from .73 to .82). In addition, the bivariate relationships of narrative engagement and transportation with story-related attitudes (an indicator of narrative persuasion) are moderate and almost identical for both scales. Thus, there seems to be a large overlap of the two constructs both conceptually as well as empirically.

Other theories and concepts that have been used to describe an attentive and absorbed way of reception have traditionally focused on more specific aspects of immersion such as the illusion of non-mediation (*presence*, Lombard & Ditton, 1997) or the recipients' experiential state with regard to a story's characters (e.g., *suspense*, Zillmann, 1991; *identification*, Mar & Oatley, 2008; *parasocial interaction*, Klimmt & Hartmann, 2006). The alternative concept of *involvement* is rather broad. However, it bears a puzzling heterogeneity with respect to the extant definitions and operationalizations (Wirth, 2006). Finally, the concept of flow (Czikszentmihalyi, 1990) and transportation share a highly similar phenomenological experience (Green & Brock, 2002). However, general flow theory does not posit a connection between flow and persuasion. Unfortunately, there is no standard method to measure the state of flow; in fact, many empirical studies on the flow experience lacked a distinction between the predictors of flow and the experiential state itself (Engeser & Rheinberg, 2008).

The present research is based on transportation rather than on any of the other constructs because a) transportation rests on a coherent and well-established theoretical foundation that focuses on the processing of narratives (Gerrig, 1993; Green & Brock, 2002), b) it captures a large part of the phenomenological experience of being immersed in a narrative, c) it has been used most frequently in previous studies on narrative persuasion which facilitates relating our research to previous research, and d) it comes with a standardized self-report measure that has been tested by a number of different research groups and showed good reliability and validity (Green & Brock, 2000).

Individual Differences in Transportation

Transportation theory does not adopt the text hegemony hypothesis (Bloom, 1994), according to which textual factors alone, i.e. independent of situational and individual factors, can draw the reader into an absorbed and attentive way of reception. In contrast, Green and Brock (2000, p. 703) assume that it is not only the text that determines the amount of transportation and the persuasive impact of a story: Transportation and persuasion may vary with regard to the extra-textual situational context and a general proclivity to get immersed into a story world (see also Green, Garst, & Brock, 2004). In previous studies, the impact of situational factors has often been weak and inconsistent, e.g., with regard to the impact of fact/fiction labels (Green & Brock, 2000; Green, Garst, Brock, & Chung, 2006; Prentice et al., 1997; Strange & Leung, 1999) or specific reading goal instructions (Green, 2004; Green & Brock, 2000). This general finding raises the question whether there are stable individual dispositions that regularly influence the degree to which an individual experiences transportation and, in turn, is persuaded by a narrative (Green, 2004, 2006). From a theoretical perspective, identifying individual dispositions that moderate the impact of narratives on transportation and beliefs is an important objective because adding these variables to the existing theoretical framework of transportation would strengthen its

explanatory power (cf., Underwood, 1975) and fill a theoretical gap. Technically, individual dispositions may account for variance previously unexplained by text characteristics or situational factors.

However, previous approaches to the issue of explaining individual differences in transportation are somewhat unsatisfactory. Dal Cin, Zanna, and Fong (2004) have suggested a self-report scale to measure individual differences in transportability. Similarly, Brock and Livingstone (2004) have introduced a need for entertainment scale. A related construct is openness to absorption that has been defined by Tellegen and Atkinson (1974) as the general tendency to become absorbed by some activity. The problem with transportability, need for entertainment, and absorption is that the conceptual definitions of these constructs and the methods proposed for assessing them are very close to the situation-specific experiential state of transportation. As a consequence, the construct of transportability merely describes rather than explains the fact that there are stable individual differences in the degree of transportation. As yet, it is an open question as to whether there are more broadly and independently defined individual dispositions that determine the extent to which people experience transportation while reading narrative texts and, as a consequence, their susceptibility to narrative persuasion.

In the context of general models of persuasion such as the Elaboration Likelihood Model (ELM, Petty & Cacioppo, 1986; Petty & Wegener, 1999), need for cognition has been established as the primary motivational disposition that determines the amount of cognitive processing of a message. Individuals high in the need for cognition are more likely to engage in elaborative processing of the information presented in a persuasive message, with the consequence that high-quality arguments can lead to a belief change that is stable and resistant against further persuasive attempts. However, we hold that in narrative persuasion, transportation rather than elaboration is the key mechanism underlying persuasion. Given that transportation involves the experience of

emotions as a regular and essential component, we propose that individual differences in *need for affect* rather than need for cognition are likely to play a major role in narrative persuasion.

Need for Affect as a Moderator of Narrative Persuasion

Need for affect has been proposed by Maio and Esses (2001) as the affective counterpart to the need for cognition. They define the need for affect as the "general motivation of people to approach or avoid situations and activities that are emotion inducing for themselves and others" (p. 585). Emotion and affect are conceptualized in a broad sense that includes moods, emotions, preferences, and related evaluations with an affective component. Although some affective states (e.g., good feelings) are perceived as more positive than others (e.g., sad feelings), Maio and Esses (2001) insist that "meaningful individual differences in the pursuit of affect on average" (p. 586) exist. Accordingly, need for affect has been described as a trait-like meta-emotion, i.e., a generalized attitude regarding one's own primary emotions (Bartsch, Vorderer, Mangold, & Viehoff, 2008; Meyer & Gaschke, 1988). Maio and Esses (2001) have developed a Need for Affect Questionnaire, which is a self-report measure that comprises of an approach and an avoidance subscale.

There are strong theoretical reasons linking the need for affect to narrative transportation. According to Maio and Esses (2001), individuals high in the need for affect actively seek out emotional situations, and in such a situation they tend to intensify their emotional experiences. Whereas effects of the avoidance aspect of need for affect seem to be confined to real, unmediated situations, the approach aspect seems to be particularly relevant for experiencing emotions during media reception (Bartsch, Appel, & Storch, 2010). In studies by Maio and Esses (2001), for example, the approach subscale (but not the avoidance subscale) of the Need for Affect Questionnaire predicted the selection of emotional vs. non-emotional movies, the emotionality of the respondents' favorite television show, and the intensity of their emotional

reactions towards the death of Princess Diana (for similar results with the German version of the

Need for Affect scale, see Appel, 2008b). Intense emotional responses to the events described in

narratives and emotional identification with its characters are central components of

transportation (Gerrig, 1993; Green & Brock, 2000). Accordingly, individuals with a strong need

for affect should be inclined to experience high levels of transportation. The most important

precondition seems to be that the narrative must provide a certain amount of emotional content

that allows individuals high on need for affect to respond emotionally.

A Mediated Moderation Model of Narrative Persuasion

Our assumptions concerning the interplay of need for affect and transportation in

persuasion through fictional narratives imply a set of interrelated predictions that we tested in two

consecutive experiments. The goal of Experiment 1 was to establish a mediated moderation

model of narrative persuasion by examining whether the persuasive effects of a fictional narrative

depend on need for affect. Experiment 2 extended and refined this model by including the

emotional content of the narrative as predictor. To this end, we compared two versions of the

same narrative that differed in emotional content.

In Experiment 1, we predicted that reading a fictional narrative would cause a shift in

participants' real-world beliefs as a result of information included in a fictional narrative

(Hypothesis 1). Analogous hypotheses have been tested and corroborated in several studies on

persuasion through fiction (e.g., Appel & Richter, 2007; Green & Brock, 2000, Experiment 4;

Prentice, Gerrig, & Bailis, 1997; Wheeler, Green, & Brock, 1999). The narrative used in

Experiment 1 (*Murder at the Mall*, Nuland, 1994) describes the murder of a young girl by a

psychiatric patient. Thus, we expected that individuals who read this narrative would perceive

psychiatric patients as more dangerous than those who read a control story on an unrelated topic.

The second prediction referred to the assumption that transportation is the key mechanism in

persuasion through fiction (Gerrig, 1993; Green & Brock, 2002). According to this assumption, the degree of transportation experienced by an individual should moderate the strength of the persuasive effect, with a higher degree of transportation yielding a stronger shift towards believing that psychiatric patients are dangerous (Hypothesis 2).

Whereas the first two predictions have already received support in previous studies the additional predictions concerning need for affect add novel aspects to the picture. Generally, we expected that the persuasive impact of a fictional narrative would depend on the recipient's level of need for affect and that the influence of need for affect would be mediated by the degree of transportation. These assumptions imply three empirical predictions. First, need for affect should moderate persuasive effects of fictional narratives, with larger persuasive effects for individuals high on need for affect (Hypothesis 3). Second, we expected that individuals high on need for affect should also experience higher degrees of transportation (Hypothesis 4) because need for affect should promote readers' immersion into the fictional world of the narrative and emotional responses to narrative events. Thus, the role attributed to need for affect in narrative persuasion parallels the role assumed for need for cognition in persuasion through argument texts (Chen & Chaiken, 1999; Petty & Wegener, 1999) with the difference that transportation replaces elaboration as the mediating mechanism. Third, if transportation is indeed the mediating mechanism that underlies effects of need for affect, the hypothesized moderating effect of need for affect should be mediated by the hypothesized moderating effect of transportation on persuasion through fiction (Hypothesis 5).

These five predictions can be summarized in the mediated moderation model depicted in Figure 1c. This model meets the defining characteristics of mediated moderation and resembles the second type of mediated moderation model described by Muller, Judd, and Yzerbyt (2005). However, rather than testing whether the interaction effect of need for affect and the story

manipulation (narrative with belief relevant information vs. control story on an unrelated topic) is mediated by the main effect of another variable, the model proposed puts the focus on another interaction effect as the mediator, i.e. the interaction of transportation with the story manipulation.[1]

Experiment 2 extended the perspective of Experiment 1 by applying an analogous mediated moderation model to examine the role of emotional content more closely. Emotional content such as portrayals of critical life events or descriptions of strong feelings in a narrative is a precondition for emotional responses, which are thought to occur when readers are transported into the fictional world of the narrative (Green & Brock, 2002). Accordingly, we expected that transportation is a stronger predictor of persuasive effects when the story includes high emotional content such as portrayals of critical life events or descriptions of strong feelings in a narrative as compared to a story that includes low emotional content. The persuasive effect of a narrative with strong emotional content is expected to increase with the degree of transportation that participants experienced during reading. This effect should be alleviated or even absent when participants read a narrative with weak emotional content (Hypothesis 6). A parallel interaction effect was expected for need for affect because participants high on need for affect should be more likely to respond to emotional content in a narrative (Hypothesis 7). As in Experiment 1, we predicted that need for affect would have a positive effect on transportation (Hypothesis 8), and that the moderator effect of need for affect would be mediated by the moderator effect of transportation (Hypothesis 9, Figure 1c).

Experiment 1

Experiment 1 was designed to provide a first test of the mediated moderation model of narrative persuasion outlined in the previous section (Figure 1). Persuasive effects were determined by comparing participant responses to a fictional narrative that contained information

about violent acts of a psychiatric patient with those responding to a narrative that did not contain this information. After reading the narrative, participants' beliefs about the dangerousness of psychiatric patients were assessed. As potential moderator variables, the transportation that recipients experienced during reading the narrative and their need for affect were included.

Method

Participants. Participants were 181 adult volunteers (96 women) between the ages of 18 and 39 ($M = 24.4$ years; $SD = 4.1$). They were personally recruited by student research assistants, inside and outside the campus of the University of Linz (Austria). Seventy-five percent of the respondents were students.

Text material. The experimental text material was based on the short story *Murder at the Mall* (Nuland, 1994), which had been used in the persuasion studies of Green and Brock (2000, Experiments 1-3). This story is about two women and their children who enjoy a day together at the mall. A lengthy sequence describes how the daughter of one mother is brutally stabbed to death by a man who is revealed at the end of the story to be a psychiatric patient with a history of aggressive outbursts. In sum, the story implies that psychiatric patients are a potential danger and that there is a necessity to be protected from them. The German translation of the story was shortened and rewritten from a third-person-only perspective in order to make the style more typical for a fictional narrative. In the control condition, we used a story called *Long Live Marrakech!* (Meyer, 2005), which describes a dinner at a fancy restaurant, a topic unrelated to homicide or mental illness. The experimental story and the control story were comparable in writing style and length (experimental story: 76 lines, 855 words; control story: 76 lines, 801 words).

Dependent variable. As the dependent variable, we used a measure similar to the two-item psychiatric patient index developed by Green and Brock (2000). Our psychiatric patient

index consists of four items measuring the belief in the dangerousness of psychiatric patients (e.g., "Psychiatric patients who live in an institution should be allowed to go out in the community during the day") on seven-point scales (1 *do not agree*, 7 *completely agree*). The internal consistency (Cronbach's α) of this scale was .65 which is comparable to the internal consistency (Cronbach's α) of .69 reported by Green and Brock (2000). Higher scores indicated more negative beliefs about psychiatric patients.

Moderator Variables. As potential moderators of persuasive effects of the experimental story, we assessed individual differences in need for affect and the degree of transportation that participants experienced while reading the stimulus texts.

Need for affect was assessed with the Need for Affect Questionnaire (2001; German version: Appel, 2008b) which included approach- and avoidance-items. Only the approach subscale of this measure was included in our analysis because in previous research, this subscale was found to be related to emotional experiences during media reception (Appel, 2008b; Maio & Esses, 2001). The scale is based on 13 items (with 7-point response scales ranging from -3 to +3) that capture the individual disposition to approach emotions (e.g., "It is important to me to be in touch with my feelings," "I approach situations in which I expect to experience strong emotions"). In the present sample of participants, the internal consistency (Cronbach's α) was .84.

Transportation was assessed with a pre-tested German adaptation of the transportation scale developed by Green and Brock (2000). This scale is intended to measure the state of transportation experienced during reading a fictional narrative via retrospective self-reports. It is based on 14 items (with 7-point response scales, ranging from 1 to 7) that refer to affective and imaginative aspects of transportation (e.g., "The narrative affected me emotionally," "While I

was reading the narrative, I could easily picture the events in it taking place"). The internal

consistency (Cronbach's α) of the transportation scale was .82.

Procedure and design. Experimenters provided the participants with a booklet that

contained either the experimental story or the control story, the dependent measure, a filler

questionnaire, the transportation scale, the need for affect scale, two questionnaires on media

exposure that are unrelated to the present research, and socio-demographic questions. After

completing the questions in the booklet, participants were thanked and debriefed. The design was

a one factorial between-subjects design with random assignment of participants to either the

experimental story with belief-relevant information or the control story.

Results and Discussion

The relationships specified in the mediated moderation model in Figure 1 were tested by

two alternative procedures. The first one was based on an adaptation of the hierarchical

regression procedure proposed by Muller et al. (2005), which is widely accepted as the standard

method for analyzing mediated moderation models. As a particular benefit, the sequence of

nested regression models proposed by Muller et al. (2005) allows a detailed evaluation of the

moderation part of mediated moderation models because the versatile tools of moderated

regression analysis for interpreting interactions can be used (Aiken & West, 1991; Cohen, Cohen,

West, & Aiken 2003). The second procedure used for analyzing the data was based on structural

equation modeling (SEM). Compared to the hierarchical regression procedure, using SEM has

the advantages that mediation hypotheses can be tested simultaneously in one single structural

model and on the level of latent variables (e.g., Bollen, 1989).

All significance tests reported in this article were based on a Type-I error probability of

.05. Descriptive statistics and intercorrelations of all variables in Experiment 1 are given in Table

1 (upper part).

Nested Regression Models

In all regression models reported in this section, the continuous predictors were *z*-

standardized before computing the interaction terms and entering them into the regression

equations in order to avoid non-essential multicollinearity (e.g., Cohen et al., 2003). The story

manipulation was coded with contrast coding (experimental story with belief-relevant

information: 1, control story: -1). The hypothesis concerning the mediation of the moderator

effect of need for affect through the moderator effect of transportation was addressed by

estimating a series of nested regression models (Baron & Kenny, 1986). According to the logic of

this approach, a mediation hypothesis is corroborated only if the following conditions are met:

(1) There is an effect of the distal predictor (here, the interaction of need for affect and the story

manipulation) on the outcome variable, (2) there is an effect of the potential mediator (here, the

interaction of transportation and the story manipulation) on the outcome variable, (3) there is an

effect of the distal predictor on the potential mediator, and (4) the effect of the distal predictor on

the outcome variable disappears or is considerably weaker after including the mediator in the

model. One problem of the stepwise approach is that it is susceptible to artificial results in cases

where power is insufficiently low (McKinnon, Lockwood, Hoffman, West, & Sheets, 2002). For

this reason, we also estimated the hypothesized indirect effect and tested it via the Sobel test

(Sobel, 1982). The regression coefficients estimated in the series of nested regression models and

the corresponding significance tests are provided in the left columns of Table 2.

Overall persuasive effect of the fictional narrative. Hypothesis 1 predicted that

participants who read the experimental story about a murder by a psychiatric patient would

express stronger beliefs in the dangerousness of psychiatric patients than participants who read the control story about an unrelated topic. In line with this hypothesis, the psychiatric patient index was higher after reading the experimental story ($M = 5.03$, $SE_M = 0.12$) compared to reading the control story ($M = 4.31$, $SE_M = 0.10$; Table 2, left columns, Model 1). Thus, Experiment 1 replicated the persuasive effect of fictional narratives that has been found in previous studies (e.g., Green & Brock, 2000, Experiment 4).

Moderator effect of transportation. According to Hypothesis 2, the fictional narrative with belief-relevant information should cause stronger persuasive effects in participants who reported a higher degree of transportation into the fictional world of the narrative. In line with this prediction, there was an interaction effect of the story manipulation with transportation (Table 2, left columns, Model 2a). Following the recommendations by Cohen et al. (2003), we conducted simple slope analyses to interpret this interaction by estimating the effect of transportation separately in the group that read the experimental story and the group that read the control story (Figure 3a, cf. Cohen et al., 2003). As expected, transportation had a positive effect on beliefs about the dangerousness of psychiatric patients in participants who had read the experimental story ($B = 0.61$, $SE_B = 0.13$, $p < .001$, $\Delta R^2 = .10$). In contrast, there was no such effect in participants who had read the control story with no belief-relevant information ($B = -0.05$, $SE_B = 0.11$, $p = .66$, $\Delta R^2 = .00$). In addition to analyzing the simple slopes in the experimental group and the control group, we estimated the persuasive effect of the experimental story compared to the control story for participants who reported a high degree of transportation (one standard deviation above the sample mean) and participants who reported a low degree of transportation (one standard deviation below the sample mean). In these comparisons, a persuasive effect of the experimental story occurred only in participants who reported a high degree of transportation (B

= 0.59, SE_B = 0.12, $p < .001$, ΔR^2 = .13) but not in participants who reported a low degree of

transportation (B = -0.10, SE_B = 0.13, $p = .45$, ΔR^2 = .00). This pattern of effects suggests that in

line with the Transportation-Imagery Model (Green & Brock, 2002), the persuasive effect of the

experimental story depended on the degree of transportation that participants experienced during

reading.

Moderator effect of need for affect. Hypothesis 3 predicted a moderator effect of need for

affect that should run parallel to the moderator effect found for transportation. Congruent with

this hypothesis, there was an interaction effect of this predictor with the story manipulation

(Table 2, left columns, Model 2b). In our simple slope analyses, we first analyzed the effect of

need for affect separately for the group that read the experimental story and the group that read

the control story. As predicted, need for affect had a positive effect on beliefs about the

dangerousness of psychiatric patients only in participants who had read the experimental story (B

= 0.23, SE_B = 0.11, $p < .05$, ΔR^2 = .02) whereas there was no significant effect in participants who

had read the control story (B = -0.19, SE_B = 0.11, $p = .08$, ΔR^2 = .01, Figure 3b). Again, we

estimated the magnitude of the persuasive effect at a low and a high level of need for affect (one

standard deviation above or below the mean). In these comparisons, a persuasive effect was

obtained at a high level of need for affect (B = 0.60, SE_B = 0.12, $p < .001$, ΔR^2 = .13) but not in

participants who reported a low degree of need for affect (B = 0.16, SE_B = 0.12, $p = .17$, ΔR^2 =

.01). Thus, the higher an individual's need for affect, the larger was the persuasive impact of the

experimental story on participants' beliefs concerning the dangerousness of psychiatric patients.

Mediated moderation. The core assumption of the mediated moderation model examined

in Experiment 1 (Figure 1c) was that the moderator effect of need for affect would be mediated

by the moderator effect of transportation. As one precondition of mediation, we tested whether

need for affect promoted the degree of transportation that participants experienced during reading the experimental story or the control story (Hypothesis 4). In line with this hypothesis, need for affect had a positive effect on transportation ($B = 0.23$, $SE_B = 0.07$, $p < .01$, $\Delta R^2 = .05$). The mediation hypothesis proper (Hypothesis 5) was tested by a regression model that included both the moderator effects of transportation and need for affect (Table 2, left columns, Model 3). According to Baron and Kenny (1986), the mediated effect should be considerably reduced and no longer be significant when the mediator is entered into the model. The parameter estimates of the mediated moderation model conformed to this requirement: Compared to the original model, the moderator effect of need for affect was much lower and no longer significant ($B = 0.14$, $SE_B = 0.09$, $p = .10$, $\Delta R^2 = .01$) after entering the moderator effect of transportation into the model. In contrast, the moderator effect of transportation remained significant ($B = 0.31$, $SE_B = 0.09$, $p < .001$, $\Delta R^2 = .05$). In addition to the stepwise procedure, we estimated and tested the indirect effect of the moderator effect of need for affect via the moderator effect of transportation on the dependent variable. The indirect effect was estimated as 0.07 and was significant in a Sobel test ($z = 2.47$, $p < .05$). Thus, both common procedures for detecting mediation consistently indicate that the moderator effect of need for affect was mediated by the moderator effect of transportation, as hypothesized in the mediated moderation model depicted in Figure 1c.

Structural Equation Model

SEM provides an alternative means to test the assumptions of the hypothesized mediated moderation model. In the framework of SEM, the mediation part of our theoretical model corresponds to a structural model that contains one path from need for affect to transportation and a second path from transportation to beliefs about the dangerousness of psychiatric patients. The moderation part can be implemented by using multi-sample analysis (Bollen, 1993), with two

samples based on the experimental group and the control group respectively. For the moderation

part, our theoretical model implies that the first path from need for affect to transportation should

be invariant across the two groups (the equivalent of no interaction) whereas the second path

from transportation to beliefs should vary (the equivalent of an interaction of transportation and

the story manipulation). In particular, a positive effect of transportation (and, hence, a positive

indirect effect of need for affect) on beliefs was expected for the group that received the

experimental story with belief-relevant information whereas no effect (and, hence, no indirect

effect of need for affect) on beliefs was expected for the group that received the control text.

We tested these predictions with a multi-sample model in which need for affect,

transportation, and beliefs about the dangerousness of psychiatric patients were conceptualized as

latent variables. Each of these latent variables was measured by two item parcels, each of which

contained half of the items of the original scale (items were randomly assigned to the item

parcels). The factor loadings of the item parcels associated with one latent variable were

constrained to be equal. The structural model contained one path from need for affect to

transportation and a second path from transportation to beliefs about the dangerousness of

psychiatric patients but no direct effect from need for affect to beliefs. Thus, full mediation was

assumed for the mediation part of the model. In order to test the moderation part, we performed a

multi-sample analysis with the group that received the experimental story and the group that

received the control story constituting one sample each. Two different multi-sample models, one

nested within the other one, were estimated and tested against each other. In the hypothesized

model, the parameters in the measurement models (factor loadings and error variances) and the

coefficient of the path from need for affect to transportation were constrained to be invariant but

the path from transportation to beliefs was allowed to vary between the two groups. In the

alternative model, the path from transportation to beliefs was constrained to be invariant across

the two groups as well, excluding a moderating role of the text that participants received.

Parameters were estimated with the Maximum Likelihood procedure implemented in Lisrel 8

(Jöreskog & Sörbom, 1996).

The parameter estimates of the hypothesized model are provided in Figure 3a. As

expected and in line with the results of the hierarchical regression models, need for affect had a

positive effect on transportation. Transportation, in turn, had a positive effect on beliefs about the

dangerousness of psychiatric patients only in participants who had received the experimental

story with belief relevant information. It did not have a significant effect on beliefs in participants

who received the control story with no belief-relevant information. Accordingly, the indirect

effect of need for affect on beliefs mediated by transportation was positive and significant only in

the experimental group (Sobel-test: $z = 3.02$, $p < .01$) whereas it did not reach significance in the

control group ($z = 0.47$, $p = .64$). Overall, the hypothesized model had an acceptable model fit, χ^2

$(28, N = 181) = 33.75$, $p = 0.21$, RMSEA = 0.05, Standardized RMR = 0.08, NNFI = 0.98, CFI =

0.98. Compared to the hypothesized model, the fit of the alternative model was considerably

worse, $\chi^2 (29, N = 181) = 49.3$, $p < 0.05$, RMSEA = 0.09, Standardized RMR = 0.13, NNFI =

0.94, CFI = 0.95. A chi-square difference test revealed that the difference in model fit was

significant, $\Delta\chi^2 (1, N = 181) = 15.5$, $p < .001$. Thus, both the mediation part and the moderation

part of the theoretical model were essential for the model to adequately represent the data.

In sum, the SEM analysis fully corroborates the conclusions that can be drawn from the

results of the hierarchical sequence of regression models. The results of both approaches

substantiate our assumptions concerning the roles of transportation and need for affect in

narrative persuasion. However, the mediated moderation model summarized in Figure 1 entails

the more precise assumption that it is the emotional content of a narrative that drives the

hypothesized effects. We conducted a second experiment that addressed this question and, at the same time, allowed a constructive replication of the effects found in Experiment 1.

Experiment 2

The primary goal of Experiment 2 was to examine the interplay of emotional content and need for affect in narrative persuasion in more detail. The topic of the stories used as text materials was organ donation. In many societies, organ donation is a highly important topic because despite public campaigns to raise awareness of the problem, the number of organ donors falls well short of the need of organs (e.g., National Kidney Foundation, 2008). Organ donation is also a topic that is apt to cause emotional responses when it is communicated via narratives (Kopfman, Smith, Ah Yun, & Hodges, 1998). In contrast to the previous experiment, Experiment 2 employed two stories that differed in their emotional appeal but provided the same factual information and message. In one version of the story the protagonist was killed in an accident (high emotional content) whereas in a second version the protagonist only thought about the possibility of being killed in an accident (low emotional content).

Narrative descriptions of significant life events have the potential to elicit emotional responses. According to the theoretical view advocated here, these emotional responses occur to the extent that recipients are transported into the world of the narrative (Green & Brock, 2002). Thus, we expected the persuasive effects of the narrative with high emotional content to increase with the degree of transportation that participants experienced reading the narrative. For the narrative with low emotional content, in contrast, no such effect of transportation was expected. A parallel interaction effect was predicted for need for affect as participants high on need for affect should be more likely to experience emotions in response to descriptions of significant life events. As in Experiment 1, we expected the moderation effect of need for affect to be mediated

by the moderation effect of transportation as outlined in the mediated moderation model in Figure 1c.

Method

Participants. A self-selected sample from a larger pool of volunteers participated in the study which was conducted online. The data revealed that five participants did not respond thoroughly; the time to complete the study indicated that they were merely clicking through the web-based material. Both experimental conditions had an equal number of drop-outs with 7 and 6 respondents for each of two experimental narratives respectively (see *Procedure and Design*). Clickers and drop-out responders were not included in our analyses. The remaining sample consisted of 133 adults (93 women) with an average age of 30.5 years (*SD* = 12.2). About one third of the participants reported 10 years or less of school education, a second third had 12 years of school education, and the remaining participants had obtained a bachelor's or master's degree.

Text material. The experimental text material was inspired by a story used in a previous study on the processing of narrative information (Kopfman et al., 1998). Two stories were constructed that highlighted the medical treatment opportunities and the necessity of becoming an organ donor but differed in the amount of emotional content. Both stories described two young girls who were active members in organizations that promote organ donation. Factual information about organ donation (e.g., improved treatment with the help of donated organs, lack of donors) was worked into the narrative description of the two girls. In the story version with low emotion content, the beginning sequence introduced a student called René, who, on his way to class, was reminded of the dangers of car traffic. He subsequently decided to become an organ donor. In the story version with high emotion content, René, on his way to class, was hit by a car and died. Before the accident, he had decided to become an organ donor. Both stories were of the same length (38 lines, 421 words).

Dependent variable. We used a 13-item self-report measure based on a previous instrument by Parisi and Katz (1986) to assess participant's beliefs about the benefits of organ donation (e.g., "By agreeing to donate organs at death, one sets a good example for others to follow"). The items were rated on a seven-point scale (1 = *do not agree*, 7 = *completely agree*). Exploratory factor analyses yielded a one-factor solution. The internal consistency (Cronbach's α) of this scale was .86.

Moderator Variables. As in Experiment 1, individual differences in need for affect were assessed with the Need for Affect Questionnaire (Maio & Esses, 2001; for the German adaptation, Appel, 2008b). The approach subscale was included in our analyses; in the present sample, the internal consistency (Cronbach's α) of this scale was .87. Transportation was assessed with the German adaptation of the transportation scale (Green & Brock, 2000). The scale included eleven text-invariant items and three items that were adjusted to the names of the protagonists of the organ donation story. Cronbach's α of this scale was .86.

Procedure and design. Participants were invited to take part in the study through e-mail. All materials were presented on-line and were accessed by the participants via the web browser of their home computers. The software used for presenting the experiment and collecting data, *EFS-survey*, monitored potential repeat responders through IP protocols (cf., Gosling, Vazire, Srivastava, & John, 2004) and collected the time spent with different parts of the study.

The material presented contained the low emotion story or the high emotion story, the dependent measure, the transportation scale, the need for affect scale, and socio-demographic questions. In addition, it was randomly determined whether these scales were presented after the transportation items or before the experimental story. After completing the study, participants

were thanked and debriefed. The design was a one-factorial between-subjects design with random assignment of participants to either the story with low or with high emotional content.

Validation of the emotion content manipulation. We validated the experimental manipulation of emotional content in a separate online study with 106 participants (this sample was completely independent from the sample that participated in Experiment 2). These participants read either the high emotion story or the low emotion story. Subsequently, they rated the emotionality of the text from the viewpoint of a neutral observer on a six-item scale (e.g., "Plot and narrative style of this text are rather neutral, making it unlikely that the text is capable of evoking emotions in the reader," reverse-scored item; Cronbach's α = .90). In addition, six items measured the intensity of participant's own emotions while reading the text (e.g., "The text touched me emotionally;" Cronbach's α = .83). The items of both scales were rated on seven-point scales (1 = *do not agree*, 7 = *completely agree*). Finally, we measured need for affect with the approach subscale of the need for affect instrument (Appel, 2008b; Maio & Esses, 2001). As intended, the high emotion story was rated as more emotional from the viewpoint of a neutral observer (M = 4.23, SE_M = 0.16) compared to the low emotion story (M = 3.51, SE_M = 0.19), $t(105)$ = 2.9, $p < .01$, d = 0.58. There was an overall tendency of participants to report more intense emotions after reading the high emotion story (M = 4.10, SE_M = 0.17) compared to the low emotion story (M = 3.88, SE_M = 0.19), but this difference was not significant, $t(105)$ = 0.9, p = .40. However, a moderated regression analysis with need for affect as moderator revealed a significant interaction of emotional content with need for affect, $F(1,103)$ = 4.8, $p < .05$, η^2 = .05. In subsequent simple slopes analyses, need for affect had a positive effect on the intensity of emotional experience only after reading the high emotional text (B = 0.63, SE_B = 0.15, $p < .001$, ΔR^2 = .14) whereas the simple slope of need for affect was not significant after reading the low

emotional text ($B = 0.05$, $SE_B = 0.22$, $p = .82$). In participants high in need for affect (one

standard deviation above the mean), the high emotion story caused more intense emotions

compared to the low emotion story ($B = 0.43$, $SE_B = 0.17$, $p < .05$, $\Delta R^2 = .05$) whereas no

difference was found for participants low in need for affect (one standard deviation below the

mean, $B = -0.16$, $SE_B = 0.20$, $p = .43$). In sum, the high emotion story was judged as more

emotional than the low emotion story by the participants of the validation study. In addition, it

also caused more intense emotional responses in those participants high on need for affect. These

results corroborate the validity of the emotional content manipulation.

Results and Discussion

In order to test the relationships between emotional content, need for affect, and

transportation specified in the mediated moderation model in Figure 1, we used the same two

procedures as in Experiment 1, a sequence of hierarchical regression analyses and an analysis

based on SEM.

Nested Regression Models

All continuous predictors were *z*-standardized and the story manipulation was coded with

contrast coding (high emotion content: 1, low emotion content: -1). In contrast to the story

manipulation in Experiment 1, we did not expect a main effect of emotional content. However,

we predicted an interaction effect of emotional content and transportation on story-consistent

beliefs and a parallel interaction effect for need for affect. The interaction of need for affect and

emotional content was expected to be mediated by the interaction of transportation and emotional

content. Descriptive statistics and intercorrelations of all variables in Experiment 2 are given in

Table 1 (lower part). Regression coefficients and the corresponding significance tests are

provided in Table 2 (right columns).

Overall effect of emotional content. Overall, the story versions with low and high emotional content yielded similar attitudes towards organ donation (low emotion: $M = 3.79$, $SE_M = 0.07$; high emotion: $M = 3.72$, $SE_M = 0.09$; Table 2, right columns, Model 1) that did not differ significantly from each other.

Moderator effect of transportation. Hypothesis 6 predicted that the emotional content of a narrative should cause stronger persuasive effects in participants who reported a high degree of transportation. As expected, an interaction effect of the story manipulation with transportation emerged; Table 2, right columns, Model 2a). We estimated the simple slopes of transportation in each of the two groups to interpret the interaction (Figure 4a, cf. Cohen et al., 2003). Transportation had a positive effect on beliefs about the benefits of organ donation in participants who had read the story with the critical life event (high emotion, $B = 0.32$, $SE_B = 0.07$, $p < .001$, $\Delta R^2 = .14$). No such effect was found in participants who had read the story with low emotional content ($B = 0.01$, $SE_B = 0.08$, $p = .86$, $\Delta R^2 = .00$). Furthermore, we analyzed the persuasive effect of the experimental story compared to the control story for participants who reported a high degree of transportation and participants who reported a low degree of transportation (i.e., one standard deviation below and above the sample mean). For participants who reported a low degree of transportation, the story version with high emotional content was less persuasive than the story version with low emotional content ($B = -0.19$, $SE_B = 0.07$, $p < .01$, $\Delta R^2 = .05$); a contrary tendency was found for those who reported a high degree of transportation ($B = 0.12$, $SE_B = 0.08$, $p = .14$, $\Delta R^2 = .01$). These results are in line with our prediction that the persuasive effect of emotional content increases with participants' transportation into the story world.

Moderator effect of need for affect. Hypothesis 7 predicted a moderator effect for need for affect that should run parallel to the moderator effect we found for transportation. As expected,

we found an interaction effect of this predictor with the story manipulation (Table 2, right columns, Model 2b). Subsequent simple slope analyses showed a positive effect of need for affect on beliefs about the benefits of organ donation in participants who had read the story version with high emotional content ($B = 0.29$, $SE_B = 0.08$, $p < .001$, $\Delta R^2 = .09$; Figure 4b), but no significant effect in participants who had read the story version with low emotional content ($B = 0.02$, $SE_B = 0.07$, $p = .80$, $\Delta R^2 = .00$). In addition, we looked at the persuasive effect at a low and a high level of need for affect (one standard deviation above or below the mean). For participants low in need for affect, high emotional content had a negative effect on beliefs about the benefits of organ donation, $B = -0.19$, $SE_B = 0.08$, $p < .05$, $\Delta R^2 = .04$. For participants high on need for affect, there was no significant difference between the story versions with and without emotional content ($B = 0.08$, $SE_B = 0.07$, $p = .27$, $\Delta R^2 = .01$). Thus, the pattern of the interaction parallels the one that was found for transportation and emotional content.

Mediated moderation. According to our mediated moderation model, the moderator effect of need for affect was expected to be mediated by the moderator effect of transportation. In a first step, we tested whether need for affect had a positive effect on the level of transportation that participants experienced during reading (Hypothesis 8). The predicted effect was indeed found ($B = 0.24$, $SE_B = 0.08$, $p < .01$, $\Delta R^2 = .06$). The mediation effect proper (Hypothesis 9) was tested by a regression model that included both moderator effects (Table 2, right columns, Model 3). As expected, after entering the moderator effect of transportation into the model, the moderator effect of need for affect decreased and was no longer significant ($B = 0.12$, $SE_B = 0.06$, $p = .06$, $\Delta R^2 = .02$). However, the moderator effect of transportation remained stable ($B = 0.15$, $SE_B = 0.06$, $p < .05$, $\Delta R^2 = .04$). Thus, all the requirements for mediation outlined by Baron and Kenny (1986) were met. Furthermore, we estimated and tested the indirect effect of the moderator effect

of need for affect via the moderator effect of transportation on the dependent variable. The indirect effect was estimated as 0.04 and turned out to be significant in a Sobel test ($z = 2.02$, $p <$ .05). Taken together, both common procedures for detecting mediation effects yielded support for the mediated moderation model depicted in Figure 1c.[2]

Structural Equation Model

The SEM analysis of the data from Experiment 2 mirrored that of the data from the previous experiment. Accordingly, the mediation part of our theoretical model was represented by a structural model with one path from need for affect to transportation and a second path from transportation to beliefs about the benefits of organ donation. The moderation part was implemented by a multi-sample analysis (Bollen, 1993) with the two experimental groups constituting the samples. Again, our theoretical model implies that the first path from need for affect to transportation should be invariant across the two groups whereas the second path from transportation to beliefs should be positive in the group that received the story version with high emotional content whereas no effect was assumed for the group that received the story version with low emotional content. Need for affect, transportation, and beliefs about organ donation were included as latent variables, each of which was measured by two item parcels with factor loadings constrained to be equal. As for the data of Experiment 1, we estimated a hypothesized model that incorporated our theoretical assumptions and compared its fit to a more parsimonious alternative model in which the path from transportation to beliefs was constrained to be invariant across the two experimental groups.

The parameter estimates of the hypothesized model are provided in Figure 3b. In line with our theoretical expectations, need for affect had a positive effect on transportation. Transportation, in turn, had a positive effect on beliefs about the benefits of organ donation only in participants who had received the story version with high emotional content. It did not have a

significant effect on beliefs in participants who received the story version with low emotional

content. Consequently, the indirect effect of need for affect on beliefs mediated by transportation

was positive and significant only in the group that received the story version with high emotional

content (Sobel-test: $z = 2.52$, $p < .05$). However, it was not significant in the group that received

the story version with low emotional content ($z = 0.15$, $p = .88$). The model fit of the

hypothesized model was acceptable, χ^2 (28, $N = 133$) $= 35.97$, $p = 0.14$, RMSEA $= 0.07$,

Standardized RMR $= 0.05$, NNFI $= 0.97$, CFI $= 0.97$. The fit of the alternative model was worse

than that of the hypothesized model, χ^2 (29, $N = 133$) $= 43.66$, $p < 0.05$, RMSEA $= 0.09$,

Standardized RMR $= 0.11$, NNFI $= 0.95$, CFI $= 0.95$. The difference in model fit was significant,

$\Delta\chi^2$ (1, $N = 133$) $= 7.69$, $p < .01$. Thus, as in Experiment 1, the SEM analysis and the analysis

based on the hierarchical sequence of regression models consistently corroborated both the

mediation and the moderation part of our theoretical model.

<center>General Discussion</center>

The aim of the present research was to test a mediated moderation model of narrative

persuasion that includes the recipients' need for affect (Maio & Esses, 2001) as distal predictor

and their experience of being transported into the world of the narrative (Gerrig, 1993; Green &

Brock, 2000) as proximal predictor. In Experiment 1, need for affect as well as the self-reported

degree of transportation during reading moderated the persuasive impact that a story with belief-

relevant information had compared to a story without that information. Furthermore, need for

affect had a positive effect on the amount of transportation that participants experience while

reading the narrative. In a subsequent mediation analysis, we found the moderator effect of need

for affect to be mediated by the moderator effect of transportation (mediated moderation, cf.,

Muller et al., 2005). Experiment 2 refined and expanded these results by contrasting a narrative

with high emotional content with a narrative with low emotional content but identical belief-relevant information. Again, we found parallel moderator effects of need for affect and transportation. Both need for affect and transportation were associated with persuasive effects when participants read the narrative with high emotional content. However, these effects were not present when participants read the narrative with low emotional content. Conversely, the narrative with high emotional content yielded stronger persuasive effects than the narrative with low emotional content only for those participants high on need for affect and transportation. As in Experiment 1, the moderator effect of need for affect was mediated by the moderator effect of transportation, supporting the hypothesized mediated moderation model of narrative persuasion.

Theoretically, these results establish need for affect (Maio & Esses, 2001) as a personal disposition that influences narrative persuasion in a consistent and significant way: The more people are inclined to approach emotional situations, the more their beliefs are shifted towards information that is woven into the plot of the narrative. The results also reveal that the experiential state of transportation as described by Gerrig (1993) and Green and Brock (2000) is the mediator by which need for affect exerts its role as a moderator of narrative persuasion. Apparently, recipients who are disposed to approach emotional situations are also those who more readily indulge in the experience of being transported into the fictional world of the narrative. One important component of transportation consists of emotional responses to the events described in the narrative. On the one hand, it is likely that need for affect facilitates these emotional responses. On the other hand, there are additional ways by which emotional responses can influence beliefs, for example, by serving as evaluative cues, by causing mood-induced changes in the way people process the information presented in a narrative, or by creating physical arousal that makes the described information more memorable (cf., Clore & Schnall,

2005). Future research may directly test these paths which depend on the interplay between emotional gratifications provided by a narrative and individual differences in the need for affect.

We do not assume that the impact of need for affect on experiential states is limited to transportation and its operationalization. Transportation has a substantial overlap with narrative engagement and flow, so we expect similar relationships of these concepts with the need for affect. Moreover, the affective component of transportation is closely linked to affective responses such as identification, suspense, or enjoyment. Thus, future research may successfully connect the need for affect with these more specific experiential states and associated theories.

A related question raised by the present experiments concerns the relationship of emotional, attentional, and cognitive components of transportation. Our results on the relationship of need for affect and transportation seem to highlight emotional components as a driving force of narrative persuasion. However, this does not imply that the attentional and cognitive components described by Gerrig (1993) and Green and Brock (2000) are irrelevant for narrative persuasion, or that transportation should be conceptualized as a purely affective concept. The major theoretical accounts (Gerrig, 1993; Green & Brock, 2002) describe transportation as a holistic experiential state in which emotional, attentional, and cognitive components are closely interwoven with each other (recent empirical work by Busselle & Bilandzic, 2009, supports this view). Provided that this description is adequate, need for affect might not only facilitate emotional responses but also more cognitive mechanisms of narrative persuasion such as reduced cognitive activity and vivid mental simulation. At any rate, more research is needed on the dimensionality of transportation and on the exact nature of the emotional and cognitive processes associated with it.

Our results complement recent findings on the impact of the need for affect on the persuasion through affect-based messages (Haddock, Maio, Arnold, & Huskinson, 2008). These authors found that the need for affect moderated the impact of an affect-based message about a

fictitious animal on participants' attitudes (e.g., good-bad) and the recognition of message information. Given that the affect-based message was a narrative, these effects may have been mediated through the link from need for affect to transportation highlighted by our experiments.

Are Emotional Stories Always Persuasive?

Considering that emotion seems to be a key to narrative persuasion, one might suspect that emotional stories per se are more persuasive than unemotional stories. Our model and results indicate that such a broad conclusion would be premature. Descriptions of significant life events or other emotionally appealing content do not always contribute to the persuasive impact of a story. Rather, our mediated moderation model highlights the interplay of emotional content and need for affect in narrative persuasion. According to our model, emotional content is supposed to foster persuasion only if recipients are transported into the story world, which, in turn, is more likely when the need for affect is high. The comparisons between the story versions with high and low emotional content in Experiment 2 at different levels of need for affect indicated that emotional content may lead to *less* story-consistent beliefs in those recipients who are not at all inclined to experiencing emotions. In that sense, the role of emotional content in narrative persuasion may differ from that of high-quality arguments in persuasion through non-narrative texts. Unlike compelling arguments that never impede belief change, emotional content to a story may have adverse effects for people who are not inclined to have intense emotional experiences. At this point, the mechanisms underlying these effects are unclear. It might be, for example, that readers experiencing less transportation not only show less intense emotional responses to the narrative but also have more cognitive resources available to engage in active counterarguing. Thus, future research should include direct measures of cognitive and emotional responses to sort out these possibilities.

Our results on the moderating role of need for affect on narrative persuasion have important implications for narrative persuasion in applied settings. Narratives are increasingly used in campaigns to promote public health and social cooperation (Paluck, 2009; Singhal, Cody, Rogers, & Sabido, 2004) and are part of product advertisements such as drama ads, or transformational ads (Deighton, Romer, & McQueen, 1989). At the same time, it is becoming more and more popular to tailor persuasive communication to individual characteristics of the consumer, something that can be easily done with computer-based messages (e.g., Dijkstra, 2008). Our research emphasizes the importance to consider that an individual's need for affect is critical for the success of narrative emotional messages. Given that background characteristics of individuals (such as previous media choice) can be used to predict their need for affect (Maio & Esses, 2001), our research points out a feasible strategy to increase communication effects and marketing revenues.

Pathos in Narrative Persuasion

Our model of the relationships between need for affect, transportation, and narrative persuasion rests on the argument that emotional responses crucially determine the effect of stories on beliefs. The roots of this argument date back to Aristotle who distinguished three modes of rhetorical proof in his *Rhetoric* (Aristotle, 367-322 B.C.E. / 2001; see also McGuire, 1969). In addition to logical proof (*logos*) which is based on the arguments provided for or against a position, and ethical proof (*ethos*), which lies in the speaker's character and credibility, Aristotle identified a third way to persuade the audience: Emotional proof or *pathos*. Successful persuasion by means of pathos includes the experience of emotions (Aristotle, 367-322 B.C.E. / 2001, Book 1, Ch. 2, §1356a). Recipients' emotions such as anger or pity are thought to influence judgments about issues, people, or social groups. Narratives are a prototypical way to persuade through pathos (e.g., Braet, 1992), an assertion that is in line with the results presented here. Of course, a

more stringent test would require direct and concurrent measures of emotional responses such as think-aloud data or facial expressions of emotions.

Generally speaking, the role of affect that is caused by external factors (e.g., good mood due to sunny weather) is well-documented in the persuasion literature (e.g., Bless, Bohner, Schwarz, & Strack, 1990). The literature on affective messages and related processing, however, is still sparse, with the research on fear-appeals being one exception (see Clore & Schnall, 2005, and Petty, Fabrigar, & Wegener, 2003, for reviews). Our results suggest that persuasive attempts through pathos may have a more pervasive impact than previously conceded. Edwards (1990), for example, has argued that inducing affect is an effective means to change affect-based attitudes but not cognition-based attitudes which require the presentation of arguments. However, from the perspective of recent dual-process theories of social information processing (e.g., Gawronski & Bodenhausen, 2007; Strack & Deutsch, 2004), it seems plausible to assume that emotional narratives can change cognition-based attitudes and beliefs as well. For example, according to Gawronski and Bodenhausen, affective reactions may be used as the basis for propositional evaluative judgments if the affective reaction is consistent with currently active propositional information.

The present research highlights two potential moderators of these effects, need for affect as the major personal disposition and emotional content as the major narrative characteristic. In further research, it would be worthwhile to examine whether and how the persuasive effects of narratives depend on the quality of emotional responses during narrative comprehension. Both of our experimental texts involved a tragic, lethal incident (murder, accident). More research is needed on different kinds of stories and different kinds of emotional responses (i.e., anger, fear, surprise, but also enjoyment) because these might have distinct effects on propositional beliefs

(Dillard & Nabi, 2006; Nabi, 1999). Alternatively, narrative persuasion might be based on

broader affective states such as moods or on the arousal that accompanies emotional responses.

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Footnotes

[1] We are grateful to Marcello Gallucci (2005) for pointing out this type of mediated moderation model to us.

[2] Although not based on our theory, at least two alternative mediated moderation (or moderated mediation) models are conceivable and statistically testable. The first of these alternative models assumes an interaction between text and need for affect to predict transportation. The second one assumes an interaction between need for affect and transportation to predict beliefs.

According to the first alternative model, the text factor would moderate the impact of need for affect on transportation as the criterion variable. To test for this interaction, transportation was regressed on text (effect-coded), need for affect (z-standardized), and the product of both variables. Need for affect predicted transportation ($B = 0.23$, $SE_B = 0.08$, $p < .01$, $\Delta R^2 = .06$) irrespective of the text presented, as indicated by a non-significant interaction term ($B = 0.02$, $SE_B = 0.09$, $p = .82$, $\Delta R^2 = .00$). According to the second alternative model, need for affect would moderate the impact of transportation on beliefs as the criterion variable. To test for this interaction, the belief score was regressed on transportation (z-standardized) and need for affect (z-standardized), and the interaction term of both variables. The interaction between both variables did not have a significant effect on beliefs ($B = -0.06$, $SE_B = 0.06$, $p = .17$, $\Delta R^2 = .01$). Thus, neither the first nor the second alternative model was supported by our data.

Table 1:

Means, Standard Deviations and Intercorrelations of All Variables in Experiments 1 and 2

	M	SD	1	2	3	4	5
Experiment 1							
1 Story (control vs. experimental)[a]	-0.07	1.00					
2 Need for Affect	0.76	0.85	-.03				
3 Transportation	3.83	0.95	.41***	.23*			
4 Story X Need for Affect[b]	-0.02	1.00	-.00	-.05	.02		
5 Story X Transportation[b]	0.41	0.91	.03	.02	-.20	.26**	
6 Belief Index (Dependent Variable)	4.65	1.12	.32***	.00	.29***	.19**	.23**
Experiment 2							
1 Story (emotional content low vs. high)[a]	-0.14	0.99					
2 Need for Affect	0.85	0.91	.07				
3 Transportation	3.51	0.95	.10	.25**			
4 Story X Need for Affect[b]	0.06	1.02	.06	-.13	-.01		
5 Story X Transportation[b]	0.12	0.99	-.09	-.02	.10	.24**	
6 Belief Index (Dependent Variable)	3.76	0.64	-.06	.21*	.28**	.18*	.27**

Note. Experiment 1: $N = 181$, Experiment 2: $N = 133$

[a] Contrast coding (-1 vs. 1), [b] Need for Affect and Transportation were *z*-standardized for computing the interaction terms.

*** $p < .001$, ** $p < .01$, * $p < .05$ (one-tailed).

Table 2:

Summary of Hierarchical Regression Analyses (main effect and interaction terms) including

Transportation (Model 2a), Need for Affect (Model 2b), and both Need for Affect and Transportation

(Model 3) as Moderators of Narrative Persuasion

	Experiment 1			*Experiment 2*		
	B	SE_B	ΔR^2	B	SE_B	ΔR^2
Model 1						
Intercept (B_0)	4.67	0.08		3.75	0.06	
Story (control vs. experimental / low vs. high emotional content)[a]	0.36***	0.08	.10	-0.04	0.06	.00
Model 2a						
Intercept (B_0)	4.53	0.08		3.75	0.05	
Story (control vs. experimental / low vs. high emotional content)[a]	0.23**	0.08	.04	-0.04	0.05	.00
Transportation[b]	0.28**	0.09	.05	0.17**	0.05	.07
Story X Transportation	0.35***	0.09	.07	0.15**	0.05	.06
Model 2b						
Intercept (B_0)	4.68	0.08		3.74	0.05	
Story[a]	0.36***	0.08	.10	-0.06	0.05	.01
Need for Affect[b]	0.02	0.08	.00	0.15**	0.05	.06
Story X Need for Affect	0.21**	0.08	.04	0.14*	0.05	.05
Model 3						
Intercept (B_0)	4.53	0.08		3.74 (0.05)		
Story [a]	0.24**	0.09	.03	-0.05	0.05	.00

Need for Affect[b]	-0.14	0.08	.00	0.12*	0.05	.03
Transportation[b]	0.27***	0.09	.04	0.14*	0.05	.05
Story X Need for Affect	0.14	0.08	.01	0.10	0.05	.02
Story X Transportation	0.31***	0.09	.05	0.13*	0.05	.04

Note. Model fit, Experiment 1: Model 1: $R^2 = .10$, $F(1,179) = 20.6$, $p < .001$; Model 2a: $R^2 = .20$, $F(3,177) = 14.7$, $p < .001$; Model 2b: $R^2 = .14$, $F(3,177) = 9.4$, $p < .001$; Model 3: $R^2 = .22$, $F(5,175) = 9.6$, $p < .001$.

Model fit, Experiment 2: Model 1: $R^2 = .00$, $F(1,131) = 0.4$, $p = .52$; Model 2a: $R^2 = .14$, $F(3,129) = 7.1$, $p < .001$; Model 2b: $R^2 = .10$, $F(3,129) = 4.5$, $p < .01$; Model 3: $R^2 = .19$, $F(5,127) = 6.0$, $p < .001$

[a] Contrast-coded (Experiment 1: control story without emotional details = -1, experimental story with emotional details = 1; Experiment 2: story with low emotional content = -1; story with high emotional content = 1). [b] z-standardized.

*** $p < .001$, ** $p < .01$, * $p < .05$ (one-tailed).

Figure captions

Figure 1. Moderator model for the distal predictor (need for affect) (a), moderator model for the proximal predictor (transportation) (b), and mediated moderation model (c).

Figure 2. Estimates of the simple slopes (with standard errors) of the effect of transportation (a) and need for affect (b) in the groups who read the experimental story or the control story in Experiment 1 (*** $p < .001$; * $p < .05$).

Figure 3. Structural equation model (hypothesized model, multi-sample-analysis, completely standardized solution) for the data from Experiment 1 (Figure 3a) and Experiment 2 (Figure 3b). The path from transportation to beliefs was allowed to vary between the experimental group and the control group (Experiment 1) and the group who received the story with high emotional content and the group who received the story with low emotional content (Experiment 2). Factor loadings and the path from need for affect to transportation was constrained to be equal across groups.

Figure 4. Estimates of the simple slopes (with standard errors) of the effect of transportation (a) and need for affect (b) in the groups who read the story with high emotional content or the story with low emotional content in Experiment 2 (*** $p < .001$).
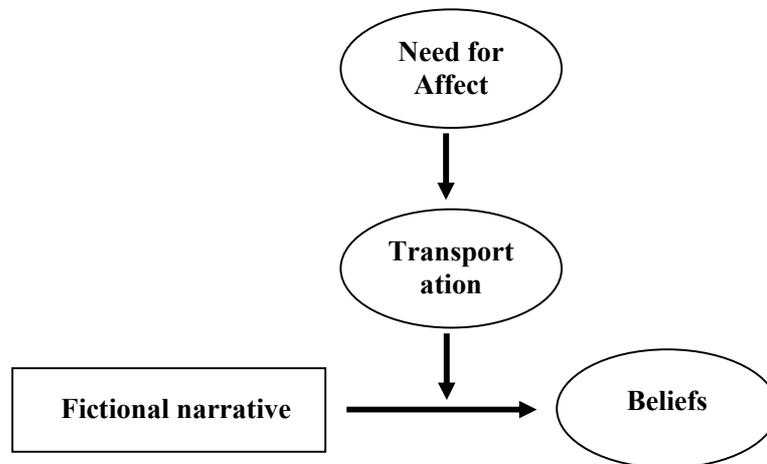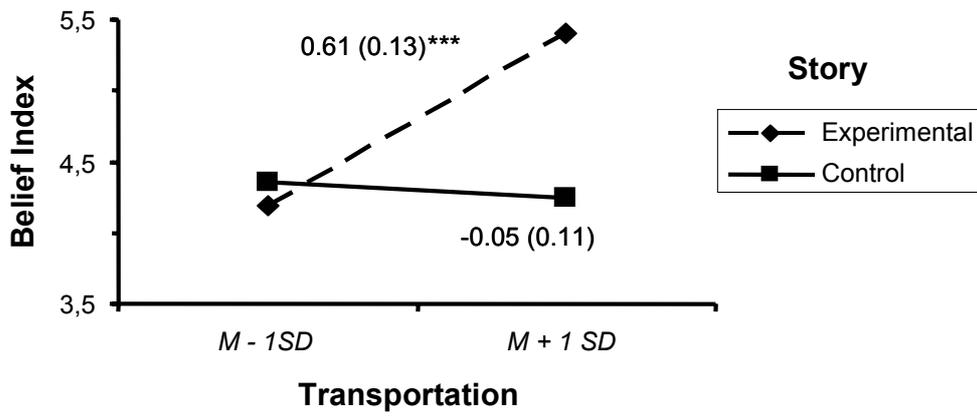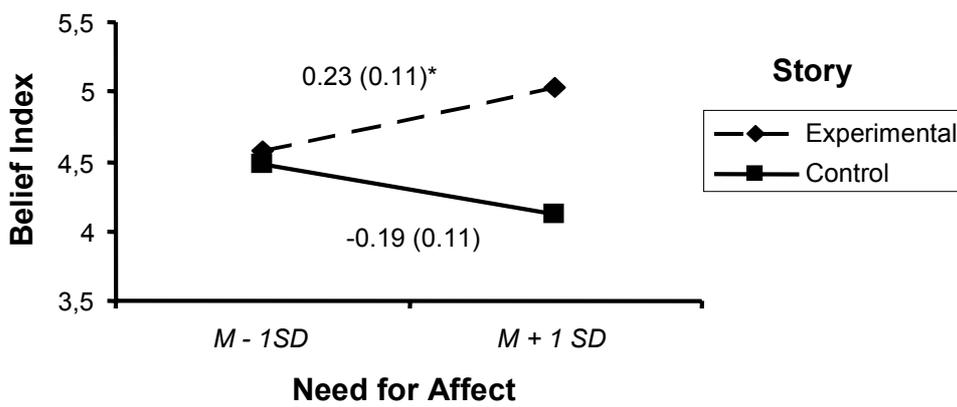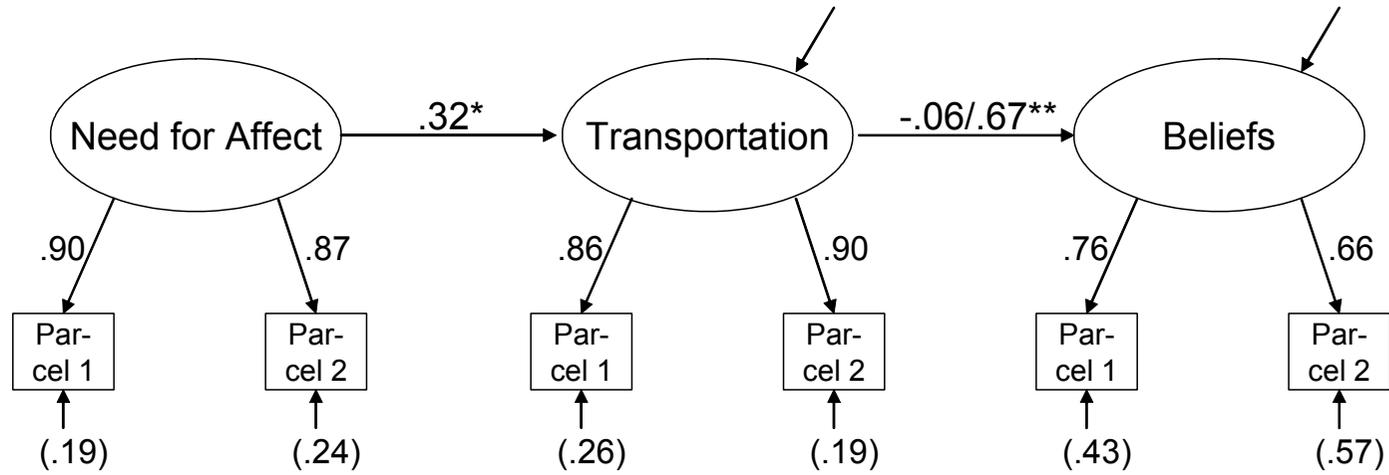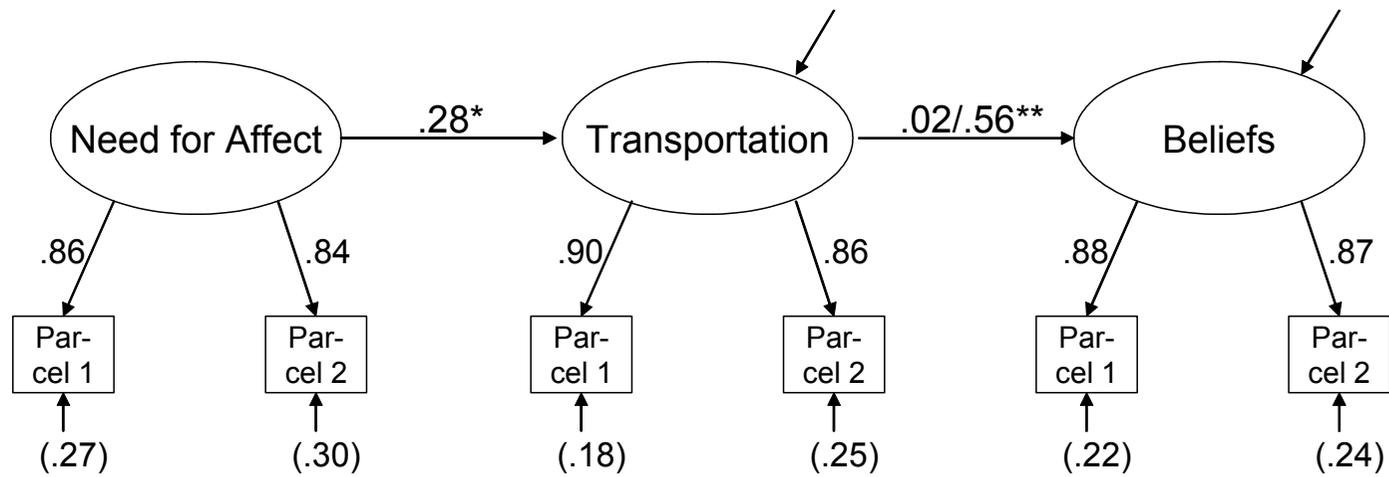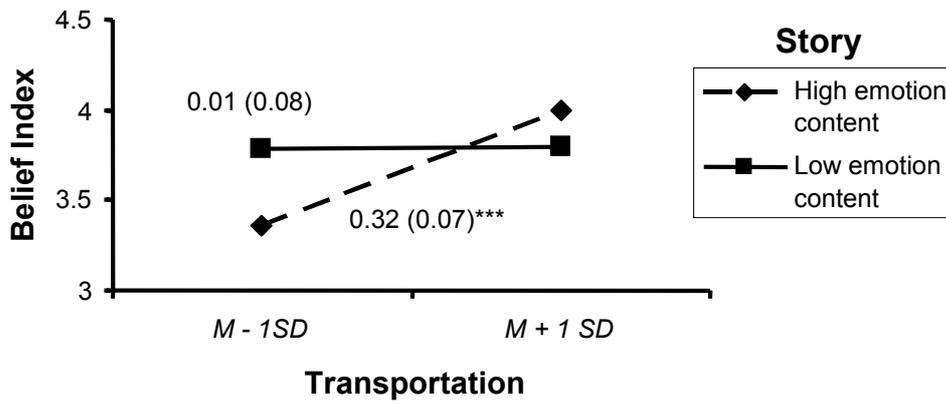
Figure 1

a)
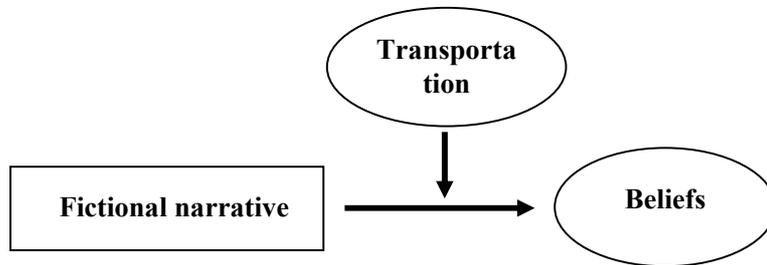
b)
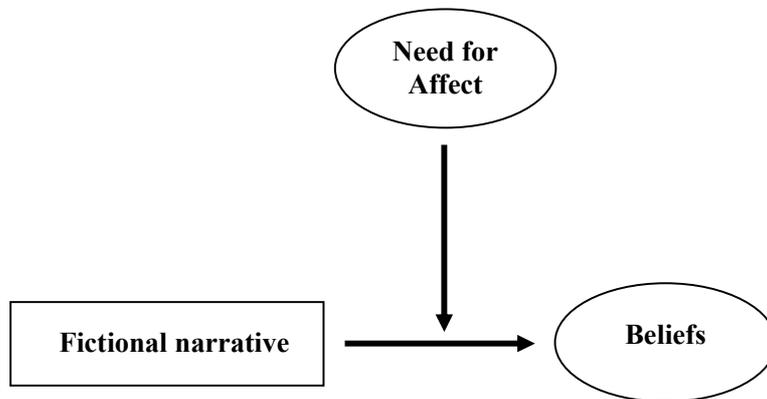
c)

Figure 2

a)

b)

Figure 3

a) Experiment 1

b) Experiment 2

Figure 4

a)

b)