# Measuring Narrative Engagement

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*Research indicates that the extent to which one becomes engaged, transported, or immersed in a narrative influences the narrative's potential to affect subsequent story-related attitudes and beliefs. Explaining narrative effects and understanding the mechanisms responsible depends on our ability to measure narrative engagement in a theoretically meaningful way. This article develops a scale for measuring narrative engagement that is based on a mental models approach to narrative processing. It distinguishes among four dimensions of experiential engagement in narratives:* narrative understanding, attentional focus, emotional engagement, *and* narrative presence. *The scale is developed and validated through exploratory and confirmatory factor analyses with data from viewers of feature film and television, in different viewing situations, and from two different countries. The scale's ability to predict enjoyment and story-consistent attitudes across different programs is presented. Implications for conceptualizing engagement with narratives as well as narrative persuasion and media effects are discussed.*

## INTRODUCTION

In order to understand a story's ability to influence audiences, scholars have focused on the narrative experience itself (e.g., Escalas, 2007; Green, Garst, & Brock, 2004; Slater, Rouner, & Long, 2006). A number of constructs describe different aspects of engaging with a narrative, such as *transportation*

(Green & Brock, 2000, 2002) *identification* (Cohen, 2001), *presence*, (Biocca, 2002; Lee, 2004), and *flow* (Csikszentmihalyi, 1997; Sherry, 2004). However, while research has demonstrated the utility of these and similar constructs, there is a need for greater clarity regarding the roles they play in narrative experiences, how they are related to one another, and how they may facilitate persuasion and reality construction. For example, transportation's theoretical base in mental imagery (Green & Brock, 2002) is difficult to interpret in the context of television or film; identification with characters (Cohen, 2001) is difficult to separate from the settings and situations in which characters are encountered; and relations between cognitive perspective taking and emotional responding (empathy) require clarification.

We approach the challenge of these ambiguities from a mental models perspective (Busselle & Bilandzic, 2008). Mental models provide a theoretical framework for disentangling and interpreting processes that should be related in narrative experiences, and also provide a framework for understanding how such processes may moderate a story's influence.

In this study, we accumulate from relevant literatures a comprehensive list of constructs and measures that are purported to describe different aspects of experiencing a narrative. We then distill from that list a set of sensations that appear most fundamental and accessible to audiences. Finally, we develop a scale for measuring those sensations that hopefully will foster research and understanding of the experience of engaging with a narrative, and contribute to a process model of narrative engagement that can explain outcomes such as enjoyment, persuasion, and social reality construction.

The literature review addresses six main topics: the application of mental models to narrative engagement, sensations related to perspective taking, feeling present in a story or narrative world, the concept of flow related to narrative engagement, factors that may interfere with narrative engagement, and finally enjoyment and story-related attitudes as indicators of predictive validity.

## MENTAL MODELS IN NARRATIVE ENGAGEMENT

To understand or comprehend a narrative, audience members construct mental models of meaning to represent a story (Graesser, Olde, & Klettke, 2002; Roskos-Ewoldsen, Davies, & Roskos-Ewoldsen, 2004; van Dijk & Kintsch, 1983; Zwaan, Langston, & Graesser, 1995). These models, represent settings, characters, and situations, and are created by combining information from the text with knowledge the reader or viewer already possesses about life in general as well as about the specific topic and genre of the narrative. Preexisting knowledge originates in real world experience (e.g., schemas and stereotypes) and from other fictional and nonfictional mediated experiences (Fiske & Taylor, 1991; Ohler, 1994). The main activity of an audience member

is progressively constructing models of meaning that represent the people, places, and problems of a story. Most importantly, these models must be constantly updated as the narrative moves forward (Zwaan et al., 1995). Each construct identified below can be seen as directly related to comprehension, either as a contributor, a detractor, or an immediately proximal byproduct.

Theoretically, this approach applies broadly to media content. "As a mental representation, [a] story is not tied to any particular medium and is independent of the distinction between fiction and non-fiction" (Ryan, 2007, p. 26). On a practical level media do differ. For example, unlike written texts, television and film provide information visually and aurally, which may have implications for imagery. Also, unlike readers, viewers do not control the rate of incoming information. However, those differences are related to how information is communicated to audiences rather than how they process the information they receive.

## PERSPECTIVE TAKING

Narrative comprehension requires that a viewer or reader locate him or herself within the mental model of the story. As suggested by Deictic Shift Theory (Segal, 1995a, 1995b) audience members switch to the time and location of the narrative, and to the subjective world of the characters. This is necessary because some information makes sense only from the deictic center of the story (Galbraith, 1995; Zubin & Hewitt, 1995). For example, deictic words (e.g., "I" and "here") refer to different things depending on speaker, time and location, but do not refer to the person, time, or place of the audience (Segal, 1995a; 1995b). Deictic shift can be seen as a cognitive process necessary for understanding plot and for emotional perspective taking processes, such as identification (Cohen, 2001) or empathy (Zillmann, 1994).

When a viewer or reader strongly identifies with a character he or she ceases "to be aware of his or her social role as an audience member and temporarily (but usually repeatedly) adopts the perspective of the character ..." (Cohen, 2001, p. 251). Cohen's articulation of identification as a phenomenological sensation experienced with a character, rather than a distanced judgment about a character, is conceptually linked to three distinct but related aspects of narrative engagement. First, seeing events and characters from a point of view within the story makes the viewer aware of a character's perspective and his or her interpretation of events and, moreover, of a character's motives in relation to events and other characters. Locating one's self in the story constitutes *cognitive perspective taking*, an understanding of events and situations from within the story, not as an objective observer. Second, by adopting a character's perspective, the

viewer can understand and relive the character's emotions. This is essentially *empathy*, an audience member's mirroring of a character's emotional experience (Oatley, 1994, 1999). Also, a viewer should be able to understand the emotions of primary characters, even if they do not share those emotions. This third possibility is Oatley's conception of *sympathy*, where a viewer may feel sorry, embarrassed, or concerned for a character. Sympathy differs from empathy because the audience member does not feel the same emotion as the character. An important aspect of sympathy in narrative occurs when an audience member knows something that the character does not, for example, fearing for a character who is ignorant of impending danger. Thus, sympathy is feeling emotions for characters, but not sharing the same emotions.

## PRESENCE IN A NARRATIVE WORLD

Audience members may perceive a mediated world as more immediate than the actual world. This is an important aspect of media experiences. It corresponds to telepresence (Biocca, 2002; Lee, 2004), and to descriptions of "being there" (Gerrig, 1993) and transportation (Green & Brock, 2002). Telepresence evolved in the computer mediation literature (e.g., Bracken, 2005; Kim & Biocca, 1997; Lee, 2004; Lombard & Ditton, 1997), whereas transportation into a story world evolved from the literature on narrative experiences (e.g., Gerrig, 1993; Green & Brock, 2002). This distinction is relevant. Feeling present in an alternative environment may result from sensory stimulation. But sensory stimulation cannot explain feeling present in a novel. In order to explain the latter we turn to Csikszentmihalyi's (1997) concept of flow.

## FLOW AND PRESENCE IN NARRATIVE

Flow is conceived as a complete focus on an activity accompanied by a loss of conscious awareness of oneself and one's surroundings. Athletes often refer to this as "being in the zone." Flow experiences have been documented in different sport, artistic, and work-related activities, including reading (Csikszentmihalyi, 1997). Green and Brock suggest that transportation into a narrative feels like flow (Green, 2004; Green & Brock, 2000), trecognizing that readers may "lose track of time, fail to observe events going on around them, and feel they are completely immersed in the world of the narrative" (Green, 2004, p. 247). A mental models perspective suggests that flow with or transportation into a narrative occurs when a reader or viewer becomes completely focused on the activity of comprehension—creating and updating the mental models that represent the story (Busselle & Bilandzic, 2008). This may involve both cognitive and emotional processes. For example, a viewer

may need to understand the motivation for a kidnapping as well as the emotions a parent would experience over a missing child.

On one level, experiencing flow with a narrative is no different from flow in nonnarrative activities. Essentially, the viewer's attention is focused on an activity. However, on another level, flow with a narrative is unique because alternative worlds, characters, and situations become available (Gerrig, 1993). Thus, whereas musicians or athletes may become completely focused on the most important few aspects of their immediate reality, viewers and readers can become immersed in an alternative reality. Loss of self-awareness combined with the construction of an alternative world provides an explanatory mechanism for the sense of narrative presence or "being" in the narrative world. To distinguish this sense of presence in a story from its counterpart in nonnarrative activities, we refer to *narrative presence*, the sensation of being present in a narrative world due to comprehension processes and perspective taking.

We have described a number of sensations that one may experience while engaging with a narrative. There also are aspects of the actual world of which a reader or viewer may become unconscious during engagement. Research into flow, telepresence, and transportation each recognize that attention may shift away from the immediate physical environment or that one may stop being aware of one's immediate surroundings. This may result from the presentation of a virtual environment, imagining a fictional setting, or intensely concentrating on one's performance. Regardless of the cause, one may experience *losing awareness of one's surrounding*. In virtual worlds this may result in a heightened awareness of oneself in an artificial environment. However, engagement in a narrative should result in the opposite, a *loss of awareness of oneself*. This can be explained as a product of identification or perspective taking with protagonists or sympathetic characters, as discussed above. In addition, both flow in nonnarrative activities and immersion in narratives may result in a *loss of awareness of time's passage*.

As flow implies that a process becomes automatic and single actions and cognitions do not require conscious deliberation, engaged viewers should not perceive difficulty in processing the story, but rather should feel that it is easy to maintain focus on the story. This too represents a dimension of narrative engagement referred to as *ease of cognitive access*, a concept associated with reading experiences (Appel, Koch, Schreier, & Groeben, 2002).

Finally, some items in existing scales suggest that readers or viewers may be conscious of engagement with narratives at a more holistic level. Evidence of this comes from single items such as, "I was mentally involved in the story while reading" (Green & Brock, 2000) and "Overall, the viewing experience was intense for me" (Appel et al., 2002). Given this, we include in our list of potential dimensions of engagement an overall sensation of being engrossed in a story. We referred to it simply as *narrative involvement*.

## THREATS TO NARRATIVE ENGAGEMENT

Each of the constructs described above should be more likely to occur or become more intense as engagement with a narrative increases. At the same time a number of phenomena may interfere with engagement. This is because from a mental models approach narrative engagement competes with other mental processes for cognitive and emotional resources (Bilandzic & Busselle, 2008). If resources are shifted away from comprehension then mental model construction and therefore engagement should suffer. Any process unrelated to the narrative may have that effect (e.g., noise, hunger, job stress). Thus, a negative component of narrative engagement is *distraction*— the presence of thoughts that are unrelated to the narrative.

Elements within the story also may divert attention from comprehension. These may be a plot flaw, a behavior that is inconsistent with a character's motivations, or a portrayal that is inconsistent with real world knowledge or familiar genre conventions. Such realism judgments may occur during viewing when attention shifts to unexplainable inconsistencies. It is important to point out that one would not expect positive judgments related to realism. While viewing, audience members should become aware of realism only when it is somehow lacking (see Bradley & Shapiro, 2005; Gilbert, 1991). When such negative judgments do occur they should disrupt engagement. We refer to perceiving the narrative as coherent and plausible as *narrative realism* (also see Hall's, 2003, narrative consistency and Fisher's, 1987, narrative probability). We assume that observing instances of inconsistency (unrealism) during a narrative experience will interfere with engagement in the story.

## OUTCOMES OF NARRATIVE ENGAGEMENT

Narrative experiences that are more engaging should result in greater enjoyment and greater effects. Measuring enjoyment and story-related attitudes can provide indicators of the predictive validity of the narrative engagement scale being developed.

### Enjoyment

Enjoyment may be derived from the arousal of any emotion (Nabi, Stitt, Halford, & Flinnerty, 2006) including those which on their face would not seem enjoyable, such as sadness (Oliver, 2003). Becoming engaged with a narrative should be a pleasurable experience in and of itself. Transportation has been found to be highly correlated with enjoyment (Bilandzic & Busselle, 2006; Green, Brock & Kaufman, 2004). Also, flow has been associated with enjoyment (Csikszentmihalyi, 1991; Sherry, 2004). It is reasonable to assume

that more engaging narrative experiences are more enjoyable. Thus, any scale measuring engagement should predict enjoyment.

## Story-Consistent Attitudes

Participants who report being more engaged in a narrative also have reported stronger story consistent beliefs and attitudes (Green & Brock, 2000; Green, 2004). This is explained by two phenomena. On the one hand, engagement should lead to less counterarguing with the premises of the story (Green & Brock, 2002) and, on the other hand, because engagement is thought to lead to greater elaboration of story-related information (Slater, 2002; Slater, Rouner, & Long, 2006). Thus, engagement should be positively related to agreement with story-related attitudes.

## SUMMARY OF METHODS AND ANALYSES

Development of the engagement scale progressed through three data sets from four groups of viewers exposed to four different stimulus programs. The process began with exploratory factor analysis (EFA) with a first data set ($N = 413$), followed by confirmatory factor analysis (CFA) using the statistical package AMOS (Arbuckle & Wothke, 1999) with a second data set ($N = 211$). Finally, CFA was performed using a third data set comprised of viewers of two separate programs ($N = 179$). In each case, the scale's ability to predict outcome variables was assessed and compared to Green and Brock's (2000, 2002) transportation scale and an identification scale (Cohen, 2001).

Fabrigar, Wegener, MacCallum, & Strahan (1999) point out that EFA sample size recommendations vary from 5 to 100 respondents per item, although 10 to 1 is common and acceptable when factors are overestimated and commonalities are relatively high (also see Nunnally & Bernstein, 1994). Our analyses include a greater than 10 to 1 ratio within each data set.

The following sections are organized such that all scale development results from each data set are presented first. Then the scale's relations to enjoyment and attitudes in each data set are presented.

## STUDY 1: SCALE DEVELOPMENT

## Participants

For course credit, groups of approximately 40–80 U.S. college students ($n = 443$) from an introductory communication class watched the premiere episode of *Rescue Me* in an auditorium and then completed pencil-and-paper questionnaires. Thirty participants left more than four values blank and were

excluded from analyses, leaving 413 respondents. Remaining missing data were replaced with sample means.

## Stimulus Program

*Rescue Me*[1] is an HBO series about a group of New York City fire fighters who suffer posttraumatic stress symptoms. Central themes include these men's inability to cope with emotions resulting from the tragedies they witness and their abuse of alcohol as a coping mechanism.

*Engagement scale items.* Forty items covering the eight dimensions of narrative engagement were selected from existing instruments and created where none were available from extant scales. (See Table 1 for each item and its mean and standard deviation.) To prevent order effects, scale items were randomized in four different versions of questionnaires and administered in equal proportions.

*Measures of convergent validity.* So that we could test the emergent scale's relationship with the original transportation scale, we included all 11 original transportation items, excluding items from previous studies that were designed for a specific stimulus. The 11-item transportation scale was reliable (Cronbach's alpha = .71).

Because identification with characters is thought to be central to engaging narrative experiences, engagement should correlate with Cohen's (2001) notion of identification. Thus, a 6-item identification scale (Cohen, 2001) was included. That scale was also reliable in these data (Cronbach's alpha = .72).

*Measures of criterion validity.* Under the theoretical assumption that engaging experiences are more enjoyable, and because transportation and enjoyment have been linked, we included a 4-item enjoyment scale (e.g., "How much did you enjoy this program?"; Cronbach's alpha = .92).

We also included story-consistent and story-irrelevant attitude measures that should be predicted (or not predicted) by narrative engagement. Two central topics of the episode were men's inability to deal with their emotions and the need for help for victims of tragedies. "Emotional expression" was measured with two items that were averaged: "Men have a difficult time dealing with their emotions." and "Men have a difficult time expressing themselves." ($M = 5.27$; $SD = 1.41$). The two items were correlated ($r$ [411] = .72; $p < .001$). "Social help" was measured with the mean of three items: "As a society, we need to be better at dealing with addictions," "More help should be available for victims of tragedy and disasters," and "More should be done to help people deal with the emotional impact of disasters, like 9-11 and Katrina." Scale mean was 5.30 ($SD = 1.18$), and alpha was .71. We also included two items measuring attitude toward homelessness, a topic unrelated to the program: "It just takes a couple of bad breaks and almost anyone can become homeless" and "More should be done to prevent homelessness." The items were correlated ($r$ [406] = .35, $p < .001$). The mean

**TABLE 1** Items Used for Developing the Narrative Engagement Scale

|  | M | SD |
|---|---|---|
| **Empathy** | | |
| EP1*: At key moments in the film, I felt I knew exactly what the characters were going through emotionally. (adapted from Cohen, 2001) | 4.79 | 1.56 |
| EP2: At important moments in the film, I could feel the emotions the characters felt. (adapted from Cohen, 2001) | 5.68 | 1.26 |
| EP3: During the program, when a main character succeeded, I felt happy, and when they suffered in some way, I felt sad. (adapted from Cohen, 2001) | 5.37 | 1.31 |
| EP4: I never really shared the emotions of the characters (−). | 5.39 | 1.39 |
| EP5: The story affected me emotionally. (T; Green & Brock, 2000) | 4.51 | 1.64 |
| **Sympathy** | | |
| S1: I felt sorry for some of the characters in the program. | 5.75 | 1.32 |
| S2: I was embarrassed for some of the characters in the program. | 3.71 | 1.82 |
| S3: I was worried for some of the characters in the program. | 5.09 | 1.63 |
| **Cognitive perspective taking** | | |
| CP1: I was able to understand the events in the program in a way similar to the way the characters understood them. (adapted from Cohen, 2001) | 4.79 | 1.49 |
| CP2: I understood the reasons why the characters did what they did. (adapted from Cohen, 2001) | 5.16 | 1.32 |
| CP3: I could understand why the characters felt the way they felt. | 5.59 | 1.22 |
| CP4: My understanding of the characters is unclear. (−)(adapted, Cohen, 2001) | 5.66 | 1.33 |
| CP5: It was difficult to understand why the characters reacted to situations as they did. (−) | 5.37 | 1.42 |
| CP6: I could easily imagine myself in the situation of some of the characters. (adapted from Cohen, 2001) | 3.79 | 1.80 |
| **Loss of time** | | |
| LT1: During the program, I lost track of time. | 4.89 | 1.74 |
| LT2: The program seemed to drag. (−) | 5.69 | 1.38 |
| LT3: When the program ended, I was surprised that it was over so quickly. | 4.45 | 1.77 |
| **Loss of self-awareness** | | |
| LS1: At times during the program, I completely forgot that I was in the middle of an experiment. | 5.17 | 1.79 |
| LS2: I forgot my own problems and concerns during the program. | 4.56 | 1.69 |
| LS3: While watching, I found myself thinking about what I had done before the experiment or what I would do after it. (−) | 4.68 | 1.83 |
| **Narrative presence** | | |
| NP1: At times during the program, the story world was closer to me than the real world. (adapted from Kim & Biocca, 1997) | 4.06 | 1.70 |
| NP2: My attention was focused more on my surroundings than on the program. (−) | 6.03 | 1.17 |
| NP3: The program created a new world, and then that world suddenly disappeared when the program ended. (adapted from Kim & Biocca, 1997) | 4.35 | 1.73 |
| NP4: During the program, my body was in the room, but my mind was inside the world created by the story. (adapted from Kim & Biocca, 1997) | 4.72 | 1.76 |

**TABLE 1** (*Continued*)

| | M | SD |
|---|---|---|
| **Narrative involvement** | | |
| NI1: I was mentally involved in the story while viewing. (T; Green & Brock, 2000) | 5.51 | 1.30 |
| NI2: I was never really pulled into the story. (−) | 5.83 | 1.43 |
| NI3: While viewing I was completely immersed in the story. (Appel et al., 2002) | 5.19 | 1.42 |
| NI4: Overall, the viewing experience was intense for me. (Appel et al., 2002) | 4.45 | 1.57 |
| NI5: I wanted to learn how the story ended. (T; Green & Brock, 2000) | 5.60 | 1.47 |
| NI6: While viewing I wanted to know how the events would unfold. (Appel et al., 2002) | 5.64 | 1.29 |
| **Distraction** | | |
| D1: I found my mind wandering while the program was on. (−) (T; Green & Brock, 2000) | 5.26 | 1.66 |
| D2: While the program was on I found myself thinking about other things. (−) (Appel et al., 2002) | 4.64 | 1.84 |
| D3: I had a hard time keeping my mind on the program. (−) | 5.83 | 1.33 |
| **Ease of cognitive access** | | |
| EC1: I could easily follow the action and events. (Appel et al., 2002) | 5.77 | 1.26 |
| EC2: I had a hard time recognizing the thread of the story. (−) (Appel et al., 2002) | 5.82 | 1.28 |
| EC3: I had to work to stay focused on the story. (−) (Appel et al., 2002) | 5.84 | 1.35 |
| **Narrative realism** | | |
| NR1: The story was logical and convincing. | 5.24 | 1.37 |
| NR2: I understood why the events unfolded the way they did. | 5.20 | 1.31 |
| NR3: At some points in the story, it was not quite clear why something happened. (−) | 4.54 | 1.70 |
| NR4: At points, I had a hard time making sense of what was going on in the program. (−) | 5.44 | 1.51 |
| **Additional transportation items (Green & Brock, 2000)** | | |
| While I was watching the movie, I could easily picture the events in it taking place. | 5.25 | 1.32 |
| I could picture myself in the scene of the events shown in the movie. | 4.09 | 1.75 |
| After finishing the movie, I found it easy to put it out of my mind. (−) | 4.71 | 1.57 |
| I found myself thinking of ways the story could have turned out differently. | 3.88 | 1.83 |
| The events in the story are relevant to my everyday life. | 2.82 | 1.60 |
| The events in the story have changed my life. | 2.47 | 1.46 |
| While I was watching the movie, activity going on in the room around me was on my mind. (−) | 5.67 | 1.51 |

*Note*: Items belonging to the transportation scale are marked with "T" if they belong to one of the dimensions of the narrative engagement scale. Items marked with (−) were reversed coded.
*Key to items' original theoretical constructs: CP = cognitive perspective taking; EP = empathy; SM = sympathy; NP = narrative presence; NI = narrative involvement; LT = loss of time; LS = loss of self; EC = ease of cognitive access; DS = distraction; NR = narrative realism.

of these items, called "homelessness," was 4.03 (SD = 1.34). Homelessness was expected to be uncorrelated with engagement.

## STUDY 1 RESULTS

We began with exploratory factor analysis (EFA) using SPSS to identify items that clearly define a dimension and to obtain a smaller set of items for further testing.[2] Principle component analysis (PCA), with a varimax rotation, produced eight components meeting Kaiser's criterion of eigenvalues greater than 1.0, explaining 59% of variance. The seventh and eighth factors contained three and two variables respectively and added minimally to the variance explained. This suggested an overestimation of factors. The screeplot revealed a break in the slope of eigenvalues after the fourth factor. These results suggested a true factor structure of four, five, or six dimensions. Thus, three separate factor analyses were computed. The six-factor solution produced a factor with only one variable loading higher than .45. The last factor in the five-factor solution produced no variable with a loading larger than .45. The four-factor solution was satisfactory, producing four reliable factors with six to ten items loading on each factor and 42% of variance explained.[3]

In the final EFA, we used principal axis factoring with a Promax rotation (*kappa* = 3) requesting four factors. Before rotation, the four factors explained 47% of variance. This serves as an estimate of variance explained after oblique rotation (Tabachnik & Fidell, 2007, p. 648). Our selection criterion was to retain items with primary loadings greater than .45 (indicating a 20% overlap in variance between variable and factor; Tabachnik & Fidell, 2007, p. 649). Because large secondary loadings may indicate problematic items (Viswanathan, 2005, p. 185) we also eliminated any item with a secondary loading greater than half its primary loading. The sum of squared loadings after rotation indicated that all factors were roughly of equal importance. Of the 40 items, 13 produced no factor loadings greater than .45 on any factor. Five more items double or near double loaded (e.g., .49 and .38).

The four factors were easily interpreted: The first, labeled *narrative understanding*, contains narrative realism and cognitive perspective taking items, and describes how viewers make sense of or understand the narrative. The second factor, labeled *attentional focus*, describes viewers' focus on or distraction from the program. The third, labeled *emotional engagement*, concerns emotions viewers have with respect to characters, either feeling the characters' emotions (*empathy*), or feeling for them (*sympathy*). The last factor deals with a sense of transitioning from the actual world to the story world and is composed of telepresence items. Based on our previous discussion we labeled this factor *narrative presence*.

We ran the factor analysis omitting the variables that did not meet the loading criteria. All factors remained stable on three runs. During the first run the item, "During the program, I lost track of time," dropped below the .45 threshold and was eliminated. On the second run, the item "I was never really pulled into the story" double loaded and was eliminated. The final factor analysis did not produce any decreases in primary or increases in secondary loadings, and represents a simple, parsimonious structure. Table 2 contains factor loadings, communalities, and other relevant statistics for the 20-variable solution. This structure was replicable with several extraction and rotation methods, suggesting robustness.

## STUDY 2: CONFIRMATORY FACTOR ANALYSIS AND MODIFICATION OF THE MEASUREMENT MODEL

### Participants and Procedure

The 20-item scale was tested on a new data set using CFA, using AMOS 4.0. Students from the United States participated in a procedure identical to that in Study 1, using the stimuli *The Station Agent*, a feature-length, independent film about two main characters, their traumatic pasts, and their conflicting needs for both solace and companionship.

To assess the scale's ability to predict attitudes we included four items measuring the perceived importance of friendship, which was central to the story, and five items measuring materialism (Richins & Dawson, 1992), which was irrelevant to the story. Questionnaires were completed by 223 participants. Twelve were dropped because of missing responses. Sample means were substituted in 11 cases where only one value was missing. Average age of 211 participants was 20 years. Females accounted for 111 cases, males 97, and 3 were unreported.

### Study 2 Results

All variables were standardized. In the first test of the measurement model the four factors were allowed to correlate. Then the model was modified to include a higher-order latent variable representing overall narrative engagement. This procedure is recommended as it allows the evaluation of factor structure to be separated from the evaluation of the factors' relations to a higher-order latent variable (Brown, 2006). Model evaluation was based on theoretical consideration of the constructs, overall goodness of fit based on chi-square to degrees of freedom ratio ($\chi^2/df$), comparative fit index (CFI), and root mean squared estimate of association (RMSEA), inspection of individual path coefficients and residuals, and modification indices.

**TABLE 2** Factor Loadings From the Pattern Matrix, Communalities ($h^2$), Sum of Squared Loadings After Rotation, Percentage of Variance Before Rotation and Correlations Among Factors for Principle Factor Extraction With Promax Rotation (Only Stable Items)

| (Original theoretical construct: instrument item) | Factor | | | | |
| --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | $h^2$ |
| SM3*: I was worried for some of the characters in the program. | 0.83 | | | | 0.52 |
| EP3: During the program, when a main character succeeded, I felt happy, and when they suffered in some way, I felt sad. | 0.68 | | | | 0.43 |
| EP5: The story affected me emotionally. | 0.62 | | | | 0.42 |
| SM1: I felt sorry for some of the characters in the program. | 0.62 | | | | 0.45 |
| NI6: While viewing I wanted to know how the events would unfold. | 0.58 | | | | 0.45 |
| EP2: At important moments in the film, I could feel the emotions the characters felt. | 0.52 | | | | 0.43 |
| EC1: I could easily follow the actions and events. | | 0.70 | | | 0.43 |
| NR4: At points, I had a hard time making sense of what was going on in the program. (−) | −0.26 | 0.69 | | | 0.42 |
| CP4: My understanding of the characters is unclear. (−) | | 0.63 | | | 0.42 |
| EC2: I had a hard time recognizing the thread of the story. (−) | | 0.60 | | | 0.43 |
| NR2: I understood why the events unfolded the way they did. | | 0.57 | | | 0.34 |
| CP5: It was difficult to understand why the characters reacted to situations as they did. (−) | | 0.53 | | | 0.27 |
| DS1: I found my mind wandering while the program was on. (−) | | | 0.87 | | 0.57 |
| DS2: While the program was on I found myself thinking about other things. (−) | | | 0.68 | | 0.43 |
| LS3: While watching, I found myself thinking about what I had done before the experiment or what I would do after it. (−) | | | 0.66 | | 0.36 |
| DS3: I had a hard time keeping my mind on the program. (−) | | | 0.59 | | 0.52 |
| NP2: My attention was focused more on my surroundings than on the program. (−) | | | 0.54 | | 0.36 |
| NP4: During the program, my body was in the room, but my mind was inside the world created by the story. | | | | 0.64 | 0.43 |
| NP3: The program created a new world, and then that world suddenly disappeared when the program ended. | | | | 0.62 | 0.34 |
| NP1: At times during the program, the story world was closer to me than the real world. | 0.27 | | | 0.46 | 0.35 |

**TABLE 2**  (*Continued*)

| (Original theoretical construct: instrument item) | Factor | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | $b^2$ |
| Sum of squared loadings after rotation | 4.20 | 3.49 | 3.63 | 2.43 | |
| Percentage of variance (before extraction) | 29.52 | 13.26 | 8.97 | 5.42 | |
| Correlation with Factor 1 | 1.00 | | | | |
| Correlation with Factor 2 | 0.32 | 1.00 | | | |
| Correlation with Factor 3 | 0.38 | 0.44 | 1.00 | | |
| Correlation with Factor 4 | 0.52 | 0.12 | 0.23 | 1.00 | |

*Note.* Loadings below .20 not printed. S = item contained in short 12-item-version of overall scale.
*Key to items' original theoretical constructs: CP = cognitive perspective taking; EP = empathy; SM = sympathy; NP = narrative presence; NI = narrative involvement; LT = loss of time; LS = loss of self; EC = ease of cognitive access; DS = distraction; NR = narrative realism.

Goodness of fit tests indicated that modification of the 20-item model was required ($\chi^2/df$ = 2.31, *CFI* = .866; *RMSEA* = .076 [range = .066 to .087]). However, there was no initial indication that the four dimension structure was inaccurate or that any item belonged to an alternate factor. In a step-by-step progression we removed items from the model as indicated by the modification index or if an item's beta coefficient was less than .50, except in one case where the item with a higher beta was theoretically unrelated the factor (*emotional engagement*: "While viewing, I wanted to know how the events would unfold."). The resulting 12-item, four dimension model fit the data according to each indicator ($\chi^2/df$ = 1.29; *CFI* = .982; *RMSEA* = .037 [range = .000 to .062]), and produced standardized regression coefficients all greater than .60.

Because the scale is intended to measure four dimensions of the higher-order construct *narrative engagement*, we removed the correlations among the measured variables and included the latent variable (Figure 1). Fit values fell slightly as expected because of fewer constraints in the model (Brown, 2006), however fit was still in the good range for each indicator ($\chi^2$ = 77.88, $df$ = 50; $\chi^2/df$ = 1.56; *CFI* = .964; *RMSEA* = .051 [range = .027 to.073]).

## STUDY 3: SECOND CONFIRMATORY FACTOR ANALYSIS

### Participants and Procedures

Communication students at a German University participated and recruited an opposite sex friend also for participation. Participants (*N* = 179) viewed
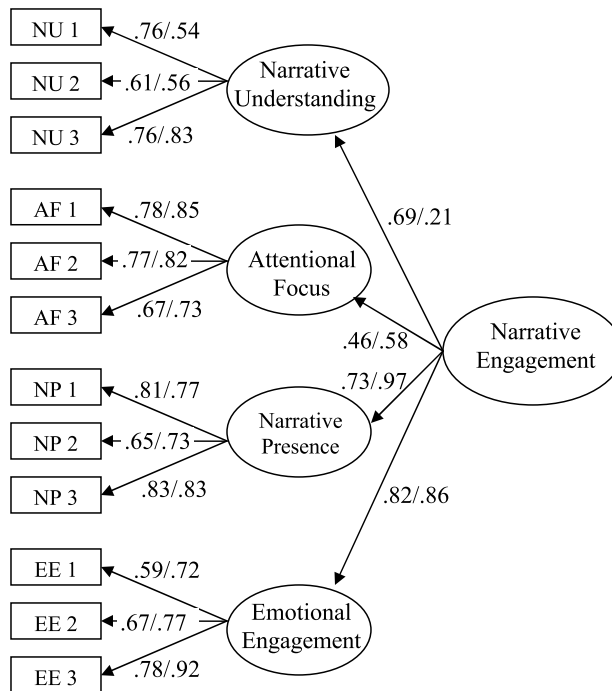
**FIGURE 1** Dimensions of narrative engagement with higher-order latent variable. *Values from *Station Agent* are left of the slash (/). Values from *CSI* and *ER* are right of the slash (/). **All path coefficients statistically significant at $p < .01$. *Station Agent* model: $\chi^2 = 77.81$, $df = 50$; $\chi^2/df = 1.29$; *CFI* = .982; *RMSEA* = .037 [range = .000 to .062]. *CSI* and *ER* model: $\chi^2 = 83.60$, $df = 50$; $\chi^2/df = 1.67$; *CFI* = .963; *RMSEA* = .061 [range = .037 to .084].

the stimuli on a computer, alone and wearing headphones; stimuli were one of two American television programs (*CSI* or *ER*) dubbed into German. The same engagement items used in Studies 1 and 2 were administered. Enjoyment and attitudes were not measured due to constraints from a parallel study. All items were translated (and back translated) into a German version (available from the authors) and administered using MediaLab. Ninety-two participants watched *CSI* (46 female) and 87 watched *ER* (45 female). Average age was 22 years.

The *ER* season premiere revolved around a main character, Jeanie, learning to cope with being HIV-positive. Some secondary plot lines were humorous. In the *CSI* episode, a woman and her lover faked her own kidnapping in order to collect ransom from her husband. The lover double-crossed the woman, leaving her buried alive in a box in the desert.

## Study 3 Results

Because there were fewer than 100 cases in each data set, the two data sets were standardized separately and then combined. The 12-item model

was tested on the combined data ($N = 179$). Indices suggested good fit ($\chi^2 = 66.54$, $df = 48$; $\chi^2/df = 1.39$; $CFI = .980$; $RMSEA = .047$ [range = .011 to .072]). Finally, correlations among the four subscales were removed. The latent variable, *engagement*, was entered (Figure 1). Acceptable fit was replicated ($\chi^2 = 83.60$, $df = 50$; $\chi^2/df = 1.67$; $CFI = .963$; $RMSEA = .061$ [range = .037 to .084]).

## SCALE VALIDATION

The scale and four subscales were computed by averaging the raw scores of the three items belonging to each respective subscale. Table 3 reports reliability estimates of each subscale and the entire scale, for each program separately. Reliability estimates for the 12-item scale were above .80. Among the 16 subscales (four scales × four data sets), 14 reliability estimates were greater than .70. In the *Station Agent* data, Cronbach's alpha for the emotion subscale was .69 ($n = 211$), and the in *CSI* data, Cronbach's alpha for narrative understanding was .58 ($n = 92$).

## SCALE AND SUBSCALE RELATIONS WITH RELATED CONSTRUCTS

Next we assess the strength of correlations between our engagement scale (and subscales) and other variables. Table 4 contains correlations among the engagement scale and subscales as well as transportation, identification (for convergent validity), and enjoyment for the *Rescue Me* and *The Station Agent* data sets (for criterion validity). Table 5 contains the same correlations for the *ER* and *CSI* data sets, except for enjoyment and attitudes which were not measured in those data sets.

### Transportation

Given that both our scale and the transportation scales purport to measure the extent to which an audience member becomes experientially involved in a text, we would expect high correlations between the two scales. Across the four data sets our scale was highly correlated with the transportation scale, ranging from $r = .73$ among *Station Agent* viewers to $r = .86$ among *ER* viewers. Among the subscales, some relations were weak to moderate, the weakest being with the subscale, *narrative understanding*, ranging from .22 to .36 (all significant above $p < .05$). It should be noted that one item on the *attentional focus* dimension and one item on the *emotional engagement* dimension of our scale came from Green and Brock's (2000) transportation

**TABLE 3** 12-Item Narrative Engagement Scale, Subscales, Items, Means and Standard Deviations for Each Dataset

| | Rescue (n = 413) | | Agent (n = 211) | | ER (n = 87) | | CSI (n = 92) | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| **Narrative understanding** | | | | | | | | |
| NR4*: At points, I had a hard time making sense of what was going on in the program. (−) | 5.63 | 1.12 | 5.13 | 1.38 | 5.54 | 1.18 | 6.10 | .96 |
| CP4: My understanding of the characters is unclear. (−) | 5.44 | 1.51 | 4.98 | 1.69 | 5.68 | 1.46 | 6.25 | 1.19 |
| EC2: I had a hard time recognizing the thread of the story. (−) | 5.66 | 1.33 | 5.44 | 1.62 | 5.14 | 1.47 | 5.74 | 1.44 |
| | 5.82 | 1.28 | 4.96 | 1.66 | 5.79 | 1.39 | 6.32 | 1.25 |
| Cronbach's alpha for narrative understanding | (.74) | | (.78) | | (.76) | | (.58) | |
| **Attentional focus** | | | | | | | | |
| DS1: I found my mind wandering while the program was on. (−) | 5.23 | 1.36 | 4.30 | 1.58 | 3.71 | 1.61 | 4.31 | 1.64 |
| DS2: While the program was on I found myself thinking about other things. (−) | 5.26 | 1.66 | 4.24 | 1.94 | 3.60 | 1.82 | 4.27 | 1.86 |
| DS3: I had a hard time keeping my mind on the program. (−) | 4.64 | 1.84 | 3.83 | 1.82 | 3.47 | 1.83 | 4.08 | 1.88 |
| | 5.83 | 1.33 | 4.82 | 1.80 | 4.06 | 1.95 | 4.58 | 1.89 |
| Cronbach's alpha for attentional focus | (.79) | | (.81) | | (.83) | | (.85) | |
| **Narrative presence** | | | | | | | | |
| NP4: During the program, my body was in the room, but my mind was inside the world created by the story. | 4.38 | 1.37 | 3.74 | 1.51 | 2.81 | 1.44 | 3.23 | 1.63 |
| NP3: The program created a new world, and then that world suddenly disappeared when the program ended. | 4.72 | 1.76 | 4.05 | 1.83 | 3.01 | 1.59 | 3.60 | 1.89 |
| NP1: At times during the program, the story world was closer to me than the real world. | 4.35 | 1.73 | 3.73 | 1.89 | 2.77 | 1.76 | 3.02 | 1.90 |
| | 4.06 | 1.70 | 3.43 | 1.89 | 2.66 | 1.60 | 3.08 | 2.04 |
| Cronbach's alpha for narrative presence | (.70) | | (.72) | | (.84) | | (.80) | |
| **Emotional engagement** | | | | | | | | |
| EP5: The story affected me emotionally. | 5.20 | 1.34 | 4.84 | 1.35 | 4.33 | 1.51 | 4.52 | 1.55 |
| EP3: During the program, when a main character succeeded, I felt happy, and when they suffered in some way, I felt sad. | 4.51 | 1.64 | 3.86 | 1.93 | 3.87 | 1.81 | 4.22 | 1.69 |
| SM1: I felt sorry for some of the characters in the program. | 5.37 | 1.31 | 5.17 | 1.65 | 4.08 | 1.71 | 4.02 | 1.85 |
| | 5.75 | 1.32 | 5.49 | 1.59 | 5.03 | 1.68 | 5.32 | 1.74 |
| Cronbach's alpha for emotional engagement | (.71) | | (.69) | | (.84) | | (.86) | |
| Overall scale score | 5.11 | .86 | 4.50 | 1.04 | 4.10 | 1.02 | 4.54 | 1.09 |
| Cronbach's alpha for overall scale | (.80) | | (.82) | | (.84) | | (.86) | |

(−) indicates reverse coded.
*Key to items' original theoretical constructs: CP = cognitive perspective taking; EP = empathy; SM = sympathy; NP = narrative presence; NI = narrative involvement; LT = loss of time; LS = loss of self; EC = ease of cognitive access; DS = distraction; NR = narrative realism.

**TABLE 4** Correlations Among All Scales and Story-Related and Unrelated Attitude Measures *(In Italics)* for *Rescue Me* and *Station Agent*

| Rescue Me | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|---|
| 1. Full scale | 1.0 | | | | | | | |
| 2. Narrative understanding | .57** | 1.0 | | | | | | |
| 3. Attentional focus | .73** | .39** | 1.0 | | | | | |
| 4. Narrative presence | .71** | .07 | .29** | 1.0 | | | | |
| 5. Emotional engagement | .73** | .19** | .31** | .53** | 1.0 | | | |
| 6. Transportation | .73** | .22** | .59** | .53** | .66** | 1.0 | | |
| 7. Identification | .72** | .47** | .40** | .47** | .67** | .69** | 1.0 | |
| 8. Enjoyment | .53** | .27** | .37** | .38** | .42** | .51** | .52 | 1.0 |
| 9. *Social help* | *.19*** | *.03* | *.10** | *.12** | *.27*** | *.23*** | *.16*** | *.10* |
| 10. *Emotional expression* | *.24*** | *.01* | *.15*** | *.21*** | *.28*** | *.27*** | *.19*** | *.20*** |
| 11. *Homelessness* | *.01* | *−.08* | *−.02* | *.03* | *.09* | *.08* | *.09* | *.05* |
| STATION AGENT | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
| 1. Full scale | 1.0 | | | | | | | |
| 2. Narrative understanding | .61** | 1.0 | | | | | | |
| 3. Attentional focus | .78** | .40** | 1.0 | | | | | |
| 4. Narrative presence | .76** | .21** | .45** | 1.0 | | | | |
| 5. Emotional engagement | .68** | .17** | .33** | .47** | 1.0 | | | |
| 6. Transportation | .79** | .33** | .63** | .60** | .69** | 1.0 | | |
| 7. Identification | .74** | .46** | .43** | .54** | .72** | .76** | 1.0 | |
| 8. Enjoyment | .67** | .36** | .52** | .55** | .48** | .68** | .62** | 1.0 |
| 9. *Friendship* | *.34*** | *.10* | *.18*** | *.24*** | *.46*** | *.28*** | *.41*** | *.27*** |
| 10. *Material happiness* | *−.09* | *−.07* | *−.19*** | *.05* | *−.03* | *−.14* | *−.09* | *−.09* |

$* = p < .05$, $** = p < .01$

scale. The implications of this and of the items appearing on two different subscales are addressed in the Discussion Section.

## Identification

Identification is purported to be the adopting of the perspective and emotions of a character. Give that our scale contains items focused on perspective

**TABLE 5** Correlations Among All Scales for *ER* (Lower Diagonal Half) and *CSI* (Upper Diagonal Half)

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|---|
| 1. Full scale | 1.0 | *.49*** | *.77*** | *.83*** | *.80*** | *.85*** | *.70*** |
| 2. Narrative understanding | .44** | 1.0 | *.42*** | *.13* | *.19* | *.36*** | *.10* |
| 3. Attentional focus | .78** | .26* | 1.0 | *.46*** | *.37*** | *.65*** | *.34*** |
| 4. Narrative presence | .77** | .00 | .45** | 1.0 | *.70*** | *.68*** | *.68*** |
| 5. Emotional engagement | .79** | .12 | .40** | .63** | 1.0 | *.75*** | *.82*** |
| 6. Transportation | .86** | .23* | .65** | .73** | .76** | 1.0 | *.77*** |
| 7. Identification | .64** | .14 | .27* | .56** | .76** | .70** | 1.0 |

$* = p < .05$, $** = p < .01$

taking and on emotional engagement while viewing, we would expect our engagement scale to correlate with identification. This was the case. Correlations between our scale and identification ranged from $r = .64$ to $r = .74$. Identification was highly correlated with the *emotional engagement* subscale, correlations ranging from $r = .67$ to $r = .82$, but unrelated to *narrative understanding* among *ER* and *CSI* viewers ($r = .14$ and $r = .10$, respectively). As with the transportation scale one item on the *narrative understanding* subscale and one item on the *emotional engagement* subscale came from Cohen (2001). Implications of this also are discussed below

## Enjoyment

In order to assess the predictive validity of our scale we explored its relations with enjoyment. Enjoyment was correlated with our overall engagement scale (*Rescue Me* $r = .53$; *Station Agent* $r = .76$), as was transportation (*Rescue Me* $r = .51$; *Station Agent* $r = .68$) and identification (*Rescue Me* $r = .62$; *Station Agent* $r = .52$).

Our subscales allow for further investigation of enjoyment. We regressed enjoyment onto the four subscales simultaneously. Among *Rescue Me* viewers *narrative understanding* ($\beta = .13$, $p < .01$), *attentional focus* ($\beta = .19$, $p < .001$), *narrative presence* ($\beta = .19$, $p < .001$), and *emotional engagement* ($\beta = .24$, $p < .001$) each contributed significantly to enjoyment. Among *Station Agent* viewers, each subscale also contributed separately to enjoyment (*narrative understanding*: $\beta = .16$, $p < .01$; *attentional focus*: $\beta = .25$, $p < .001$; *narrative presence*: $\beta = .30$, $p < .001$; *emotional engagement*: $\beta = .23$, $p < .001$). Thus, these data suggest that each subdimension of narrative engagement contributes to enjoyment, although not necessarily equally.

## Related and Unrelated Attitudes

If engagement with a narrative increases its influence on audiences, then scores on our narrative engagement scale should correlate with attitudes related to the stimulus stories and be uncorrelated with attitudes that were unrelated to the stories. In the case of *Rescue Me*, story-related questions were about men and emotions, and about social assistance for victims of tragedy. Story-unrelated items dealt with homelessness. Correlations among attitude measures, our scale and subscales, transportation, identification, and enjoyment are italicized in Table 4.

The engagement scale and the transportation scale were similarly related to each attitude measure. Among *Rescue Me* viewers each scale correlated with story related attitudes as expected. Engagement correlated with social help ($r = .19$, $n = 413$, $p < .01$) and emotional expression ($r = .24$, $n = 413$, $p < .01$), and, as expected, not with the story-unrelated attitude about homelessness ($r = .01$, $n = 413$, ns). The pattern was similar for transportation

with social help ($r = .23$, $n = 413$, $p < .01$) and emotional expression ($r = .27$, $n = 413$, $p < .01$) significantly correlated, and homelessness uncorrelated ($r = .08$, $n = 413$, ns).

Among the subscales *emotional engagement, attentional focus*, and *narrative presence* were significantly correlated with both story-related attitudes (ranging from $r = .10$ to .28). *narrative understanding* was unrelated to both story-related attitudes. As expected, each subscales' correlation with the story-unrelated attitude was insignificant and near zero.

For *The Station Agent* the story-related measure was a 4-item scale (Cronbach's alpha $= .80$) measuring the importance of friendship (Table 4, bottom). The story-unrelated measure was a 5-item materialism scale (Cronbach's alpha $= .70$). Among viewers of *The Station Agent*, our engagement scale was correlated with importance of friendship ($r = .34$, $n = 211$, $p < .01$), and uncorrelated with the materialism ($r = -.09$, $n = 211$, ns). Similarly, transportation was correlated with need for friendship ($r = .28$, $n = 211$, $p < .01$) and uncorrelated with materialism ($r = -14$, $n = 211$, ns).

Among the subscales, *emotional engagement, attentional focus*, and *narrative presence* were significantly correlated with need for friendship (ranging from $r = .46$ to .10). *Narrative understanding* was unrelated ($r = .10$, $n = 211$, ns). Of note, identification was correlated with need for friendship nearly as strongly as our *emotional engagement* subscale ($r = .46$, and .41, respectively).

In summary, the 12-item narrative engagement scale's relations to enjoyment and attitudes were similar to those of both transportation and identification, demonstrating convergent validity. However, the different relations among the subscales provide additional information: *narrative understanding* appears related to enjoyment but not to attitude measures. Conversely, the *emotional engagement* subscale appears as strongly related to enjoyment as it is to attitudes. Also, in two of four programs *narrative understanding* correlated with transportation but not with identification, suggesting, not surprisingly, that the identification scale focuses on the emotional dimension of narratives.

## DISCUSSION

The two purposes of this research were to further conceptualize the experience of engaging with a narrative by identifying fundamental sensations, and to develop a scale for measuring those sensations. Below we describe the four dimensions of narrative engagement identified in these three studies and the theoretical relations among the dimensions. We then discuss the scale's relations to the transportation and identification scales, and end by addressing strengths and limitations of the scale and the studies.

The four dimensions of engagement identified can be interpreted as representing unique but interrelated engagement processes. We conceive of *narrative understanding* as ease in comprehending a narrative, or from a mental models perspective, ease in constructing models of meaning. However, to the extent that respondents agreed with reverse worded items (e.g., "At points, I had a hard time making sense of what was going on in the program.") the dimension may be described more accurately as lack of difficulty in comprehending. The asymmetrical nature of the dimension reflects the reality of narrative experiences. Although the primary activity of narrative engagement is comprehension, audience members should be unaware when comprehension progresses smoothly, and become aware only when comprehension falters.

A similar argument holds for *attentional focus* (e.g., "I found my mind wandering while the program was on."). Consistent with our theoretical approach and with the tenets of the concept of flow, a truly engaged viewer should be *un*aware of focused attention, and should become aware only if attention drifts or must be refocused. Essentially, one should *not* be aware that one is *not* distracted. It is possible that smooth narrative processing and the absence of distraction mediates or moderates subsequent sensations; *emotional engagement* and *narrative presence*. Future research will take up this issue.

*Emotional engagement* (feeling for and with characters ) appears specific to the emotional arousal component of narrative engagement, but not necessarily to any specific emotion, and likely represents the arousal rather than valance components of affect (Ravaja, Saari, Kallinen, & Laarni, 2006). This is useful because narratives may evoke the full range of emotions, but predicting which emotions are evoked by a given narrative is difficult.

The final dimension, *narrative presence*, is the sensation that one has left the actual world and entered the story. We conceive of this as a twofold phenomenon. One is an intense focus resulting in a loss of awareness of self and surroundings. This sensation is present in many flow activities (Csikszentmihalyi, 1997). The second is the sensation of entering another space and time, which should be unique to narratives. We see the former sensation, loss of awareness, as a function of focus on the activity, and the latter sensation as a result of mentally constructing an alternate world. This distinction is subtle but important. Loss of self-awareness should be available to participants in any engaging activity. But *narrative presence* should be available only when an alternative world or environment is created.

Regarding convergent validity, the scale's incorporation of items from other scales warrants discussion. First, all three items on the *narrative presence* subscale came from Kim and Biocca's (1997) telepresence scale. We take this as evidence that the sensation of entering and returning from an alternative world is central to narrative engagement. However, experiencing

alternative environments through other methods, such as sensory stimulation in nonnarrative settings, also is possible, but likely originates in a different process. This points to the importance of the relationship between questions and referents. One may feel a sense of presence in a film, novel, computer game, or virtual environment, but the sensations are not necessarily the same. The response given by a participant should depend on the wording of the item as well as on the mediated experience to which the item refers. Changing the wording of these items, for example from "story world" to "media-generated world," may render the items applicable to other media stimuli, such as virtual environments. However, caution is warranted as the items then may measure a sensation other than presence resulting from narrative engagement, such as spatial presence.

Among the nine items on the remaining three subscales, two items came from the transportation scale and two from the identification scale. But in neither case did the items load on the same dimension of our scale. One transportation item, "The story affected me emotionally," loaded on our *emotional engagement* dimension while the other item, "I found my mind wandering while the program was on," loaded on our *attentional focus* dimension. Similarly, one item from the identification scale, "My understanding of the characters is unclear," loaded on our *narrative understanding* subscale and the other, "I could understand why the characters felt the way they felt," loaded on our *emotional engagement* dimension.

On one hand, this redundancy likely inflated correlations between our 12-item scale and the transportation and identifications scales, which were indicators of convergent validity. However, the overlap was expected given that our intent was to clarify constructs and relations among constructs, rather than to measure an entirely new construct. More important is the fact that in the case of both transportation and identification the redundant items did not load on the same dimensions of our scale. This suggests that our concern about extant scales' confounding of construct was warranted. Specifically, one item from the transportation scale appears to measure what we have labeled *attentional focus* while the other appears to measure *emotional engagement*. Similarly, one item from the identification scale appears to measure *attentional focus* while the second appears to measure what we labeled *narrative understanding*. So, while our 12-item scale is highly correlated with both transportation and identification, their correlations with our 3-item subscales are both smaller than the correlations with the whole scale and not uniform in magnitude. We take this as evidence that items which are combined on other scales likely indicate different experiential sensations. Thus, we do not see our scale and subscales as redundant with other scales, but instead as measuring a more fundamental set of engagement sensations that may be confounded with other constructs in other scales.[4]

The scale presented in this article has several strengths. First, it can be combined into a measure of overall engagement or divided into subscales

that distinguish among different aspects of engagement. This is an advantage over other scales which while including items that appear to measure different aspects of mediated experiences were not designed to distinguish among them. Twelve items is a convenient length, especially considering that it contains reliable subscales.

Second, the ability to distinguish among different dimensions of narrative experience should help researchers better understand the mechanisms that lead to different outcomes, such as enjoyment or attitudinal effects. For example, in these data the *emotional engagement* subscale was more highly correlated with attitudinal effects than the other subscales (Table 5, in italics).

Third, this scale has heuristic value. Correlations indicating different relations between subscales and outcomes may guide experimental research. One might use the scale to investigate whether different dimensions of engagement relate more or less closely to different effects. For example, *emotional engagement* may relate more closely to effects associated with fear of crime or sympathy for victims. *Narrative understanding* may be more central to enjoyment of suspense and mystery genres. A minimal expectation is that the subscales will make it easier for researchers to interpret more precisely what different stimuli manipulate. For example, a manipulation may increase *attentional focus* but decrease *emotional engagement* resulting in the appearance of no effect, rather than what may actually be two competing effects.

The diversity of viewers and stimulus content enable us to have confidence in the scale. Our viewers were both American and German young adults, viewing in groups and alone. Stimuli were a feature film, an HBO series, and two network television programs. They represented a somewhat traditional crime drama (*CSI*), a medical drama (*ER*), an innovative program mixing drama and comedy (*Rescue Me*), and a touching character-based feature film about friendship (*Station Agent*).

A limitation is that the scale remains to be to be tested with more comic and fantastic content. Similarly, we have yet to explore its utility with written texts. All of the scale's items could be adapted for short stories, novels, or audio plays by simply changing the reference in each item from "program" or "film" to "novel" or "story." Replication and extension should be useful in providing empirical evidence of how audience members experience different types of narratives, in different media.

In sum, we see this scale and subscales as complimentary to existing scales, representing foundational sensations which likely are related to more complex and sophisticated phenomena. For example, *emotional engagement* may underlie identification with characters and difficulty in *narrative understanding* may undermine transportation. Hopefully, the scale will contribute to our understanding of the complexity of narrative experiences by illuminating the mechanisms that make narratives engaging and rewarding, and facilitate their influence on our perceptions of the world.

## NOTES

1. Pilot and season premier episodes are more useful than mid-season episodes because characters and plot lines either are not yet developed or are recapitulated.
2. In the first step, a principle components analysis (PCA) was performed to assess factorability of the data set, multicollinearity, and singularity, as well as to determine the number of factors. The Kaiser-Meyer-Olkin measure of sampling adequacy was .93, well above the recommended 0.5, indicating the factorability of the data set. The determination coefficient of the correlation matrix approached 0, indicating a possible problem with multicollinearity and singularity. However, there were no correlations between any two variables exceeding .70, and no eigenvalues associated with the factors approaching 0 (lowest eigenvalue was .235). Thus, no variables causing multicollinearity could be identified. Thus, all items in the set were retained preserving all of the theoretically justified variables.
3. A test run of a factor analysis (principal axis factoring) with an oblique rotation (SPSS Promax with *kappa* = 3; see Tataryn, Wood, & Gorsuch, 1999) showed that several factors were correlated more than .32 (equaling 10% shared variance) indicating that oblique rotation is more appropriate than orthogonal.
4. A concern that our *emotional engagement* subscale is redundant with the emotional dimension of Green and Brock's (2000) transportation scale appears unwarranted. Items from the emotion dimension of the transportation scale appear to capture the consequences of emoting with characters, while the items on our subscale focus on empathy. Correlations among the dissimilar items from the two scales ranged from .01 to .29 across datasets.

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