International Journal of Communication 13(2019), 801–832 1932–8036/20190005

The Narrative Engageability Scale: A Multidimensional Trait Measure for the Propensity to Become Engaged in a Story

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This study developed a self-report measure for Narrative Engageability using 4 different data sets (N = 339, N = 514, N = 121, N = 151). Scale development started with an exploratory factor analysis, resulting in a 12-item measure with 4 distinct dimensions: (1) Propensity for Presence, (2) Emotional Engageability, (3) Propensity for Suspense/Curiosity, and (4) Ease of Accepting Unrealism. Each dimension showed good reliability. The Narrative Engageability Scale was then tested on a different data set with a confirmatory factor analysis, in which it achieved good model fit and reliabilities. In terms of convergent validity, Narrative Engageability positively correlated with the existing Transportability Scale and related traits—Need for Affect, Empathy, and Sympathy. Regarding predictive validity, the new scale correlated with state Narrative Engagement and moderated effects on story consistent beliefs.

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Date submitted: 2017–12–21

[1] This research was funded by a grant from the German Research Foundation (DFG) to H. Bilandzic (Grant No. BI 838/8-1).

Keywords: trait narrative engagement, narrative engageability, transportability, scale development, narratives

Engagement in narratives, whether referred to as transportation (Green & Brock, 2000), absorption (Kuijpers, Hakemulder, Tan, & Doicaru, 2014), or narrative engagement (Busselle & Bilandzic, 2009), is the experience of being deeply immersed in a story and connecting to its plot and characters. The phenomenon is the central mechanism of narrative persuasion (Appel & Richter, 2010; Cohen, Tal-Or, & Mazor-Tregerman, 2015; Green & Brock, 2000; Quintero Johnson & Sangalang, 2017; van Laer, de Ruyter, Visconti, & Wetzels, 2014). Though states of narrative engagement result from an interaction between a reader or viewer and a specific narrative, some people are more likely than others to become absorbed. Humans' affinity for stories, and the highly functional role stories play in communities and cultures (Boyd, 2009; Gottschall, 2012), suggest that the function of stories is supported and enabled by an intrinsic motivation—the expectation of engagement. Research shows that narrative engagement is rewarding in several ways—for example, it creates enjoyment (Green, Brock, & Kaufman, 2004; Hall & Zwarun, 2012) and provides relief from life's challenges by offering temporary immersion in an alternative world (Greenwood, 2008; M. D. Slater, Johnson, Cohen, Comello, & Ewoldsen, 2014).

Assessing people's propensity to become engaged in a story—their Narrative Engageability—can contribute to research into the influence of stories on individuals and society. First, a trait engagement scale could act as a substitute for state engagement in research situations in which it is inconvenient to measure state engagement after exposure. For example, when multiple stimuli are used in one study, and repeated measures of state engagement are too lengthy or tiring for the respondent or plainly carry the danger of reactivity, it is advisable to measure the propensity for engagement as a trait before the presentation of the stimuli. Trait engagement may then serve as a proxy for state engagement with each stimulus. Second, the propensity for engagement is useful, even necessary, in research where no individual stimulus is presented, and therefore state engagement cannot be measured. For example, in a cultivation process, habitual exposure and engagement are expected to interact in the long term, and trait engagement approximates repeated exposure experiences that may be highly engaging for some audience members, but less engaging for others as a result of the propensity to become engaged in narratives (Bilandzic & Busselle, 2008). Similarly, trait engagement is useful for identifying target groups in a population that are more receptive or vulnerable to narrative messages for consumer or health goals (Brechman & Purvis, 2015; Dunlop, Wakefield, & Kashima, 2008). Being able to identify the size and composition of populations that are relatively more susceptible to persuasive narratives may be useful in campaign development and effectiveness.

The goal of this research is to create a new measure—Narrative Engageability—which differs from the existing measure of Transportability (Dal Cin, Zanna, & Fong, 2004) by mapping the theoretically relevant dimensions of narrative processing and engagement onto a multidimensional scale. The Narrative Engageability Scale was developed across a series of four studies that test validity and reliability, resulting in a 12-item measure with four subscales that may be used separately as

stand-alone instruments. The shortness and reliability of the overall scale (12 items) as well as the subdimensions (three items each) make the instrument efficient and usable for a wide range of research.

Existing Research on Transportability

Currently, the transportability scale (Dal Cin et al., 2004), which was derived from the transportation scale (Green & Brock, 2000), measures an individual's disposition to regularly experience transportation. Transportability was successful in predicting the state of transportation (Bilandzic & Busselle, 2008, 2011; Dal Cin et al., 2004; Mazzocco, Green, Sasota, & Jones, 2010; Thompson & Haddock, 2012). It also predicted situational identification in movies and video games (Bilandzic & Busselle, 2011; Dal Cin, Gibson, Zanna, Shumate, & Fong, 2007), as well as situational presence and realism (Bilandzic & Busselle, 2011). In some studies, transportability facilitated effects: Mazzocco et al. (2010) found that only highly transportable individuals changed their attitudes on tolerance toward homosexuals (Study 1) and affirmative action (Study 2) after reading stories that promoted the respective position. Brechman and Purvis (2015) used trait transportability to assess receptivity to narrative messaging for 39 advertisements differing in narrativity. They concluded that transportability was positively related to recall of brand names and a more favorable affective response to the ads. Dunlop et al. (2008) found that transportability increased the recall of antismoking ads in general and narrative antismoking ads in particular in current and former smokers. It also heightened the subjective impression that the ads were helpful in the individual's effort to stop smoking.

Transportability, though lacking the situational, contextual component of transportation, seems to predict one's tendency to experience transportation in various situations with a range of stimuli. It also seems to behave like situational transportation in predicting effects and experiences such as identification, presence, and realism. Transportability relates to other traits or stable tendencies. For example, transportability was found to correlate with parasocial interaction with a favorite character or media personality (Greenwood & Long, 2009). It is also associated with retrospective imaginative involvement—the tendency to reflect on a story or ponder the choices of characters within the plot after having seen a movie or television drama (M. D. Slater, Ewoldsen, & Woods, 2017), as well as with children's leisure reading (Jensen, Christy, Krakow, John, & Martins, 2016).

Though the Transportability Scale has demonstrated value, it also has several limitations. First, although different semantic components are included in transportability (such as mental imagery, identification, relevance for one's own life, interest in the story line, attention, counterfactual thinking; Dal Cin et al., 2004), the scale does not (and is not intended to) fall into reliable factors. To the contrary, several studies found it to be unidimensional (Jensen et al., 2016; M. D. Slater et al., 2017). However, previous research with the multidimensional measure of narrative engagement indicates that some dimensions, most notably emotional engagement, are more important than other dimensions for predicting effects (Busselle & Bilandzic, 2009; de Graaf, Hoeken, Sanders, & Beentjes, 2009). Being able to distinguish among different dimensions of engageability has the advantage of more precise prediction of effects and, therefore, more precise understanding of the processes that precede effects. Such discrimination facilitates greater accuracy in theorizing, measurement, and data analysis.

Second, with 20 items, the Transportability Scale is fairly long. In several studies, authors used only portions of the instrument, either in an ad hoc fashion without explaining or documenting the choice (e.g., Brechman & Purvis, 2015; Greenwood & Long, 2009) or justifying the choice with empirical criteria (Dunlop et al., 2008; Jensen et al., 2016; M. D. Slater et al., 2017). The use of different compositions of the Transportability Scale in different studies is detrimental to comparing and replicating studies. This is especially true because the items contained in the original scale are quite heterogeneous (see an exception for a theoretical choice of four transportabilty items in M. D. Slater et al., 2017).

The goal of this research was to create an efficient, multidimensional scale of Narrative Engageability with theoretically justified dimensions. This new Narrative Engageability Scale is based on the model of narrative engagement and understanding (Busselle & Bilandzic, 2008), which will be explained and related to trait Engageability in the next section.

Narrative Engageability and Comprehending Narratives

The model of narrative comprehension and engagement (Busselle & Bilandzic, 2008) focuses on the recognition, common in psychology, that readers or viewers must construct a mental representation of the story text that exists on a page or the audiovisuals that appear on a screen (Gerrig, 1993; Oatley, 2002). In this process, readers or viewers essentially create meaning from the symbolic set offered by a story; comprehension is regarded as the prerequisite of all perceptions, evaluations, and effects of a story. The model of narrative comprehension and engagement uses a mental models approach to explain this process. Mental models are cognitive representations of different aspects of a story (Johnson-Laird, 1983; van Dijk & Kintsch, 1983). Busselle and Bilandzic (2008) distinguish three types of mental models. (1) The situation model, which retains the plot, the chronological sequence of events and actions, as well as possible causalities between them (Graesser, Olde, & Klettke, 2002; Zwaan, Langston, & Graesser, 1995). It is updated as the story progresses and relies on prior knowledge, schemata, and stereotypes to fill in gaps left by the story. (2) Character models represent the characters—their traits, background, motivations, and goals—appearing within a narrative (Rapp, Gerrig, & Prentice, 2001). (3) The story world model contains the specifics of a particular narrative world—for example, location, time, and the "story world logic" (Segal, 1995a), the rules of a particular story world (e.g., magic in *Harry Potter*; advanced technology in *Star Wars*). For narrative engagement to happen, it is not sufficient to construct the three types of models (or, put differently, make sense of a story). Busselle and Bilandzic (2008) argue that narrative engagement emerges when readers or viewers have a near complete focus on the process of sense making with the story. They define narrative engagement as flow in the experience of constructing mental models: The sensation of flow can arise from any activity in which people strongly focus their attention, lose awareness of themselves and perceive the activity to be part of themselves (Csikszentmihalyi, 1990). For stories, the activity underlying flow is constructing mental models (Busselle & Bilandzic, 2008).

This process of strong attention resulting in flow is accompanied by another phenomenon typical for story processing: the deictic shift (Segal, 1995a). To understand a story, readers or viewers must shift their center of perception into the mental model of the story world. This is important for grammatical and spatial orientation because the shift allows perceivers to correctly interpret words like "I" and "you" or "left" or

"right"—not being relative to one's actual identity and position, but relative to the speaker's position in the story. Segal (1995b) argues that, apart from this more basic function, the deictic shift also has consequences for higher order processing of the story: By shifting into the mental model of the story, readers or viewers "feel they are in the middle of the story, and they eagerly or hesitantly wait to see what will happen next'' (p. 14). Similarly, shifting one's location into the story also means adopting the perspective of the characters, which may result in identification (Cohen, 2001) and generally understanding the meaning of a particular situation for the characters, including the emotional implications.

If narrative engagement is a flow sensation originating in the construction of mental models, a trait that describes the propensity for being engaged (Narrative Engageability) should refer to recurring instances of complete focus and shifting into story worlds. The primary activity in story comprehension is tracking and understanding the events in the story and integrating them in a situation model. Experiencing near complete focus on situation models creates flow and thus the experience of narrative engagement. Apart from simply processing the events in a situation model, readers or viewers also position themselves within the situation model, which creates immediacy to the plot and makes the events seem relevant from an inside perspective. In other words, intensive processing of events makes readers or viewers care about what happens in a story. They experience an urgent need to learn outcomes (curiosity), and uncertainty about outcomes (suspense; see Brewer & Lichtenstein, 1982; Hoeken & Van Vliet, 2000). These two sensations represent a plot-oriented viewing mode; as a trait, this should reflect how easily someone is intrigued by a gripping story and how much someone wants to see how it unfolds. Thus, the first dimension of Narrative Engageability is the "Propensity for Curiosity and Suspense" about the plot.

Second, mental models of characters as well as the deictic shift into the story enable perspective taking, which ultimately leads to understanding the emotional implications of decisions, actions, and events for the characters. Emotions play an important role in narratives, being both an emergent quality of the narratives themselves as well as a defining cornerstone of the narrative experience (Nabi & Green, 2015; Oatley, 1999; Tan, 2008). Having the tendency to feel emotional engagement with characters and being emotionally touched by the narrative in general should be an important property of Narrative Engageability. This suggests that the "Propensity for Emotional Engagement" is a second dimension.

Third, understanding and entering the story world model by means of the deictic shift gives readers or viewers the opportunity to experience the specifics of the narrative world from the inside and feel as if they were part of the story world. This may result in vivid impressions of the story world and the experience that one is "present" in the fictional realm. Thus, the third dimension of Narrative Engageability is the "Propensity to Experience Narrative Presence".

The three dimensions so far refer to repeated intensive sensations with the plot (Propensity for Curiosity and Suspense), characters (Propensity for Emotional Engagement) and story world (Propensity to Experience Narrative Presence). They roughly deal with viewers' or readers' tendencies to process the main components of a story—events, characters, and story world—intensively. However, sustained concentration while processing the story ("attentional focus" in the state engagement scale), which is characteristic of the sensation of narrative engagement as well as the effortlessness of the

comprehension process ("narrative understanding"), has not yet been captured sufficiently by the first three dimensions. Also, it is highly difficult to measure a general tendency to understand or to attend because it cannot really be separated from an actual reader–story interaction and generalized to other situations. Thus, the remaining two dimensions serve to compensate for this. Rather than asking for generalizations of unproblematic situations (i.e., high narrative understanding, high attentional focus), they look at situations with potentially disruptive influences from outside and inside of the story, and assess how much readers or viewers are generally able to ignore these disruptions and maintain narrative engagement.

First, we elaborate on external influences. In the model of narrative comprehension and engagement, the deictic shift changes the frame of reference for one's perception and processing. Being able to sustain this change in reference frames, even if the actual world is perceptually obtrusive (e.g., through visual change or sound in one's surroundings) is a condition for narrative engagement. It might be hard to immerse oneself in a story because of the specific viewing situation—such as movement, noise, or interruptions, which might be averse to becoming engaged—in a similar way that spatial presence is inhibited when there are loud noises in the surroundings, or technical errors in the display (M. Slater, 2002; Wirth et al., 2007). These circumstances may not influence or may have less of an impact on people who are highly engageable. Thus, the fourth dimension of Narrative Engageability is "Ease of Being Engaged Despite Adverse Surroundings".

Second, we look at disruptive influences from the inside of the story. For regular engagement experiences to occur, it is necessary that one is able to engage with a fictional world despite its deviations from the actual world. Narrative Engageability might manifest as a trait most prominently when the narrative world is very different. Narratives that are unrealistic or contain unrealistic events are often more difficult to engage with (Busselle, Ryabovolova, & Wilson, 2004; Green, 2004). However, if a viewer or reader is high in Narrative Engageability, he or she might be more able to overlook unrealism, or be less bothered by it; accepting deviations from the actual world should be a routine activity for people with a propensity for being engaged. Hence, the fifth and final dimension that we hypothesize for Narrative Engageability is "Ease of Accepting Unrealism".

Though the last two dimensions (Ease of Being Engaged Despite Adverse Surroundings; Ease of Accepting Unrealism) certainly do not represent an exhaustive list of potentially disruptive influences on narrative engagement, they should be able to discriminate between more and less skilled "engagers."

Goals of the Study and Hypotheses

The goal of this study was to develop and test a measure of Narrative Engageability. In contrast to the existing measure of Transportability, the scale for Narrative Engageability aimed at short length and multidimensionality, with subscales for each dimension that can be used as stand-alone instruments. We derived five dimensions from the model of narrative comprehension and engagement by Busselle and Bilandzic (2008): (1) Propensity for Narrative Presence, (2) Emotional Engageability, (3) Propensity for Suspense and Curiosity, (4) Ease of Accepting Unrealism, and (5) Ease of Being Engaged Despite Adverse

Surroundings. The first goal is to find or develop items describing these five dimensions, to explore them, and confirm the most parsimonious selection of items across a number of studies:

RQ1: Is the new measure of Narrative Engageability multidimensional and composed of the five theoretical dimensions?

RQ2: Is the factor structure of Narrative Engageability stable across studies?

Our second goal is to validate the scale and establish its reliability with several data sets. Convergent validation is pursued with two strategies: First, we will validate the scale by relating it to the existing Transportability Scale. The two are designed to capture the same trait: the propensity for being immersed in a narrative. Although Narrative Engageability has a different theoretical background and is designed to be multidimensional, the overall scale should correlate positively with Transportability:

H1: Narrative Engageability is positively related to Transportability.

Second, we will validate the new scale by testing it against three personality traits that are related to narrative experience (i.e., Need for Affect, Empathy, and Sympathy). Need for Affect describes a person's disposition to look for situations and activities that evoke emotions (Maio & Esses, 2001). The Need for Affect scale has two dimensions that express the motivation to approach and motivation to avoid emotions. Prior studies have shown that the approach dimension of Need for Affect facilitates Transportation (Appel & Richter, 2010), hence:

H2: The approach dimension of Need for Affect is positively related to Narrative Engageability, whereas the avoidance dimension is not.

Empathy is the ability to feel with others and understand other people's points of view (Davis, 1996). It has been related to having emotional reactions to films (Davis, Hull, Young, & Warren, 1987). Also, Narrative Engagement implies that viewers or readers imagine the perspective of a character to understand his or her motivations, goals, and intentions, and to understand the course of action. Thus, on a trait level, people who are more likely to empathize should also be more easily engaged in narratives, especially with respect to the emotional dimension:

H3: Empathy is positively related to Narrative Engageability.

Sympathy describes the ability to understand the suffering of others and express hope and care for someone in need (Clark, 1987; Lee, 2009). As readers or viewers encounter events in a narrative, they are "privileged witnesses" (Tan, 1994) and experience emotions evoked by the story. To feel pity for a character, hope for a good outcome for the hero, or fear for his or her safety, audience members need to engage with the characters, understand, and become invested in the story (Mar, Oatley, Djikic, & Mullin, 2011; Tan, 1994). Again, we hypothesize that Sympathy will have a positive relationship with Narrative Engageability.

H4: Sympathy is positively related to Narrative Engageability.

Predictive validity will be pursued in two steps. First, we will test the new scale's predictive power for actual state Engagement. If trait Engageability is to serve as a substitute or proxy for state Engagement, it should be related to experiencing Narrative Engagement in any particular narrative, as well as across several instances of state Engagement within one person:

H5: Trait Engageability is a positive predictor of state Narrative Engagement.

As a second strategy for predictive validity, we will test overall trait Engageability, one specific dimension of trait Engageability, and state Engagement against each other to compare their different potentials to explain the effects of a narrative on beliefs. State Engagement is expected to mediate the relationship between exposure to a crime drama and story-consistent beliefs, whereas Engageability (being a stable trait) should not be influenced by an experimental setup and thus should not mediate beliefs. Conversely, trait Engageability should moderate the effects of crime drama on story-consistent beliefs, enhancing the effects of the narrative if Engageability is high. State Engagement should not have a moderating effect:

H6a: Overall Engageability and its Suspense dimension moderate the relationship between exposure to a crime narrative and story-consistent beliefs, whereas state Engagement does not.

H6b: State Engagement mediates the relationship between exposure to a crime narrative and story-consistent beliefs, whereas trait Engageability does not.

Method

Four different data sets were used to develop and validate the measure of Narrative Engageability. The data sets were used as follows:

1. Study 1: Exploration of the underlying dimensions. Scale development started with an exploratory factor analysis with the data set from Study 1 (N = 339).
2. Study 2: Confirmation of the dimensions. The resulting scale was tested with a confirmatory factor analysis (CFA) with data from Study 2 (N = 514).
3. Studies 2 and 3. Convergent validity was tested against the existing Transportability measure with data from Study 2, and trait measures of Need for Affect, Empathy, and Sympathy from Study 3 (N = 121).
4. Studies 1 and 4. Predictive validity was assessed through the relationship between trait Engageability and state Engagement (Study 4, N = 151). In addition, predictive validity was tested by comparing the predictive power of state Engagement with trait Engageability for effects on story-consistent attitudes using data from Study 1.

The results sections will be organized according to the order of the sequential steps, rather than in the order of the four studies. The design of the studies will be described at the first occurrence in the text.

Study 1: Exploratory Factor Analysis

We start the scale development process with an exploratory factor analysis, which is commonly the recommended first step, even if the items were chosen based on a theoretical model (Carpenter, 2018; Kline, 2013; Worthington & Whittaker, 2006). This procedure ensures that the assumptions about a construct's dimensionality are justified and item quality is good (Carpenter, 2018).

Participants and Procedure

In Study 1, we recruited 353 students from a German university, who received €5 and a nonalcoholic beverage for their participation. They first filled out a questionnaire with the Narrative Engageability items on a computer in a campus research lab, then received an experimental manipulation in the form of a text. Afterward, they watched an excerpt of about 20 minutes from a *CSI: Crime Scene Investigation* episode ("Pirates of the Third Reich"; Season 6, Episode 15), and filled out another questionnaire. (The experimental manipulation will be described in more detail in the Predictive Validity section that focuses on effects.) Seven respondents were excluded from analysis because of missing data. Furthermore, the Mahalanobis distance procedure for the Engageability items detected seven multivariate outliers at $p < .001$, which were eliminated. The final sample consists of 339 students (51.9% female, M_{age} = 22.01 years, SD = 2.47 years).

Measures

For Narrative Engageability, 16 items were included in this study to cover the five theorized dimensions of Narrative Engageability. Two dimensions—Narrative Presence and Emotional Engagement—were adapted from the state measure of Narrative Engagement (Busselle & Bilandzic, 2009); the others were adapted from other sources or newly developed (see Table 1 for each item, its source, mean, and standard deviation; items not marked with a source were developed by the authors).

Table 1. Items Used for the Development of the Narrative Engageability Scale.

	M	*SD*
Presence Propensity		
1. When I watch a movie or a TV show, I often feel that my body is in the room, but my mind is inside the world created by the story. (Busselle & Bilandzic, 2009)	3.45	1.73
2. While watching a movie, the story world is often closer to me than the real world. (Busselle & Bilandzic, 2009)	2.81	1.62
3. I often feel that a movie creates a new world, and then that world suddenly disappears when the movie ends. (Busselle & Bilandzic, 2009)	3.67	1.72
Emotional Engageability		
4. I am often affected emotionally by movies and TV shows. (Busselle & Bilandzic, 2009)	4.97	1.53
5. I often feel happy when a character succeeds, and I feel sad when they suffer in some way. (Busselle & Bilandzic, 2009)	5.17	1.36
6. It is easy for me to get involved with the feelings of the characters in a movie. (Davis, 1980)	4.90	1.26
Suspense/Curiosity Propensity		
7. I am often impatient to find out how a story ends. (Dal Cin et al., 2004)	5.37	1.39
8. Films arouse my curiosity easily.	4.99	1.45
9. I am often at the edge of my seat while watching a movie. (Oliver & Bartsch, 2010)	2.93	1.58
10. I am often glued to a movie, yearning to see how everything plays out.	4.77	1.58
Ease of Accepting Unrealism		
11. I often find myself accepting events that I might have otherwise considered unrealistic. (Dal Cin et al., 2004)	4.27	1.86
12. I can easily immerse myself even in unrealistic stories.	4.29	1.69
13. I often become very involved in a movie that I would otherwise consider unrealistic, just for the fun of it. (Bilandzic & Busselle, 2008)	4.45	1.66
Ease of Being Engaged Despite Adverse Surroundings		
14. As soon as I start watching a movie, I can easily tune out other activities around me. (Dal Cin et al., 2004)	4.48	1.64
15. No matter where I am, in a noisy room or a crowded theater, I can usually completely immerse myself into the world of a movie.	3.83	1.63
16. While watching a movie, I am often involved to the extent that I wouldn't notice anything around me.	3.12	1.55

For each item, participants were asked to indicate the extent to which they agree (7) or disagree (1) with whether a statement describes their experience of watching movies in general. Scale items were presented in randomized order to prevent order effects.

Results

To explore the underlying dimensions of the Narrative Engageability Scale, we chose to employ a factor analysis, which is suitable for the case that underlying constructs are expected to manifest in observed variables (rather than pursuing an empirical summary of the data set; Tabachnick & Fidell, 2007, p. 635).

We first ran a factor analysis with principle axis factoring (PAF) as the extraction method. Assuming that the dimensions would—at least to some extent—be correlated, we used a promax rotation ($\kappa = 4$). The first run confirmed that oblique rotation was necessary, as it revealed substantial correlations (up to .60) between the factors. Thus, oblique rotation with promax was chosen for the remaining analyses. The first run also showed four factors with eigenvalues greater than 1.0, explaining 53.48% of variance. The first factor was by far the largest (eigenvalue = 6.07). All six items of Narrative Presence and Adverse Surroundings dimensions loaded on it. Conversely, the other three theoretical dimensions loaded separately on three factors. All but one item clearly loaded on one factor, and no cross loadings exceeded one half of the primary loading. The scree plot indicated a sharp drop after the first factor and no clear cutoff after the subsequent factors. Thus, we proceeded with the Kaiser criterion to retain factors with an eigenvalue of more than one.

The first run showed that the first factor unites two theoretical dimensions. This may be explained by the relative semantic proximity of Presence and Adverse Surroundings: Whereas Presence Propensity indicates how much one feels present in the narrative world, adverse surroundings is what *prevents* viewers from being present in the narrative world. Possibly, the two hypothesized dimensions tap into the same construct from different angles. Thus, we decided to keep a four-factor structure and combine the Presence and Adverse Surroundings dimensions. We proceeded by eliminating items with weak loadings to increase stability and parsimony. Three items had factor loadings below .50 ("No matter where I am, in a noisy room or a crowded theater, I can usually completely immerse myself into the world of a movie"; "As soon as I start watching a movie, I can easily tune out other activities around me"; and "I am often at the edge of my seat while watching a movie"). We omitted these items in the next run in which four factors were requested. Though the basic structure remained the same in the second solution, the new run caused the loading of the item "While watching a movie, I am often involved to the extent that I wouldn't notice anything around me" to drop to .46. This item was excluded in the next and final run. The final PAF with the 12 remaining items retained three items for the dimensions Emotional Engagement, Presence, Unrealism, and Suspense, but lost all items for Adverse Surroundings. The final PAF contained good factor loadings, now ranging from .580 to .928. The four factors explained 72.7% of variance before rotation. The sum of squared loadings after rotation suggested that all four factors are approximately equal in importance. The four factors were easy to interpret because they basically reproduced four of the five theorized dimensions, the first factor being Suspense/Curiosity Propensity, the second Emotional Engageability, the third, Ease of Accepting Unrealism and the fourth factor being Presence Propensity (see all relevant statistics in Table 2).

Table 2. Factor Analysis of Narrative Engageability.

	Factor				
	1	2	3	4	h^2
Suspense/Curiosity Propensity					
1. I am often impatient to find out how a story ends.	**.928**	−.048	−.026	−.010	.78
2. I am often glued to a movie, yearning to see how everything plays out.	**.788**	.100	−.054	.023	.70
3. Films arouse my curiosity easily.	**.604**	.018	.134	.004	.48
Emotional Engageability					
4. It is easy for me to get involved with the feelings of the characters in a movie.	−.032	**.816**	.003	.035	.67
5. I am often affected emotionally by movies and TV shows.	−.006	**.776**	−.093	.026	.58
6. I often feel happy when a character succeeds, and I feel sad when they suffer in some way.	.102	**.704**	.087	−.072	.59
Ease of Accepting Unrealism					
7. I often become very involved in a movie that I would otherwise consider unrealistic, just for the fun of it.	.007	−.059	**.890**	−.050	.73
8. I can easily immerse myself even in unrealistic stories.	−.103	.098	**.785**	.029	.62
9. I often find myself accepting events that I might have otherwise considered unrealistic.	.148	−.071	**.580**	.049	.43
Presence Propensity					
10. While watching a movie, the story world is often closer to me than the real world.	−.037	−.065	−.019	**.879**	.68
11. I often feel that a movie creates a new world, and then that world suddenly disappears when the movie ends.	.049	.005	−.017	**.641**	.43
12. When I watch a movie or a TV show, I often feel that my body is in the room, but my mind is inside the world created by the story.	.014	.118	.076	**.595**	.50
Sum of squared loadings after rotation	3.38	3.25	2.75	2.83	
Percentage of variance (before rotation)	40.14	13.47	11.12	7.99	
Correlation with Factor 1	1.00				
Correlation with Factor 2	.60	1.00			
Correlation with Factor 3	.47	.33	1.00		
Correlation with Factor 4	.44	.52	.43	1.00	

Note. 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 principal factor analysis with promax rotation. Highest loadings on a factor are marked in boldface.

Both overall Narrative Engageability and its subscales achieved good reliabilities (see Cronbach's α, means, and standard deviations in Table 3). To detect potential problems with restricted range and nonnormal distributions, which may affect size and sign of correlations, and other analyses (see Warner, 2013, pp. 285–299), all scales in all studies were thoroughly checked for their range and underlying distributions. All measures in all studies ranged from the scale minimum of 1 to the scale maximum of 7 and show normal distribution in visual inspection, with only few exceptions: The subscale for Suspense/Curiosity showed slight negative skews in all four studies; Emotional Engageability had a slight negative skew in Study 1, and Narrative Presence Propensity a slight negative kurtosis in Study 3. However, as the P–P plots did not reveal substantial deviations from normality and sample size is large enough (more than 100 in all cases), no negative consequences should arise for the analysis (see Tabachnick & Fidell, 2007, p. 80).

Table 3. Cronbach's α, Means, and Standard Deviations for the Narrative Engageability Scale and Its Subscales for Studies 1, 2, 3, and 4.

	Narrative Engageability	Presence Propensity	Emotional Engageability	Suspense Propensity	Accepting Unrealism
Study 1, *n* = 339					
Cronbach's α	.86	.76	.81	.84	.80
M (*SD*)	4.42 (0.99)	3.31 (1.40)	5.01 (1.18)	5.04 (1.28)	4.33 (1.47)
Study 2, *n* = 514					
Cronbach's α	.90	.79	.83	.87	.77
M (*SD*)	4.23 (1.19)	3.34 (1.52)	4.63 (1.38)	4.79 (1.52)	4.14 (1.42)
Study 3, *n* = 121					
Cronbach's α	.84	.76	.83	.83	.77
M (*SD*)	4.48 (0.90)	3.68 (1.29)	4.94 (1.15)	4.97 (1.15)	4.33 (1.43)
Study 4, *n* = 151					
Cronbach's α	.83	.74	.72	.74	.63
M (*SD*)	4.23 (0.96)	3.13 (1.40)	4.79 (1.25)	4.73 (1.28)	4.26 (1.31)

Summing up, Research Question 1 asked about the correctness of the multidimensional nature of the new measure and the validity of its five dimensions. We can conclude after the exploratory assessment that the scale is multidimensional, albeit with four instead of five dimensions.

Study 2: Confirmatory Factor Analysis

Participants and Procedure

Using a German commercial respondent panel, a new data set with a nonstudent, cross-sectional sample was created to further test the 12-item version of the Engageability Scale. We recruited 530 participants who completed an online questionnaire containing the Narrative Engageability items as well as the Transportability Scale (Dal Cin et al., 2004). Using Mahalanobis distance, 16 multivariate outliers were identified ($p < .001$) and excluded, resulting in a final sample of 514 (M_{age} = 43.29 years, SD = 14.27 years, range: 18–69; 49.4% female; education: 34.4% secondary school or lower, 29.8% middle school, 35.8% high school).

Results

A CFA was conducted using the statistical package AMOS (Arbuckle & Wothke, 1999). To asses model fit, we used overall goodness of fit based on a chi square to degrees of freedom ratio (χ^2/df), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR), along with theoretical considerations of the constructs and inspections of individual path coefficients and residuals.

To find the most parsimonious solution, three models were computed: a correlated four-factor model (Model 1; see Figure 1) was tested against the nested one-factor model (Model 2; see Figure 1) and then again compared with a hierarchical model (Model 3; see Figure 2). Model 1 showed good fit (χ^2 = 155.7, df = 48, $p < .001$, χ^2/df = 3.24, CFI = .97, RMSEA = .07, 90% CI [.06, .08], SRMR = .04), whereas the fit of the one-factor solution in Model 2 was significantly worse (χ^2 = 280.80, df = 52, $p < .001$, χ^2/df = 5.39, CFI = .93, RMSEA = .09, 90% CI [.08, .10], SRMR = .10). The comparison between the models is highly significant, $\Delta\chi^2(4, N = 514) = 124.30$, $p < .001$, indicating that the one-factor Model 2 fits the data significantly worse than the four-factor Model 1.

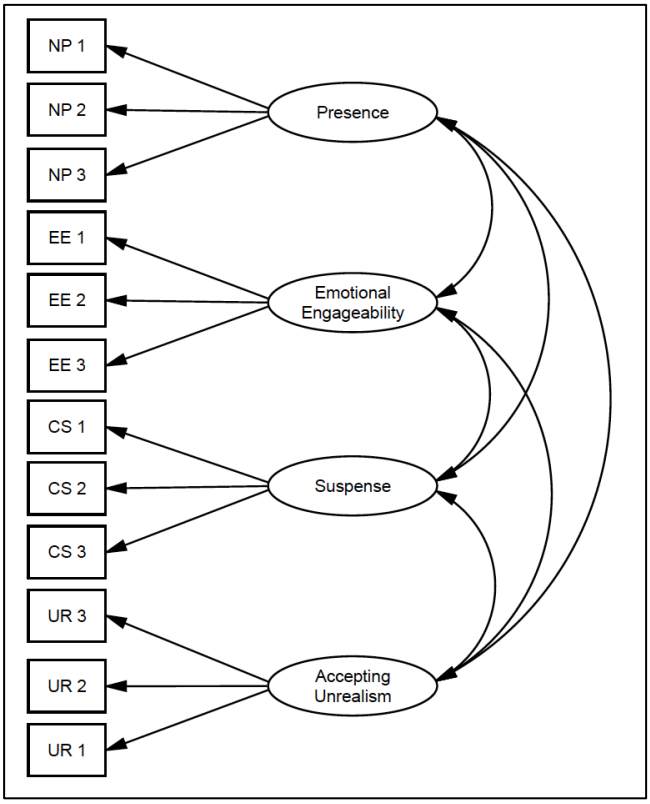

Figure 1. Schematic illustration of model 1 and model 2.[2]

The final model was a hierarchical second-order model (Model 3; see Figure 2). Even though second-order models can technically never achieve "better" fit than their corresponding first-order models (Arnau & Thompson, 2000; Marsh & Hocevar, 1985), they are worth considering, as they allow the researcher to "determine directly how well the superordinate factors capture variance present in the first-order constructs, and how much variance in the first-order constructs occurs exclusively at that level" (Arnau & Thompson, 2000, p. 240). Model 3 achieves good model fit (χ^2 = 166.30, *df* = 50, *p* < .001, χ^2/df = 3.33, CFI = .96, RMSEA = .07, 90% CI [.06, .08], SRMR = .05), with parameters very close to Model 1, $\Delta\chi^2$ (2, *N* = 514) = 10.6, *p* < .01. Loadings of the first-order factors on the second-order factor are all above .74 (see Figure 2), corresponding critical ratios are all above 10.15, and thus are statistically significant. This points to a strong relationship between the first-order factors and the second-order factor, demonstrating the appropriateness of the proposed second-order model (Koufteros, Babbar, & Kaighobadi, 2009). In the overall Model 3, path coefficients ranged from .69 to .91, with only one coefficient below .71 (see Figure 2).

[2] Reported calculations are based on a nested models approach (i.e., fixing interfactor correlations to 1.0 in Model 1 to access the nested single factor Model 2).

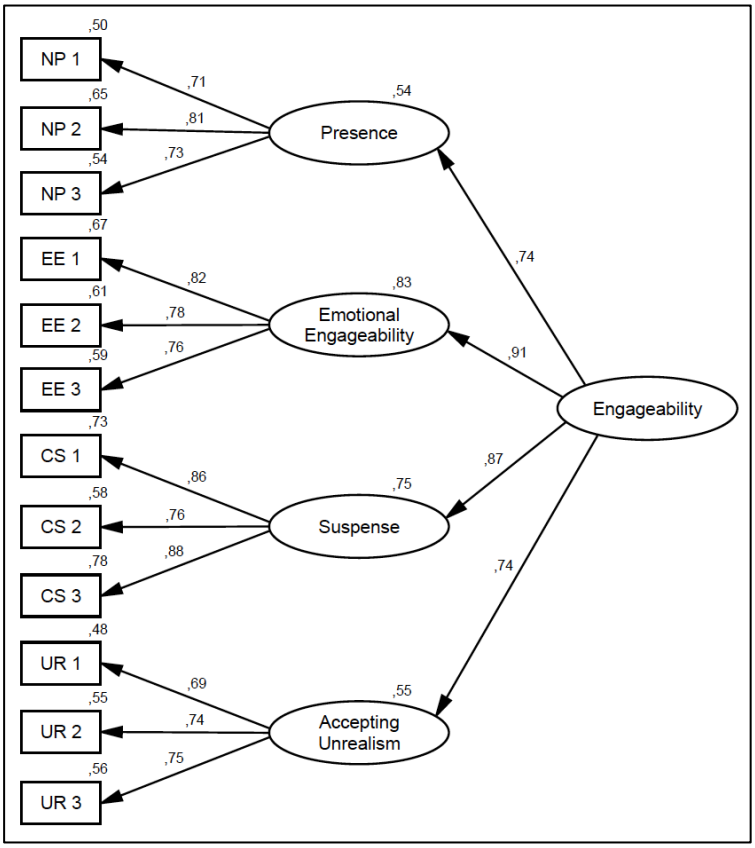

Figure 2. Dimensions of Narrative Engageability (Study 2).[3]

All scale reliabilities were good (see Table 3). Answering Research Question 2, the factor structure was replicated with a different data set and proved to be stable with a good fit in a CFA, and good reliabilities for the overall scale as well as the subdimensions.

Studies 2 and 3: Convergent Validity for Narrative Engageability and Transportability

Study 2, which was described previously, included a German-language version of the 20-item Transportability Scale (Dal Cin et al., 2004; α = .91, *M* = 4.08, *SD* = 1.03).

[3] All path coefficients statistically significant at $p < .001$. Model 3: $\chi^2 = 166.31$, $df = 50$, $p < .001$, $\chi^2/df = 3.33$, CFI = .96, RMSEA = .07, 90% CI [.06, .08], SRMR = .05. Standardized coefficients are displayed; error terms are excluded from the figure.

Results

As the different scales under consideration have different reliabilities, and this tends to underestimate the true correlation between constructs, we employed a correction recommended for this situation, which divides the original *r* by the root of the products of reliability of the first scale and the reliability of the second scale (correction for attenuation; see Trafimow, 2016; Warner, 2013). This procedure generally increases correlations. Where necessary, we computed significance tests to compare correlations, using a *t* ratio recommended by Eid, Gollwitzer, and Schmitt (2011) and Warner (2013), and a tool by Lenhard and Lenhard (2014).

Transportability correlates strongly with the overall Engageability Scale (r = .99), indicating that both scales measure the same construct, although Engageability has a different theoretical structure and a reduced number of items. Regarding the subscales, the correlations with Transportability are also very high, ranging from .81 to .88. Nonetheless, Transportability correlates significantly more highly with overall Narrative Engageability than with all subdimensions (comparisons with the correlation of Transportability and Presence Propensity: t = 33.06, p < .001; Emotional Engageability: t = 49.72, p < .001; Suspense/Curiosity Propensity: t = 48.53, p < .001; Ease of Accepting Unrealism: t = 46.29, p < .001). This suggests that the subdimensions (as intended) are more specialized and represent only parts of the overall Transportability Scale. However, the correlations are so high that this seems negligible (see Table 4). Hypothesis 1 can be confirmed.

Table 4. Correlations Among Narrative Engageability, Transportability, and Relevant Personality Trait Measures (Studies 2 and 3).

Trait Scales	Narrative Engageability	Presence Propensity	Emotional Engageability	Suspense/ Curiosity Propensity	Ease of Accepting Unrealism
Study 2 (n = 514)					
Transportability	.99***	.88***	.86***	.84***	.81***
Study 3 (n = 121)					
Need for Affect					
Approach	.38***	.26*	.57***	.52*	.07
Avoidance	.06	.05	−.13	.02	.20
Empathy	.54***	.38***	.67***	.51***	.12
Sympathy	.52***	.44***	.42***	.51***	.15

Note. All reported correlations are corrected for attenuation (Trafimow, 2016). *p < .05. ***p < .001.

Studies 2 and 3: Convergent Validity for Narrative Engageability, Need for Affect, Empathy, and Sympathy

Participants and Procedure

In Study 3, we recruited 177 university students on campus and in classes to participate in a four-week experimental study with weekly assignments to watch contemporary television series as well as weekly invitations to the research lab to complete a computer-administered questionnaire (more details on this study are reported in Schnell & Bilandzic, 2017). Because of the long duration of the study, 56 participants dropped out; the final sample was n = 121 (M_{age} 20.75 years, SD = 2.59 years, 70.2% female). The participants completed a questionnaire containing the 12-item Narrative Engageability Scale and trait scales for Need for Affect, Empathy, and Sympathy. To reduce participation fatigue and response sets, the scales were distributed across the four weeks of data collection so that participants only answered to one scale in one week's data collection session.

Measures

Need for Affect was measured using the German version (Appel, 2008), with separate dimensions for approach and avoidance (13 items each; approach: α = .82, M = 4.65, SD = 0.76; avoidance: α = .80, M = 2.73, SD = 0.83). Empathy was measured with the E-Scale (Leibetseder, Laireiter, Riepler, & Köller, 2001), composed of 25 items, measuring Empathy with fictional characters ("Sensitivity" dimension) and Empathy in real-life situations ("Concern" dimension; Leibetseder et al., 2001). Reliabilities for the instrument were good (Cronbach's α = .88, M = 4.66, SD = 0.76). For Sympathy, a translated version of the Trait Sympathy Scale (TSS; Lee, 2009) was included; the scale consists of 18 items and also shows good reliability (Cronbach's α = .85, M = 5.34, SD = 0.74). Narrative Engageability again reached good reliabilities (see Table 3).

Results

As predicted in Hypothesis 2, the overall Narrative Engageability Scale and all of its dimensions, except for Accepting Unrealism, have significant positive correlations with the approach dimension of Need for Affect (R ranging from .26 to .57), but none with the avoidance dimension (for all correlations, see Table 4). Three of the five differences between the correlations of Engageability and approach versus avoidance were significant (Overall Engageability: t = 2.26, p = .01; Emotional Engageability: t = 5.18, p < .001; Suspense/Curiosity Propensity: t = 3.69, p < .001). For Presence Propensity and Accepting Unrealism, the relationship to the approach dimension of Need for Affect was not statistically different from the avoidance dimension; though this was not expected, in hindsight it makes sense that the two dimensions that do not refer to emotional processing are not related to one's general tendency to perceive emotions. As predicted, Engageability is positively related to Empathy (H3) and to Sympathy (H4). It stands out that ease of Accepting Unrealism is related to none of the three emotion-related personality traits, whereas the other subdimensions of Engageability are. This may point to the fact that Accepting Unrealism has no emotional component itself.

To summarize, Engageability correlates in the predicted ways with Empathy, Need for Affect, and Sympathy, which lends support to Hypotheses 2–4 and provides evidence for the convergent validity of the Narrative Engageability Scale.

Studies 1 and 4: Predictive Validity for Trait Engageability and State Engagement

Participants and Procedure

Participants and procedure for Study 1 were already described. In Study 4, we recruited 157 students from a German university. In groups of six to 25 students, respondents first filled out a paper-and-pencil questionnaire with the Narrative Engageability measure. After that, they watched four different five-minute clips of a medical drama. Immediately following the exposure to each clip, Narrative Engagement was measured. Of the 157 participants, five cases had missing values on the Narrative Engageability Scale items and were eliminated from the data set. Using Mahalanobis distance, one multivariate outlier was detected and deleted. The final sample thus comprises 151 participants (56.3% female, M_{age} = 23.18 years, *SD* = 5.57 years).

Stimulus Material

As explained above, the stimulus in Study 1 was a shortened version of an episode of *CSI*. For Study 4, the stimulus material consisted of 32 five-minute clips of storylines from the medical series *Emergency Room*, *Grey's Anatomy*, *House M.D.*, *Private Practice,* and *Scrubs*. Each storyline dealt with one of nine different health topics (alcohol abuse, AIDS, cancer, diabetes, drug abuse, obesity, organ donation, depression, and obsessive-compulsive disorder) and was selected to be either highly emotional or not very emotional. Participants watched four of the 32 clips, which were randomly assigned to the groups. This means that for each participant one measure of trait Engageability and four measures for state Engagement were taken.

Measures

Participants' Narrative Engagement was measured using the 12-item scale developed by Busselle and Bilandzic (2009), which is composed of the four subscales Narrative Understanding (e.g., "I had a hard time recognizing the thread of the story"), Attentional Focus (e.g., "I had a hard time keeping my mind on the program"), Narrative Presence (e.g., "At times during the program, the story world was closer to me than the real world"), and Emotional Engagement (e.g., "The story affected me emotionally"). For Study 1, the scale and subscale were computed, and reliabilities were good (Cronbach's α for overall scale: .83, *M* = 4.07, *SD* = 0.97; Narrative Understanding: α = .71, *M* = 5.15, *SD* = 1.25; Attentional Focus: α = .92, *M* = 5.05, *SD* = 1.54; Narrative Presence: α = .82, *M* = 2.92, *SD* = 1.40; Emotional Engagement: α = .79, *M* = 3.17, *SD* = 1.45).

In Study 4, the four instances of state Engagement were integrated into one measure that indicates the average of Engagement within one person. Thus, we are able to assess how Trait Engageability relates to a series of state Engagement instances. The reliabilities for the pooled measure (computed across the scales

of the four measurements, not the individual items) were also good (Study 4: Cronbach's α for overall scale: .82, *M* = 4.17, *SD* = 0.80; Narrative Understanding: α = .70, *M* = 5.94, *SD* = 0.87; Attentional Focus: α = .71, *M* = 4.47, *SD* = 1.29; Narrative Presence: α = .88, *M* = 2.4, *SD* = 1.19; Emotional Engagement: α = .79, *M* = 3.87, *SD* = 1.20). Narrative Engageability was measured before exposure to the stimuli and achieved good reliabilities (except Ease of Accepting Unrealism, where α dropped to .63; see Table 3).

Results

In Studies 1 and 4, Narrative Engagement was a significant correlate of overall Narrative Engageability (*R* = .40 and .55, respectively) and all its subdimensions (*R*s between .26 and .58; see Table 5). Most of the subdimensions of Narrative Engageability correlated positively with the state Engagement dimensions Emotional Engagement and Narrative Presence. Narrative Understanding did not show any correlations (with one exception) with trait Engagement. This might indicate that understanding depends on the stimulus rather than the person, which in both cases was fairly simple genre fare that resulted in high scores for understanding (means at 5.15 and 5.94, see above).

Table 5. Correlations Between Narrative Engageability and Narrative Engagement.

	Narrative Engageability		Presence Propensity		Emotional Engageability		Suspense/ Curiosity Propensity		Ease of Accepting Unrealism	
	S1	S4	S1	S4	S1	S4	S1	S4	S1	S4
Narrative Engagement	.40***	.55***	.35***	.34**	.34***	.58***	.26***	.51***	.31***	.31**
Narrative Understanding	.01	.03	−.10	−.20	−.01	.16	.05	.25*	.11	−.07
Attentional Focus	.24***	.44***	.12	.11	.21**	.45***	.15*	.55***	.23***	.31*
Narrative Presence	.42***	.49***	.57***	.63***	.28***	.36***	.18**	.19	.25***	.33**
Emotional Engagement	.42***	.49***	.32***	.28**	.44***	.62***	.33***	.46***	.27**	.22

Note. S1 = Study 1 (*n* = 339); S4 = Study 4 (*n* = 157). All reported correlations are corrected for attenuation (Trafimow, 2016). *$p < .05$. **$p < .01$. ***$p < .001$.

It is noteworthy that the trait subscale Presence Propensity is a better predictor of state Narrative Presence than overall Narrative Engageability (Study 1: $t = -8{,}01$, $p < .001$; Study 4: $t = -2{,}31$, $p = .01$). Likewise, Emotional Engageability is a better predictor for state Emotional Engagement than overall Narrative Engageability, albeit significant only in Study 4 ($t = -2{,}11$, $p = .02$). Thus, we can tentatively conclude that the three-item scales for Emotional Engageability and Presence Propensity are as good as, or better than, the 12-item overall Narrative Engageability Scale in predicting state Emotional Engagement and Presence, respectively.

Thus, as assumed in Hypothesis 5, we conclude that Narrative Engageability is a good predictor of Narrative Engagement (albeit not for Narrative Understanding) for single and repeated viewing experiences.

Study 1: Predictive Validity for Trait Engageability, State Engagement, and Story-Consistent Beliefs

Study Goals

The goal of this study was to critically test whether Narrative Engageability would predict effects of narratives in a similar way as state Engagement. After all, the premise of this scale development was that trait Engageability may serve as a proxy for state Engagement when the state measure is not possible or practical. To serve this function, the trait measure not only needs to correlate with state Engagement, it also needs to predict effects of narrative in a similar way as state Engagement. Both state Engagement and trait Engageability can be seen as intervening variables, which serve to explain effects in a more precise way. Thus, we devised a critical test of this ability using data from Study 1, which took both measures, the trait measure before the stimulus presentation and the state measure after. The goal of the study was to investigate effects of consistent and inconsistent prior knowledge on narrative effects. The underlying assumption is that prior knowledge, which is inconsistent with the content of the narrative, generates friction in the viewing process, or, the construction of mental models from the narrative as viewers think about and try to resolve the inconsistency. This critical scrutiny should produce resistance against the narrative, and reduce Narrative Engagement, which in turn should reduce the narrative's effects on story-consistent beliefs. If trait Engageability performs in a similar way as the state measure, it should explain effects of the condition on story-consistent beliefs—through moderation, but not mediation (meaning essentially that the trait should not be influenced by the experimental manipulation). In addition, we argued that the multidimensional nature of the trait scale allows using subscales for assessing trait Engagement for specific content, which is more efficient (due to brevity). Thus, another goal is to find out whether the relevant subscale predicts effects in a similar way as the overall Engageability Scale. In this case, the relevant subscale for the crime genre is Suspense/Curiosity Propensity.

Procedure and Stimulus

In Study 1, participants watched an edited episode of *CSI: Crime Scene Investigation* (see description above). The series as a whole puts forward a vision of law enforcement as relying on forensic techniques, which are portrayed as objective, conclusive, and helpful in catching criminals. The particular episode presents a variation of this typical message. Prior knowledge was manipulated through a text that participants received before exposure (but after completing the Narrative Engageability items), which either provided information related to forensic techniques that was consistent or inconsistent with the content typically presented in *CSI*; a control group did not receive a text. For the purposes of this analysis, we compare the consistent group (n = 119) with the inconsistent group (n = 115) and do not consider the control group. The dependent variable is an estimate of the prevalence of forensic techniques, which we assume to be strengthened in the consistent condition, but weakened in the inconsistent condition. The sample of Study 1 is described above, as well as measurement of trait Engageability and state Engagement. The prevalence of forensic techniques was measured with five items: "In all murder cases, forensic evidence such as DNA, fibers,

or hairs are being collected"; "When the police set out to the scene of a serious crime, a team of forensic specialists joins them"; "Forensic evidence is also collected in cases of theft and damage to property"; "Forensic evidence is routine procedure in police work"; and "Any larger police station has a department for forensic investigation." The items were averaged into a scale (α = .69, M = 4.17, SD = 1.08).

Results

First, we computed an ANOVA using the experimental condition as the independent variable and the three measures of Engagement as the dependent variable. The inconsistent prior information lowered state Narrative Engagement ($M_{inconsistent}$ = 3.83, $M_{consistent}$ = 4.20, t = −2.883, p = .004), but not change overall ($M_{inconsistent}$ = 4.35, $M_{consistent}$ = 4.35, *ns*), or Suspense Engageability ($M_{inconsistent}$ = 4.92, $M_{consistent}$ = 4.91, *ns*). This rules out possible differences in Engageability between the groups and demonstrates that only state Engagement is influenced by the treatment.

Then, a series of three regression analyses was computed to compare the explanatory power of the three measures of Engagement over and above the variance explained by the experimental manipulation on the dependent measure.

As Table 6 shows, receiving consistent prior information strengthened the belief about the prevalence of forensic techniques. In addition, each of the three measures of Engagement increased the dependent variable in comparable magnitude. Though the three measures perform in similar ways to better explain the dependent variable, it is also clear that the subdimension of Suspense is the most efficient measure with only three items, compared with 12 items for overall Engageability and state Engagement with 12 items each.

Table 6. Regression Analyses of Experimental Condition and Overall Narrative Engageability, the Suspense Dimension of Narrative Engageability, and State Narrative Engagement on Prevalence of Forensic Techniques.

	Prevalence of Forensic Techniques			
	Model 1	Model 2	Model 3	Model 4
Variable	β	β	β	β
Exp. condition: Consistent knowledge (=1)	.28***	.29***	.29***	.25***
Narrative Engageability: Overall		.20**		
Narrative Engageability: Suspense			.20**	
State Narrative Engagement				.17*
R^2	.08	.12	.12	.11
F	20.41***	15.91***	16.04***	13.88***
ΔR^2		.04	.04	.03
ΔF		10.57**	10.81**	6.84*

Note. *p < .05. **p < .01. ***p < .001.

Finally, moderation and mediation analyses were performed to assess the influence of the different Engagement measures on estimates of the prevalence of forensic techniques. As expected, we found significant moderation effects of overall Narrative Engageability and the subdimension of Suspense

quite comparable in size. In contrast, state Narrative Engagement did not moderate the relationship between prior information and perceived prevalence of forensic techniques (see Table 7).

Table 7. Moderating Effects of Overall and Suspense Engageability and State Engagement on the Relationship Between the Experimental Manipulation on the Prevalence of Forensic Techniques.

	Prevalence of Forensic Techniques			
Variable	*B*	*SE B*	*t*	*p*
Moderation 1:				
Narrative Engageability: Overall				
Constant	3.86 [3.67, 4.05]	.10	39.74	<.001
Exp. condition: Consistent prior information (=1)	.63 [.37, .89]	.13	4.73	<.001
Narrative Engageability: Overall (centered)	.08 [−.10, .25]	.09	.87	.39
Condition × Narrative Engageability: Overall	.26 [.02, .49]	.12	2.16	.03
$R^2 =$ .14, $F(3, 230) = 12.79$, $p < .001$.				
Moderation 2:				
Narrative Engageability: Suspense				
Constant	3.86 [3.67, 4.06]	.10	39.66	.001
Exp. condition: Consistent prior information (=1)	.64 [.37, .90]	.13	4.78	.001
Narrative Engageability: Suspense (centered)	.06 [−.05, .18]	.06	1.06	.29
Condition × Narrative Engageability: Suspense	.21 [.03, .39]	.09	2.28	.02
$R^2 =$ .14, $F(3, 230) = 13.13$, $p < .001$.				
Moderation 3:				
State Narrative Engagement				
Constant	3.90 [3.71, 4.08]	.10	41.00	.001
Exp. condition: Consistent prior information (=1)	.55 [.28, .81]	.14	4.06	.001
State Narrative Engagement (centered)	.16 [−.03, .35]	.10	1.64	.10
Condition × Narrative Engagement	.03 [−.25, .31]	.14	.21	.83
$R^2 =$ .11, $F(3, 230) = 8.40$, $p < .001$.				

Note. Unstandardized regression coefficients; 95% confidence intervals in brackets.

The two significant interactions were probed by a simple slope analysis, testing the effects of prior information on prevalence of forensic techniques at three levels of overall and Suspense Engageability: one standard deviation below the mean, at the mean, and one standard deviation above the mean (see Figure 2). For overall Narrative Engageability, the conditional effect of consistent prior information on the estimates of prevalence of forensic techniques is positive and significant for medium

and high levels of overall Narrative Engageability (b = .61, SE = .13, p < .001; b = .87, SE = .18, p < .001, respectively), whereas the conditional effect for low Narrative Engageability was weaker and failed to reach significance (b = .36, SE = .18, p = .05). A similar result emerges for the Suspense dimension: The conditional effect is positive and significant for medium and high levels of Suspense Narrative Engageability (b = .61, SE = .13, p < .001; b = .88, SE = .18, p < .001, respectively), whereas the conditional effect for low Suspense was not significant (b = .34, SE = .18, p = .06). Thus, for both the overall scale and the subscale, the dependent variable was comparable in the inconsistent condition across all levels of trait Engagement. This indicates that trait Engageability cannot override detrimental effects of inconsistent prior information. However, in the consistent condition, the dependent variable varies with the levels of trait Engagement, with medium and high levels of trait Engagement increasing the effect. Again, the results for the overall Engageability Scale and the subdimension of Suspense Propensity are almost identical; however, using the three Suspense Engageability items is much more efficient than the full scale in terms of respondents' time (see Figure 3).

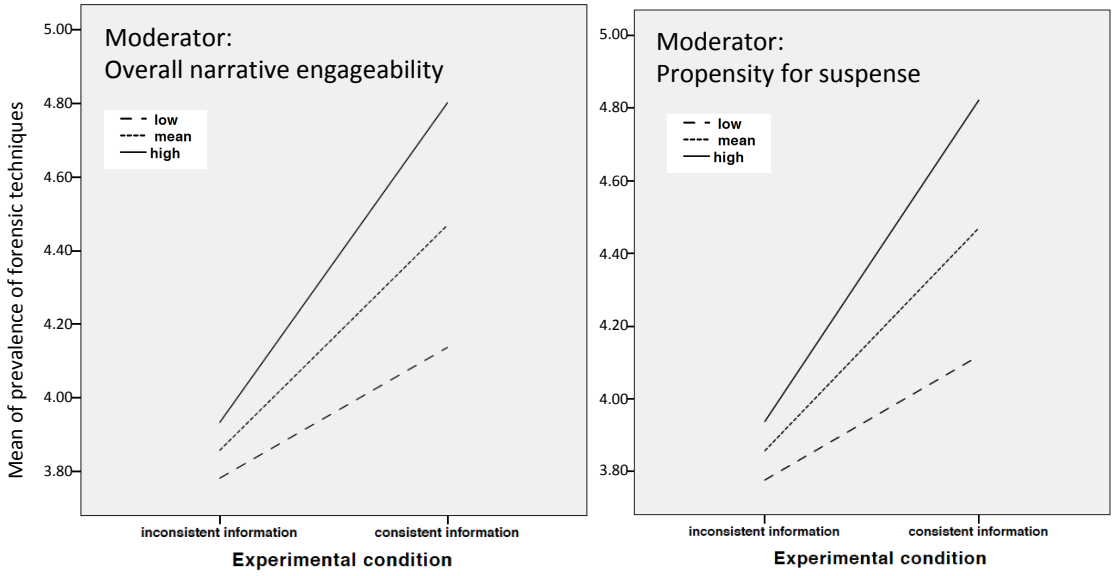

Figure 3. Moderation of prior information and prevalence of forensic techniques by overall Narrative Engageability and Suspense Propensity.

Although the two Engageability measures (overall and Suspense) moderated the relationship between experimental manipulation and effect, state Narrative Engagement did not, confirming Hypothesis 6a. However, state Narrative Engagement showed a mediation effect. The experimental condition had a significant indirect effect on the prevalence of forensic techniques through Narrative Engagement (B = .07, 95% CI [.011, .16]). Neither Engageability measure was influenced by the experimental manipulation; thus, there is also no mediation effect. These results support Hypothesis 6b.

Discussion

We developed and validated a new measure for Narrative Engageability across four studies, and demonstrated good model fit and reliabilities while ensuring the greatest possible parsimony for 12 items across four dimensions (Propensity for Presence, Emotional Engageability, Propensity for Suspense/Curiosity, and Ease of Accepting Unrealism) in the final scale.

Several aspects of convergent validity were tested. First, an existing measure for Transportability was strongly correlated with the new overall scale (H1) and, to a lesser, but still strong degree, with the four subdimensions. Narrative Engageability was positively correlated with the approach dimension of Need for Affect (H2) and not with the avoidance dimension, suggesting that the more an individual tends to seek emotional experiences, the more likely he or she is easily and frequently engaged in narratives. As we conceptualize that Engageability encompasses the specific tendency to empathically and sympathetically relate to fictional characters, we expected and observed a high correlation among Empathy (H3) and Sympathy (H4) and Narrative Engageability.

In terms of predictive validity, we put the new scale through several tests. First, the utility of the scale as a trait measure of Narrative Engagement hinges on its ability to predict situational Engagement. Here, the scale performed well and repeatedly emerged as a strong and independent predictor of Narrative Engagement (H5). Second, Engageability moderated observed effects on story-consistent beliefs; the effect size of the overall scale is comparable to that of state Engagement, suggesting that Engageability may well serve as a substitute or proxy for predicting effects (H6a and H6b). Moreover, the subdimension of Suspense Propensity (which corresponded to the stimulus from a crime drama) performed equally well in predicting effects; considering that it has only three items, this seems to be an extremely efficient way to evaluate a respondent's tendency to become engaged in a narrative.

Though overall Transportability, the existing 20-item measure, is likely to perform in a similar way, there are two arguments underlining the value of the new measure: First, Narrative Engageability has a clear theoretical structure supported by a theoretical model explaining narrative comprehension and experience (Busselle & Bilandzic, 2008). Though other aspects that are also contained in the Transportability measure may affect the narrative experience (such as relevance for one's own life, or counterfactual thinking; see Dal Cin et al., 2004), these are not necessary for Narrative Engagement, but sometimes accompany the experience—and sometimes do not. Cutting the measure to the dimensions that are absolutely necessary and theoretically justified is the precondition for conceptual precision—after all, if we want to explain narrative persuasion through the propensity for being engaged, the measure should not include relevance or counterfactual thinking at the same time, otherwise the explanation becomes blurred. Second, Narrative Engageability as an overall scale is considerably shorter while retaining much of the variance measured by Transportability. In addition, the subdimensions can be used as stand-alone instruments, as we have demonstrated that they too have good reliabilities across four studies and explain story effects. Using a three-item measure instead of a 12- or 20-item version may be invaluable in some cases in which respondent time is particularly scarce.

Therefore, the most prominent strengths of the Narrative Engageability Scale are its theoretical foundation, its multidimensional nature, and parsimony.

Reflection on the Model of Narrative Comprehension and Engagement

The new scale was built on the model of narrative comprehension and engagement (Busselle & Bilandzic, 2008). Three of the four dimensions of Narrative Engageability directly refer to a mental structure put forward by the model: Suspense/Curiosity Propensity refers to the processing the representation of events, suggesting that the viewer not only understands events but also has the impression of being in the middle of the events, and is keen on learning how the plot is resolved. Emotional Engageability is connected to the construction of character models and indicative of a successful deictic shift, which enables perspective taking and emoting with the characters. Presence Propensity is associated with the construction of a story world model and, again, a successful deictic shift into it. In all three mental models, unrealism may present a problem, and tolerating to a certain extent such violations supports the comprehension process and is expressed in the subdimension of "Ease of Accepting Unrealism." Originally, we assumed that a fifth dimension would be discernable in the viewers' perceptions—Ease of Being Engaged Despite Adverse Surroundings. However, this dimension first loaded on the presence factor, and then gradually dropped out. This dimension was intended to indicate engagement despite situational difficulties; and, indeed, being able to ignore adverse surroundings seemed to support presence. In the end, this factor does not stand alone, but possibly serves more as an explanation of why someone is able to sustain presence.

Ultimately, the Narrative Engageability Scale that emerged from these analyses corresponds both empirically and theoretically to the model of narrative comprehension and engagement (Busselle & Bilandzic, 2008), and to the research on which that model is based (e.g., Rapp et al., 2001; Segal, 1995a; van Dijk & Kintsch, 1983; Zwaan et al., 1995).

Limitations and Boundaries of Trait Engageability

We argued that the scale is multidimensional and could show that a four-factor structure has a better fit than a one-factor structure. Nonetheless, this does not preclude using the overall scale. On the contrary, the overall scale covers the theoretically relevant dimensions of the trait, thus representing a clear, transparent, and exhaustive measure. Nonetheless, we could demonstrate that the three-item subscale of Suspense could reasonably predict effects. The distinction between overall and subscale warrants further exploration in future research.

Then, we designed this version of the Engageability Scale to deal with filmic narrative. Accordingly, the scale refers to "movies," "films," or "TV shows." It is, however, plausible to assume that people have universal preferences for stories regardless of medium, or better, across media and story types (audiobooks, books, films, series). It is also a promising area of future research to look for a universal style of Engagement and to test whether the Propensity for Engagement facilitates Engagement even if a medium is completely unfamiliar to the recipient.

Finally, we need to acknowledge some limitations of a trait to predict or replace a state construct and measure. In the studies we presented here, we used common stories from mainstream media that were easy to understand and fairly attuned to genre schemata and expectations. Possibly, the measure of trait Engageability may show different properties depending on the type of story. For example, very gripping narratives may also appeal to people low in Engageability, whereas the trait becomes more important for difficult or slow narratives.

Concluding, the Narrative Engageability Scale represents a further step in exploring the relevance of narrative processing and experience, and in illuminating individual differences that influence narrative outcomes such as gaining knowledge, changing attitudes, or even worldviews.

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