

EXTENDED ABSTRACT

**Skala Spannungserleben (SSE) [scale for measuring suspense (SSE)].
A scale for the post exposure measurement of narrative suspense**

Carsten Wunsch, Theresa Briselat, Sophie Reitmeier, Jana Keil & Miriam Czichon

Carsten Wunsch (Prof. Dr.), Universität Bamberg, Institut für Kommunikationswissenschaft, An der Weberei 5, 96047 Bamberg, Germany. Contact: carsten.wuensch(at)uni-bamberg.de. ORCID: <https://orcid.org/0009-0002-5994-4463>

Theresa Briselat (M.A.), Universität Bamberg, Institut für Kommunikationswissenschaft, An der Weberei 5, 96047 Bamberg, Germany. Contact: thesa.briselat(at)uni-bamberg.de. ORCID: <https://orcid.org/0009-0000-8482-4530>

Sophie Reitmeier (M.A.), Universität Bamberg, Institut für Kommunikationswissenschaft, An der Weberei 5, 96047 Bamberg, Germany. Contact: sophie.reitmeier(at)uni-bamberg.de. ORCID: <https://orcid.org/0009-0005-7351-0890>

Jana Keil (M.A.), Universität Bamberg, Institut für Kommunikationswissenschaft, An der Weberei 5, 96047 Bamberg, Germany. Contact: jana.keil(at)uni-bamberg.de. ORCID: <https://orcid.org/0009-0004-6181-9084>

Dr. Miriam Czichon, Contact: miriam.czichon1(at)gmail.de.



EXTENDED ABSTRACT

1. Introduction

“Suspense is when it’s suspenseful”¹ – For many years, this sentence defined empirical research on suspense: Post-receptive measurement instruments typically construed suspense as either one-dimensional or as a subdimension of other constructs. For instance, it was assessed through post-reception questions on the extent to which items such as “thrilling” or “exciting” applied or how “engaged” one was during the reception (Knobloch et al., 2004, pp. 268–269; Knobloch-Westerwick et al., 2009, p. 755). The authors of scales designed to measure hedonic and eudaimonic entertainment experiences were slightly more comprehensive (Oliver & Bartsch, 2010; Schneider et al., 2019, p. 152). Here, suspense was operationalized as a subdimension of entertainment using four items. The same applied to the scale for reading experiences by Appel et al. (2002; see also Thissen et al., 2021), where suspense was one of 14 dimensions and was measured using five items.

2. Suspense

Suspense shall be understood as an experiential process during the reception of narrative media offerings, involving both cognitive and affective aspects. In literature, this experience is characterized by at least six attributes: (1) attitude toward the protagonist, (2) empathy/identification, (3) anticipation of a certain outcome, (4) uncertainty about the outcome, (5) risk perception, and (6) preference for a certain outcome (e. g. Borringo, 1980; Carroll, 1990; de Wied, 1991; Eder, 2007; Früh, 2002; Fuchs, 2000; Hant, 1999; Öhding, 1998; Schulze, 2006; Zillmann, 1996).

However, we only consider three of these attributes essential for the presence of suspense. These are (1) preference for a certain outcome, (2) uncertainty about the course of events, and (3) a perceived risk for the protagonist. This may lead to additional affective experiential phenomena. As for the other attributes such as the attitude toward the protagonist, empathic processes, and anticipation of a certain outcome, they are merely necessary prerequisites. They must be present for suspense to occur, but they do not constitute the experience of suspense by themselves.

Preference for a certain outcome

The preference for a certain outcome of the plot is initially necessary for experiencing narrative suspense (Borringo, 1980; Carroll, 1990, 1996; Eder, 2007; Hant, 1999; Öhding, 1998; Zillmann, 1996). The preference manifests as a desire for the main character to escape from threatening situations and/or achieve their

1 This sentence is the analogous translation of the title of a paper published by Vorderer in 1994.

goal, while also expressing concern about their potential failure. Those who are indifferent to the main character and their fate will not experience suspense. Preferring a certain outcome is thus a necessary and, together with the following two attributes, sufficient condition for experiencing suspense.

Uncertainty

Viewers anticipate various plot outcomes, the realization of which remain uncertain to them. Consequently, they only have a presumption of how the situation will *actually* unfold. This causes uncertainty, a condition that Carroll (1990) considers central to the experience of suspense. Carroll (1990, pp. 137–138) emphasizes that it must appear unlikely that the story will have a good ending to maintain suspense. Zillmann (1980, pp. 138–139; 1996, p. 200) specifies that uncertainty is not a linear condition: “Uncertainty is thus at a maximum when the odds for a desired or a feared outcome are 50–50” (Zillmann, 1996, p. 200).

It should be noted that the degree of uncertainty is not solely evaluated from the recipients’ perspective. Otherwise, the experience of suspense in repeated exposure could not be explained. This “Paradox of Suspense,” as described by Carroll (1996), can be resolved by the so-called “Deictic Shift” (Segal, 1995): The audience, due to various empathic or identificatory processes, finds itself immersed in the story and experiences the plot from the perspective of the protagonist. Consequently, they can also empathize with the protagonist’s uncertainty about the plot’s progression.

Risk perception

The perception of risk or jeopardy to the well-being of the main character is often described as crucial to experiencing suspense (Borrigo, 1980; Carroll, 1990; de Wied, 1991; Hant, 1999). For example, Zillmann (1996, p. 208) defines suspense as “a noxious affective reaction that characteristically derives from the respondents’ acute, fearful apprehension about deplorable events that threaten liked protagonists.” De Wied (1991, p. 16) concurs, stating that suspense can only arise when the narration provides hints that something bad or ominous may befall the main character. The higher the risk perception for the main character on the part of the audience, the greater the experience of suspense (Borrigo 1980, p. 53; Carroll 1990, pp. 137–138; de Wied, 1991, p. 16). It is assumed that an event without significance to anyone would not lead to suspense (Schulze, 2006, p. 22). Therefore, there must be a credible risk from the audience’s perspective, even if it is the risk of not achieving a specific gain.

According to the argumentation, these three necessary and sufficient dimensions constitute suspense: (1) a clear preference for a certain outcome, (2) uncertainty about this very outcome, and (3) the perception of significant risk to the protagonist’s well-being.

3. Development and testing of the scale for measuring suspense (SSE)

For the empirical assessment of the defined construct, we propose a post-receptive written survey. It measures three dimensions: preference for a certain outcome (e.g., “Ich wollte, dass die Hauptfigur unbedingt ihre Ziele erreicht.” [“I really wanted the main character to achieve their goals.”]), uncertainty (e.g., “Die Hauptfigur konnte sich lange Zeit nicht sicher sein, ob sie am Ende erfolgreich sein würde.” [“For a long time, the main character couldn’t be sure if they would succeed in the end.”]), and risk perception (e.g., “Für die Hauptfigur stand viel auf dem Spiel.” [“The stakes were high for the main character.”]).

To develop and validate the SSE, we conducted two main studies and two exploratory pilot studies. The starting point was a pool of 50 items generated on the basis of theoretical considerations and taking into account the discussed literature. This initial item pool was tested in two pilot studies ($n_1 = 71$, $n_2 = 165$) to obtain initial indications of the suitability of individual items. Participants were presented with the items immediately after the reception of an audiovisual narrative offering (e.g., a movie) and were asked to retrospectively rate how strongly these statements applied to their experience during reception, using a seven-point rating scale (ranging from “does not apply at all” to “applies completely”).

Based on these pilot studies, a revised item pool consisting of a total of 31 items for measuring the three dimensions of suspense was developed. This revised item pool underwent systematic testing in both a field study ($n = 99$) and a laboratory study ($n = 123$). We again administered the survey immediately after the reception of a series or movie. Additionally, the questionnaire assessed other constructs, later used for the validation of the scale. The instructions for respondents and the seven-point rating scale used were derived from the previously mentioned pilot studies.

In an exploratory, iterative process, the item pool underwent numerous exploratory factor analyses, gradually reducing the number of items considered. The aim of the item reduction was to achieve a consistent factor solution and to have an item count that would allow for a valid, reliable, and economical use of the scale in the field, ideally containing between ten and 15 items. At the end of the exploratory process, a selection of twelve items (four per dimension) remained. A principal axis analysis with non-orthogonal rotation of these twelve items was able to both reflect the intended factor structure and provide satisfactory statistics for both the structure and individual items.

This 12-item solution was then subjected to a (first) confirmatory factor analysis (CFA) using the available data. The CFA included the twelve manifest variables for measuring the three dimensions of suspense. Suspense, in turn, was integrated into the measurement model as a higher-order latent construct (second-order factor; see, e.g., Yale et al., 2015). Model evaluation included χ^2 , the χ^2/df ratio, RMSEA, SRMR, and CFI (see, e.g., Kline, 2015). The various fit indices for the specified model generally indicated an adequate (RMSEA = 0.055, 95% CI [0.033; 0.076]) to good and very good fit ($\chi^2 = 82.9$; $df = 50$; $\chi^2/df = 1.66$; SRMR = 0.040; CFI = 0.976). Since this test of the measurement model relied on the same empirical data used for exploratory model specification, its confirmatory validity was not

sufficient (Seaman & Weber, 2015). Therefore, in the next step, we repeated this analysis on a new, independent sample.

The second study was conducted for the purpose of a second CFA, and thus, all twelve items of the three-factor solution presented above were administered. Data collection took place exclusively in a laboratory setting (as part of introductory communication science courses). In total 226 participants, comprising a convenience student sample, took part in this study. Three different TV series and two short films served as stimuli. The CFA followed the exact same procedure as the first CFA. While most fit indices in Study 2 were slightly less favorable than in Study 1, they all still indicated an adequate (RMSEA = 0.068, 95% CI [0.049; 0.087]) to good fit ($\chi^2 = 101$; $df = 50$; $\chi^2/df = 2.02$; SRMR = 0.047; CFI = 0.967).

In a final step, the findings for the SSE were subjected to validation. Therefore, 12 hypotheses about the relationship between suspense as measured by the SSE and closely related constructs (e.g., state empathy, enjoyment, stimulus evaluation, affective disposition) were formulated and justified. This nomological network (Feigl, 1958) of 12 hypotheses was then tested using the data used for the first and second study. All but one hypotheses were confirmed.

4. Discussion

The development of the scale for measuring narrative suspense was successful. With the *Skala Spannungserleben* (scale for measuring suspense; SSE), a valid and reliable, German-language instrument on measuring narrative suspense is now available.

Regarding the empirical and theoretical approach, there are some limitations: The development and testing of the scale were conducted on a limited range of stimuli. Additionally, the studies relied on convenience samples of predominantly young and student participants. Furthermore, the scale was tested in various contexts (laboratory and field) and for different genres, but only in the paper-pencil mode. We assume that the scale can be applied in the online mode with consistent quality. Validation of the scale in an online mode is pending. We do not see significant areas of application for the oral mode. Nevertheless, the scale could theoretically be applied in this mode as well.

Based on the validation for audiovisual narrative content, we recommend using the SSE only for such content. The questions can be deployed efficiently and flexibly in a self-administered survey. Although there are twelve items in total, we advise against further shortening the presented scale. Our findings do not support the validity and reliability of a further abbreviated scale. However, for practical research purposes, shorter scales are often sought after. Therefore, the development of a separate short version of the SSE is desirable.

In the future, adjustments to the scale should also be made to expand its applicability to other media contents (e.g., books, audio dramas, video games) and different survey modes and contexts. Since the development and validation primarily used completed narrative audiovisual content, validating (and possibly adapting) the scale for narrative media content with a story arc extending one epi-

sode, feature film, etc. is desirable. We anticipate that the SSE can also be adapted for use with these non-completed formats.

Suspense, as conceptualized by us, can fundamentally arise during the reception of any media content, as long as the three central features (preference for a certain outcome, uncertainty, and risk perception) are present. However, these features can only occur during the reception of narrative content. Therefore, suspense can also arise, for example, when playing video games that follow a storyline (such as *The Last of Us*). Consequently, suspense in this context could be measured using an adapted version of our scale.

References

- Appel, M., Koch, E., Schreier, M., & Groeben, N. (2002). Aspekte des Leseerlebens: Skalenentwicklung [Aspects of the reading experience: Scale development]. *Zeitschrift für Medienpsychologie*, 14(4), 149–154. <https://doi.org/10.1026//1617-6383.14.4.149>
- Borringer, H.-L. (1980). *Spannung in Text und Film: Spannung und Suspense als Textverarbeitungskategorien* [Suspense in text and film: Tention and suspense as text processing categories]. Pädagogischer Verlag Schwann.
- Carroll, N. (1990). *The philosophy of horror or paradoxes of the heart*. Routledge. <https://doi.org/10.4324/9780203361894>
- Carroll, N. (1996). The paradox of suspense. In P. Vorderer, H. J. Wulff, & M. Friedrichsen (Eds.), *Suspense: Conceptualizations, theoretical analyses, and empirical explorations* (pp. 71–92). Lawrence Erlbaum Associates.
- de Wied, M. A. (1991). The Role of time structures in the experience of film suspense and duration. A study of the effects of anticipation time upon suspense and temporal variations on duration experience and suspense. [Unpublished doctoral dissertation]. University of Amsterdam, Amsterdam, The Netherlands.
- Eder, J. (2007). *Dramaturgie des populären Films: Drehbuchpraxis und Filmtheorie* [Dramaturgy of popular film: Screenwriting practice and film theory]. LIT Verlag.
- Feigl, H. (1958). The “mental” and the “physical”. In H. Feigl, M. Scriven, & G. Maxwell (Eds.), *Minnesota studies in the philosophy of science* (pp. 370–497). University of Minnesota Press.
- Früh, W. (2002). *Unterhaltung durch das Fernsehen: Eine molare Theorie* [Entertainment through television: A molar theory]. UVK.
- Fuchs, A. (2000). *Dramatische Spannung: Moderner Begriff – antikes Konzept* [Dramatic suspense: Modern term – ancient concept]. J.B. Metzler. <https://doi.org/10.1007/978-3-476-02751-1>
- Hant, C. P. (1999). *Das Drehbuch. Praktische Filmdramaturgie* [The screenplay: Practical film dramaturgy]. Hübner Verlag.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford Press.
- Knobloch-Westerwick, S., David, P., Eastin, M. S., Tamborini, R., & Greenwood, D. (2009). Sports spectators’ suspense: Affect and uncertainty in sports entertainment. *Journal of Communication*, 59(4), 750–767. <https://doi.org/10.1111/j.1460-2466.2009.01456.x>
- Knobloch, S., Patzig, G., Mende, A.-M., & Hastall, M. (2004). Affective news: Effects of discourse structure in narratives on suspense, curiosity, and enjoyment while reading news and novels. *Communication Research*, 31(3), 259–287. <https://doi.org/10.1177/0093650203261517>
- Öhding, B.-K. (1998). *Thriller der neunziger Jahre: Über den Zusammenhang von Struktur, Spannung und Bedeutung an ausgewählten Spielfilmen* [Thrillers of the nineties:

- On the relationship between structure, suspense and meaning in selected feature films]. Wissenschaftler-Verlag.
- Oliver, M. B., & Bartsch, A. (2010). Appreciation as audience response: Exploring entertainment gratifications beyond hedonism. *Human Communication Research*, 36(1), 53–81. <https://doi.org/10.1111/j.1468-2958.2009.01368.x>
- Schneider, F. M., Bartsch, A., & Oliver, M. B. (2019). Factorial validity and measurement invariance of the appreciation, fun, and suspense scales across US-American and German samples. *Journal of Media Psychology: Theories, Methods, and Applications*, 31(3), 149–156. <https://doi.org/10.1027/1864-1105/a000236>
- Schulze, A.-K. (2006). *Spannung in Film und Fernsehen: Das Erleben im Verlauf* [Suspense in film and television: The experience during the process]. Logos-Verlag.
- Seaman, C. S., & Weber, R. (2015). Undisclosed flexibility in computing and reporting structural equation models in communication science. *Communication Methods and Measures*, 9(4), 208–232. <https://doi.org/10.1080/19312458.2015.1096329>
- Segal, E. M. (1995). Narrative comprehension and the role of deictic shift theory. In J. F. Duchan, G. A. Bruder, & L. E. Hewitt (Eds.), *Deixis in narrative. A cognitive science perspective* (pp. 3–17). Psychology press. <https://doi.org/10.4324/9780203052907-7>
- Thissen, B. A. K., Menninghaus, W., & Schlotz, W. (2021). The pleasures of reading fiction explained by flow, presence, identification, suspense, and cognitive involvement. *Psychology of Aesthetics, Creativity, and the Arts*, 15(4), 710–724. <https://doi.org/10.1037/aca0000367>
- Yale, R. N., Jensen, J. D., Carcioppolo, N., Sun, Y., & Liu, M. (2015). Examining first- and second-order factor structures for news credibility. *Communication Methods and Measures*, 9(3), 152–169. <https://doi.org/10/ggxxg45>
- Zillmann, D. (1980). Anatomy of suspense. In P. H. Tannenbaum (Eds.), *The entertainment functions of television* (pp. 133–163). Lawrence Erlbaum Associates. <https://doi.org/10.4324/9781315803050>
- Zillmann, D. (1996). The psychology of suspense in dramatic exposition. In P. Vorderer, H. J. Wulff, & M. Friedrichsen (Eds.), *Suspense: Conceptualizations, theoretical analyses, and empirical explorations* (pp. 199–231). Lawrence Erlbaum Associates. <https://doi.org/10.4324/9780203811252>