

Murder for Pleasure

Impacts of Plot Complexity and Need for Cognition on Mystery Enjoyment

Silvia Knobloch-Westerwick¹ and Caterina Keplinger²

¹Ohio State University, Columbus, OH, USA, ²University of Music and Drama, Hanover, Germany

Abstract. This experiment investigated how complexity of the presented clues and need-for-cognition affect crime fiction enjoyment. A short murder story, divided into four segments, was presented to 154 participants. Complexity was manipulated as three-step factor through combinations of clues hinting toward either suspect A or B in the first three segments, while the last segment revealed the culprit. Readers indicated suspicions and enjoyment after each segment. Finally, respondents reported overall enjoyment and affective responses before completing the need-for-cognition scale. Results for enjoyment of the entire mystery and during reception show that higher complexity was generally enjoyed less. Furthermore, need-for-cognition affected enjoyment in curvilinear fashion overall, with medium need-for-cognition resulting in greater enjoyment. Respondents with high need-for-cognition were an exception in that they enjoyed medium complexity during mystery exposure the most.

Keywords: murder mystery, need-for-cognition, entertainment, media usage, complexity

Murder and detective stories form an indispensable component of popular entertainment. The modern versions of “Sherlock Holmes” appear in a variety of forms, populating the television prime time and the book bestseller lists. Series such as “Law & Order,” “Murder She Wrote,” or “Crime Scene Investigation,” as well as books written by authors such as Mary Higgins Clark or John Grisham entertain large audiences. Hence, mysteries contribute a considerable share to the entertainment production – for example, more than a fourth of popular fiction sales in the United States fall in the mystery/thriller section (Romance Writers of America, 2004). An analysis in Germany revealed that 19 hours of mystery/thriller TV programs are aired every day, more than any other fiction type, and that clearly most fiction viewing (28%) was dedicated to this category (Zubayr & Geeste, 2005). It is important to note that such exposure to crime fiction has been shown to affect real world perceptions, both for European and American audiences, in that it cultivates fears of crime, raises the perceived importance of crime on the agenda of political topics, and even influences opinions about the president through priming (Dowler, 2002; Holbrook & Hill, 2005; Van Den Bulck, 2004).

Notwithstanding the great appeal the genre apparently holds and its important effects, its mechanisms for engaging recipients have almost never been investigated on empirical grounds, in contrast to other entertainment genres such as suspense, horror, or comedy (see Bryant & Vorderer, 2006; Vorderer, Wulff, & Friedrichsen, 1996; Weaver & Tamborini, 1996; Zillmann, 2000). An enormous amount of scholarly writing described types and plots of mysteries

(see overview by Knobloch, 2003) – however, mostly without presenting empirical data. A few content analyses examined mystery books (Bryant, Mullikin Parcell, Bryant, & Kwon, 2000) or mystery TV programs (Soulliere, 2003). But audience response analyses beyond book sales figures or TV ratings define a gap in the research at hand.

For instance, the question which factors influence the enjoyment of mystery texts has rarely been addressed, especially for mystery enjoyment during the reception. This void in entertainment research may be the result of greater plot complexity featured by this genre. A mystery story can have almost infinite possible endings with regard to who committed a murder why and how, which produces great complexity compared to other genres in which the “good guy” typically succeeds in the end or the “boy” finally gets the “girl.” The current investigation aims to improve the lack of insight into the great appeal of mysteries by looking at how development and changes in suspicions held by readers, combined with readers’ dispositions to take pleasure in any kind of reasoning, affect mystery enjoyment. After a brief discussion of features of the mystery genre and the scarce empirical information at hand, we will compare mysteries with thrillers as its “nearest relative” to clarify what might instigate mystery enjoyment. Hypotheses will be derived from these considerations and then tested in an experiment.

Mystery plots center on the investigation of a committed crime, often murder. Two-thirds of the cases in TV mystery programs from the 1999/2000 U.S. television season, analyzed by Soulliere (2003), dealt with murder or attempted murder as criminal incidents. While there are different

types of mystery plots, the “whodunit” is by far the most frequent kind (Bryant et al., 2000) and features how the culprit is sought and identified. The typical cast of a mystery story includes the central character of the investigator (or a team of investigators) who aims to identify the perpetrator and thus to solve the crime. Possibly, an assistant is accompanying the investigator and serves as discussion partner to outline the investigator’s reasoning. Aside from the murder victim, a circle of suspects is introduced, each holding a motive for the crime, an opportunity, and the necessary means. The plot develops as clues about the culprit are presented and the investigator follows the leads. The different pieces of lacking information create uncertainty up to the end of the plot, when the investigator typically resolves the crime. Upon the mystery resolution, usually one suspect is revealed as culprit. While there is great variation in who is presented as culprit, murder among spouses was the most common (15%) in Soulliere’s (2003) analysis, which also found the majority of murder motives to be emotional in nature.

Effects of the resolution type on mystery enjoyment have been studied in an experiment by Knobloch-Westerwick and Keplinger (2006), building on theorizing by Zillmann (1991). For this investigation, a short story was manipulated to produce different levels of uncertainty regarding two suspects’ criminal involvement and to create different resolution types – denouement, confirmation, and surprise. Readers’ responses showed that, during the mystery reading, enjoyment was greater when participants were highly uncertain regarding the culprit and experienced high levels of curiosity. As hypothesized, resolution enjoyment depended on type of resolution and self-esteem. A resolution that confirmed respondents’ suspicion was disliked by respondents with high self-esteem, whereas respondents with low self-esteem disliked a surprising resolution. Enjoyment of a general denouement, when participants had not held specific expectations, was not affected by self-esteem; high self-esteem participants in the “surprise” condition and low self-esteem participants in the “confirmation” condition experienced comparable enjoyment. This study shed light on effects of mystery resolutions but was less concerned with processes during mystery exposure.

Other empirical work applied the structural affect theory and compared effects of structural features, said to be characteristic for mystery plots, with responses to suspense-evoking thriller plots. According to the structural affect-theory by Brewer and Lichtenstein (1981; 1982), entertaining stories feature discourse orders designed either to evoke suspense, surprise, or curiosity. For a suspense story (thriller), the event structure in which the events occurred on the fictional level is parallel to the discourse structure that aligns the events in the order in which they are presented to the reader. In that case, the discourse structure starts with an initiating event, such as a villain poses a threat to the world, and ends with an outcome, for instance, the “good guy” saves the world. During exposure to the story, readers

experience suspense, as they wonder what *will* happen and are uncertain if the protagonist will actually succeed with saving the world. For a mystery, the discourse structure features the events in a reversed order compared to how they occurred on the fictional level (the event structure). That is, an outcome of earlier events is presented first, usually as a murder victim is discovered. Then happenings prior to the crime are slowly but surely revealed, as the mystery plot unfolds and ends with identifying the culprit. While following the plot, mystery readers experience curiosity, as they wonder what *has* happened and who committed the murder. Investigations have confirmed the postulated effects of discourse structures on affective reactions (Brewer & Lichtenstein, 1981; Brewer & Ohtsuka, 1988; Hoeken & van Vliet, 2000; Knobloch, Patzig, Mende, & Hastall, 2004). However, Brewer and Lichtenstein (1981, 1982) did not suggest that surprise as an entertainment effect is linked to mystery reception, although more recent work outlined above indicates this (Knobloch-Westerwick & Keplinger, 2006).

The structural affect theory and related empirical studies did not address what makes mystery stories more or less enjoyable; it only appears that curiosity as a typical response to mystery exposure must hold some appeal. Yet, the comparison between responses to thriller plots that are designed to create suspense and responses to mystery plots designed to instigate curiosity is informative for further mystery theorizing. The emotional experiences derived from thrillers and mysteries differ in that the former evokes suspense and the latter curiosity. Empirical evidence (Knobloch et al., 2004) has shown that these emotional reactions can be differentiated and indeed occur depending on combinations of event and discourse structures, as predicted in the structural affect theory (Brewer & Lichtenstein, 1981, 1982). Plausibly, the cognitive processes that precede these emotional reactions differ as well. For suspense experiences, it has been suggested and demonstrated that high levels of subjective certainty, instead of uncertainty, about the eventual materialization of a feared outcome are a precondition (Zillmann, 1996). In other words, for intense suspense, the onlooker should only entertain slim hope for a happy ending and be almost certain that the villain will actually cause great harm and that the liked protagonist will not achieve his/her goal of preventing that. During mystery exposure, cognitive processes are likely to follow different patterns.

For an enjoyable experience, a mystery should place recipients in states of uncertainty and create curiosity. Both uncertainty and curiosity have been shown to predict higher mystery enjoyment (Knobloch-Westerwick & Keplinger, 2006). Several factors (see also discussion by Zillmann, 1991) probably influence uncertainty levels and, in turn, curiosity. Uncertainty is likely to increase with the number of suspects presented in a mystery. Furthermore, it should be higher if several characters seem *equally* plausible as culprit, compared to a scenario with the same number of suspects but only one or two that appear to be a potential

perpetrator. The clues that are presented during a plot are of central importance to the enjoyment of mysteries, as they govern recipients' uncertainty. Not only the number of clues should play a role, it also needs to be considered to which suspect a given clue leads. Divergent clues will heighten uncertainty overall, whereas several clues pointing to the same suspect will lower it. Moreover, the development over time is crucial. Recipients will form suspicions while learning about suspects and clues such as motives, alibis, evidence found at the crime scene and elsewhere, etc. As the plot evolves, recipients probably entertain different suspicions and may hold different characters to be the perpetrator. Thus uncertainty will also change over time, as suspicions build up, can get thwarted and replaced by alternative assumptions.

Hence, uncertainty should result from a variety of factors and influence mystery enjoyment. Yet, evidently, recipients probably do not appreciate any degree of uncertainty. At some point, any further increase in uncertainty will not heighten curiosity but produce mere unpleasant confusion. The presentation of too many suspects or too many divergent clues could result in this kind of confusion, which would hinder the enjoyment of the reception. On the other hand, the mystery plot should also not be too transparent, as the recipient may then feel a lack of an interesting challenge in the presented enigma. In this scenario, uncertainty levels would be too low. The ideal level of complexity, the golden mean between overwhelming and boring a mystery recipient, should also vary with recipients' inter- and intrapersonal characteristics. In different moods, different levels of complexity and uncertainty will be appreciated by the same person. And different people, depending on personality factors, will derive more or less enjoyment from a mystery – what bores one person, may overwhelm another, and yet a third recipient may find it to be just the perfect mystery experience (Knobloch, 2003; Knobloch-Westerwick & Keplinger, 2006; Zillmann, 1991).

In light of these considerations, our current investigation aims to advance the basic understanding of why the mystery and crime fiction genre is so widely popular. To gain insight into the genre's appeal, we present different versions of a mystery to participants in order to see which version produces the greatest enjoyment. Given that the mystery genre stands out in the entertainment landscape because of its complexity, as discussed above, we vary plot complexity as a stimulus characteristic because it should play a key role for enjoyment. Needless to say, complexity can vary in a great number of ways. The current approach utilizes clues pointing to different suspects or the same suspect and how such divergent or convergent clues are presented as the mystery plot progresses. These clues are designed to manipulate recipients' suspicions regarding the culprit across time. As Zillmann (1991, p. 300) put it, "This fluctuation of subjective probabilities during the course of a play must be assumed to influence the experience of bewilderment and, ultimately, that of enjoyment." Drawing

on general theory about curiosity and aesthetic enjoyment (Berlyne, 1960) and mystery theorizing in particular (Zillmann, 1991), as explained above, we hypothesize that mysteries with medium complexity are generally enjoyed more than mysteries with low or high complexity.

Complexity as a plot feature requires a process orientation in the investigation for a number of reasons. Obviously, characteristics of the plot unfold over time, thus to establish the effectiveness of an experimental plot variation requires manipulation checks at various points during exposure. More importantly, getting a better grip on how recipients follow and perceive plot-oriented entertainment (Vorderer & Knobloch, 2000) is at the heart of understanding the entertainment experience overall. As the effects of cognitive processes on mystery enjoyment are our focus here, our investigation features repeated measures of potentially changing suspicions and enjoyment throughout the reception of a short mystery story in which complexity was varied experimentally. We offer a hypothesis (see below) on the effect of complexity on enjoyment of a mystery in its entirety. At the same time, given that the experimental manipulation of complexity unfolds over time, it is unclear how enjoyment during reception is affected by this. Hence, we offer a research question on this matter.

In addition to complexity as experimental factor, we draw on interindividual differences to shed light on the mystery appeal, because personality characteristics have been demonstrated to moderate media effects in many and in important ways (Oliver, 2002), which also applies to mystery enjoyment (Knobloch-Westerwick & Keplinger, 2006). A considerable variety of traits have been suggested to influence mystery enjoyment – such as sensation-seeking, self-esteem, enjoyment of problem solving (Zillmann, 1991; Knobloch, 2003). A common explanation for the appeal of the genre is that readers or viewers enjoy toying with possible solutions of a brainteaser wrapped in a story (Knobloch, 2003). Zillmann (1991) also mentioned the importance of being in a "problem-solving mode" for the mystery enjoyment. Hence, mystery readers' need-for-cognition (Cacioppo & Petty, 1982) should also be relevant for the enjoyment of mystery with different complexity levels. Prior research (Knobloch-Westerwick & Keplinger, 2006) has examined the importance of need-for-cognition (Cacioppo & Petty, 1982) for responses to mystery resolutions and found it to be negatively associated with reception enjoyment of a relatively simple mystery plot. With the current investigation, we follow up on our earlier tentative conclusion that media consumers who score high on need for cognition might prefer more complex mystery plots (Knobloch-Westerwick & Keplinger 2006).

Need-for-cognition is the "tendency to enjoy and to engage in thinking" (Cacioppo & Petty, 1982, p. 130). It reflects a cognitive motivation more than ability (Cacioppo, Petty, Feinstein, & Jarvis, 1996). It is clearly different from concepts such as self-esteem or sensation-seeking that have been discussed in the context of mystery but are not considered in this investigation. It is also distinct from trait

curiosity, the general desire to acquire new information (Renner, 2006) or interest in and attention to novel perceptual stimulation (Collins, Litman, & Spielberger, 2004), in that it relates to pondering information more than seeking additional information. Trait curiosity is likely to influence the motivation to read or watch a mystery as it results from the anticipation of pleasure due to receiving the lacking information in the mystery resolution or the aversiveness of not possessing this crucial information. Both a general preference to engage in thoughts on the one hand and a general drive to seek more information on the other hand are likely to relate to mystery enjoyment. Yet the current study focuses on the former, need-for-cognition, while another examination (Knobloch-Westerwick & Keplinger, 2008) will look at trait curiosity. Our current focus looks at mystery enjoyment as a result of cognitive processes and does not consider aspects of arousal that are likely to relate to trait curiosity or sensation-seeking.

The hypotheses stated below were subjected to empirical tests with regard to enjoyment of a mystery in its entirety. The first research question considers a possible interaction between complexity and need-for-cognition effects – as discussed above, the ideal level of complexity probably depends on recipients' characteristics. While it is plausible that higher need-for-cognition should lead to greater enjoyment of a more complex mystery, as we interpreted results in an earlier study, it might also be the case that those who actually engage in more thinking prefer a straightforward logical plot. Given that prior research found that it matters for enjoyment whether readers' suspicions get confirmed or thwarted in the end (Knobloch-Westerwick & Keplinger, 2006), the second research question addresses impacts of that as well. It is plausible that for mystery with higher complexity, being thwarted might be less disappointing but also less surprising, which in turn could affect enjoyment. Likewise, those who tend to engage more in cognitive tasks might experience being thwarted or confirmed differently. The third research question looks at how complexity and need-for-cognition affect enjoyment *during* mystery reception because it has been suggested that mystery enjoyment may differ during reception and after resolution (Knobloch-Westerwick & Keplinger, 2006), which may well be even more important when considering how complexity evolves throughout a mystery plot. Furthermore, we will explore how mystery complexity affects affective responses to a mystery story – given that complexity pertains more to the cognitive processing of the plot, it may or may not influence the affective responses.

- H₁: A mystery with a medium complexity is generally enjoyed more (in its entirety) than a mystery with low or high complexity.
- H₂: Recipients with higher need-for-cognition enjoy a complex mystery (in its entirety) more than recipients with lower need-for-cognition do.
- RQ₁: Do effects of complexity and need-for-cognition on mystery enjoyment depend on whether recipients' suspicions regarding the culprit were confirmed?

RQ₂: How do complexity and need-for-cognition affect mystery enjoyment *during* reception?

RQ₃: Does mystery complexity affect affective responses to a mystery story?

Method

Overview

German participants ($n = 154$) were asked to read a short murder mystery and answer questions about their suspicions and story liking in between text segments. The first three text segments were experimentally manipulated so that they either hinted to suspect A or suspect B to be the murderer, the fourth segment always revealed suspect A as murderer. To establish three different mystery complexity levels, the first three text segments either featured clues hinting to the same suspect (low complexity), or to one suspect in the first segment and then to another suspect in both following segments (medium complexity), or to one suspect in the first and the third segment and another suspect in the segment in between (high complexity). After participants had read the fourth segment with the story resolution, they answered questions about affective responses and story liking. Finally, they completed a need-for-cognition questionnaire and reported demographic information.

Respondents

Participants were recruited at a library on the campus of a large German university and received 4 Euros for participation. Of the 154 respondents, 53% were female. The average age was 24.1 ($SD = 5.1$). The experimental groups did not differ in gender proportions or age (ns). Each group comprised 25 or 26 participants. Details of the sample distribution across experimental groups are reported in Table 1.

Procedure

Participants were invited to support research about what people find enjoyable in short stories, and offered 4 Euros as compensation. They were told that the study would take approximately 20 minutes, that they would read a short story and answer some questions about the text and about themselves. Upon participants' consent, they were handed a booklet with the text and questions. Before actual reading, participants were instructed on the first booklet page that the story would be split in several segments, so that they could respond to questions in between. Moreover, it was emphasized that the questions would relate to personal impressions and was not some kind of knowledge test. Participants could complete the booklet at their own pace,

Table 1. Overview of stimuli combinations, procedure, sample, and manipulation check

Procedure elements and text segments with hints to either suspect A or B	Experimental group by complexity level					
	Low		Medium		High	
	(AAA)	(BBB)	(ABB)	(BAA)	(ABA)	(BAB)
1st text segment	A	B	A	B	A	B
1st measurement	Suspicion ratings for five characters, liking of text segment					
2nd text segment	A	B	B	A	B	A
2nd measurement	Suspicion ratings for five characters, liking of text segment					
3rd text segment	A	B	B	A	A	B
3rd measurement	Suspicion ratings for five characters, liking of text segment					
4th segment (resolution)	A	A	A	A	A	A
Final measurement	Affective responses, liking of text segment, liking of entire story; need-for-cognition scale					
Sample composition						
Male respondents (<i>n</i>)	12	12	11	12	13	12
Female respondents (<i>n</i>)	13	14	14	14	13	14
Certainty that suspect A (culprit) is perpetrator						
1st measurement	3.2 ^{Aa} (.8)	2.9 (1.1)	3.6 ^A (.9)	3.2 ^A (.9)	3.4 ^A (1.1)	2.7 ^A (1.2)
2nd measurement	3.4 ^b (.9)	3.0 (1.0)	3.3 ^B (.9)	3.6 ^B (.7)	2.7 ^B (1.1)	3.5 ^B (1.1)
3rd measurement	3.6 ^B (1.0)	2.8 (1.3)	3.1 ^B (.9)	3.6 ^B (.7)	3.2 ^A (1.0)	2.8 ^A (1.1)
Enjoyment of entire mystery	3.3	3.3	3.3	3.5	3.0	3.0

Note: Means for one suspect in a column with different capital superscripts differ at $p < .05$ in a paired one-sided *t*-test, with different lower case superscript at $p < .10$. *SD* reported in brackets.

while the experimenter stayed near, possibly inviting other people to participate.

Stimulus Material

The presented short story was an edited version of *Mr. Policeman and the Cook*, a detective story by Wilkie Collins (available in English at <http://www.wilkie-collins.com/mr-policeman-and-the-cook/>), based on a German translation of this mystery. The questionnaire booklet pages with the short-story text featured a layout as if the pages were copied from a novel. Great care was taken to mimic the look of book pages – page numbering was placed on alternating margins and started at 33. The text column was 3.5 inches wide, with a typeface, typeface size, and text cropping as found in novels. The length was almost 12 pages.

The crime story lent itself to combining different segments without being unconvincing, as transitions were still meaningful, even if a different lead followed. For example, one segment ends as follows:

“The assassination of the poor young husband soon passed out of notice, like other undiscovered murders. One obscure person only was foolish enough, in his leisure hours, to persist in trying to solve the problem of Who Killed Zebedee? [...] In plain English, I was the man.”

This allows the reader to focus on another suspect in the following text segment.

The first three text segments were prepared in two versions each to the effect that the reader was led to suspect

either character A (a female cook) or character B (the victim's wife) to have committed the murder. The two versions of each segment were almost identical, with just a few words exchanged to present different clues. The fourth segment uniformly revealed character A as the murderer.

The first text segment consisted of 1284/1285 words (depending on experimental version) and covered how the narrator, a police officer, learns about the discovery of a murder. Upon his arrival at the crime scene, a lodging house, he encounters or hears about several potential suspects – the landlady and her employees, several tenants, as well as the victim's wife. Depending on experimental version of the segment, readers came across two hints pointing either to the lodging house's cook, who also informed the police, or to the victim's wife as culprit. More specifically, the landlady reported to the police officer that she had witnessed a conversation between the victim and the (female) cook that was either portrayed as a quarrel or as a rendezvous. Secondly, the segment ended in a question that the police officer is asking himself – did the cook kill the victim with whom she had been fighting the night before, or did the victim's wife kill him because he had an affair with the cook?

The second text segment consisted of 903/873 words and featured four clues either pointing to the cook or the wife as culprit, depending on the experimental manipulation. The hints referred to pieces of evidence and witnesses' observations, though none led to a conclusive solution. Moreover, the segment also ended in reasoning by the police officer, whether either the cook or the wife had killed the victim because of jealousy, depending on the experimental version.

The third text segment with 700/702 words talked about how the police officer collected background information about the personal history of either the cook or the wife.

The fourth segment with 628 words always revealed the cook to be the murderer.

Dependent Variables

Items for the dependent measures were essentially adopted from prior empirical work (Knobloch et al., 2004; Knobloch-Westerwick & Keplinger, 2006).

Suspicion

After each of the first three segments, respondents answered to the prompt "... whom do you consider the murderer of Mr. Zebedee. Listed below is every person who could have committed the crime. Please indicate for each person the probability that this person is the perpetrator" based on 5-point scales ranging from "I am sure that ... is *not* the perpetrator" to "I am sure that ... is the perpetrator" for every potential perpetrator (the wife, Mrs. Zebedee; the landlady, Mrs. Crosscapel; the lodger, Mr. Deluc; the cook, Priscilla Thurlby; the housemaid) (wording adopted from Knobloch-Westerwick & Keplinger, 2006). It is to be noted that the suspicion of the actual culprit was of greatest interest, also to measure the effectiveness of the experimental treatment. However, other persons appeared in the text whose perceived potential criminal involvement had to be ascertained as well.

Mystery Enjoyment During Reception

After each of the text segments, the item "Please indicate how much you liked this text part" collected information on a 5-point scale ranging from "I didn't like this text part at all" to "I liked this text part very much." The first enjoyment rating could not be influenced by mystery complexity and thus also served as a baseline measure.

Affective Responses

After reading the segment with the story resolution, participants were asked how they felt during reading this part and responded on a 5-point scale from "not at all" to "very" to the items surprised, affirmed, astonished, puzzled, and baffled. Reactions to the entire story ("Please indicate how much the following characteristics apply to the short story you just read," translated, SKW) were rated on a 5-point scale from "not at all" to "very," for the items mysterious, appealing, secretive, entertaining, well written, enigmatic, and dull (items translated, adopted from Knobloch et al., 2004; Knobloch-Westerwick & Keplinger, 2006).

Enjoyment of Mystery in Its Entirety

Furthermore, story liking was rated for the entire story because respondents might have felt differently about it after reading it in its entirety.

Personality Measure

Finally, respondents completed a German version of the need-for-cognition scale (Cacioppo & Petty, 1982; Bless, Waenke, Bohner, Fellhauer, & Schwarz, 1994). This scale has 16 items, for example, "I really enjoy a task that involves coming up with new solutions to problems" (translated, SKW), with a 5-point response scale ranging from "does not apply at all" to "absolutely applies." Gender and age were also reported.

Data Preparations

Based on the clue combinations, a variable for mystery complexity was generated. If recipients had received only consistent clues (either AAA, if the clues in all segments pointed to suspect A, the cook, or BBB, if all clues pointed to suspect B, the victim's wife), this was considered "low complexity." If recipients had received clues to instigate one suspicion change (either ABB or BAA), this was considered "medium complexity." Finally, the scenario in which clues were to instigate two suspicion changes (either ABA or BAB) was considered "high complexity" (see Table 1). Furthermore, the number of clues that pointed toward the actual culprit was employed for constructing a dichotomous variable, with either "most clues correct" (AAA, BAA, and ABA) or "most clues incorrect" (BBB, ABB, and BAB), in order to control for such an impact on enjoyment as well.

For the enjoyment of the mystery in its entirety and the enjoyment measures regarding the second, third, and fourth text segment, we utilized the enjoyment reported after the first text segment as baseline measure to partial out effects of general mystery genre liking and liking of the particular story setting. This was conducted by employing the enjoyment reported after the first text segment as predictor and the other measures as dependent variables in regression analyses while saving the unstandardized residuals. The baseline measure was closely related to enjoyment of the mystery in its entirety ($\beta = .61, p < .001$) and the liking of the second ($\beta = .69, p < .001$), third ($\beta = .60, p < .001$), and fourth ($\beta = .40, p < .001$) text segment.

Index Construction

Need-for-Cognition

The interitem consistency of the need-for-cognition items was satisfactory with $\alpha = .77$, the items were thus con-

densed in a mean value. This measure had an average score of 3.7 ($SD = .46$). For subsequent analyses, the sample was categorized by need-for-cognition scores to obtain three groups of roughly equal size (NFC levels were at $M = 3.2$, 3.7, and 4.2 and all differed significantly from each other, $p < .001$).

Surprise

The ratings for the first set of items about affective responses were subjected to a factor analysis (principal component), which yielded only one factor with 68% explained variance. All absolute loadings were $= .72$. The item "affirmed" showed a negative loading and was thus recoded. The interitem consistency for these items was high with $\alpha = .88$. Hence, a new condensed variable for Surprise (mean value) was created. The average score was 2.6 ($SD = .88$). In addition, a variable for low vs. high surprise was generated based on a median split.

Affective Responses

The ratings for the second set of items about reactions to the entire story were subjected to a factor analysis (principal component, varimax), which yielded two factors with 46% and 19% explained variance. The items "entertaining" (.88), "appealing" (.79), "well written" (.77), and "dull" (-.73) loaded on the first factor and were condensed as mean value in a new variable for Appeal (Cronbach's $\alpha = .83$). The average appeal score was 3.3 ($SD = .75$). The items "secretive" (.80), "mysterious" (.79), and "enigmatic" (.76) loaded on the second factor and were also collapsed as mean value (Cronbach's $\alpha = .72$) to generate the variable Mysteriousness, with an average score of 2.7 ($SD = .74$).

Results

Preliminary Analyses

Manipulation Check

To assess mystery complexity as induced by the experimentally varied clue combinations, the development of suspicions across time was examined within each experimental group. Within each experimental group, ratings for certainty that suspect A was the perpetrator were analyzed with paired t -tests, as reported in Table 1. Differences were as desired, indicating a successful manipulation.

Importance of Segment Enjoyment for Enjoyment of Mystery in Its Entirety

We explored how much overall enjoyment was affected by enjoyment of specific segments with a regression analysis that used enjoyment of the mystery in its entirety as criterion

and enjoyment of the four text segments as predictors. All segments were relevant ($\beta = .18, .19, .21$, and $.43$, with p always $< .05$). What appears to indicate a recency effect could also reflect the importance of the mystery resolution for overall enjoyment.

Effects of Complexity and Need-for-Cognition on Enjoyment of Mystery in Its Entirety

An ANOVA was conducted to test effects of mystery complexity and need-for-cognition on the enjoyment of the entire mystery, as hypothesized in H1 and H2. Both complexity levels and need-for-cognition were incorporated as three-level between-subject factors. Enjoyment of mystery in its entirety (with baseline enjoyment partialled out, see data preparations) was employed as dependent measure.

Both main effects, for complexity, $F(2, 144) = 4.3$, $p = .015$, $\eta^2 = .056$, and need-for-cognition, $F(2, 144) = 9.8$, $p < .001$, $\eta^2 = .120$, and the interaction, $F(4, 144) = 3.6$, $p = .008$, $\eta^2 = .090$, were significant. The mystery version with high complexity ($M = -.20$, $SD = .64$) was significantly less enjoyable than the low-complexity version ($M = .09$, $SD = .79$) with $p = .028$ and significantly less enjoyable than the medium-complexity version ($M = .11$, $SD = .60$) with $p = .05$. The impact of need-for-cognition resulted in significantly greater enjoyment among participants with medium need-for-cognition ($M = .32$, $SD = .58$) compared to those with low need-for-cognition ($M = -.20$, $SD = .72$; $p < .001$) and those with high need-for-cognition ($M = -.05$, $SD = .66$; $p = .006$). An ANOVA with this three-step factor, complexity as another three-step factor, baseline enjoyment as covariate, and enjoyment of the mystery in its entirety replicated these results, yielding significant impacts throughout, with $F(2, 143) = 9.83$, $p < .001$, $\eta^2 = .121$, for need-for-cognition, $F(2, 143) = 4.32$, $p = .015$, $\eta^2 = .057$, for complexity, $F(1, 143) = 96.13$, $p < .001$, $\eta^2 = .402$, for the baseline enjoyment covariate, and $F(4, 143) = 3.46$, $p = .010$, $\eta^2 = .088$, for the interaction between complexity and need-for-cognition. The interaction is illustrated in Figure 1, which also reports results from subsequent paired comparisons (Sidak adjustment). High complexity was associated with low enjoyment among individuals with low or medium need-for-cognition, but complexity did not make a significant difference among individuals with high need-for-cognition. However, when comparing readers with different need-for-cognition levels within experimental groups, it became clear that low need-for-cognition was associated with significantly less enjoyment of the high-complexity version than medium and high need-for-cognition; furthermore, for the low complexity version, individuals with medium need-for-cognition reported significantly more enjoyment than individuals with high need-for-cognition, whereas individuals with low need-for-cognition fell in between and did not differ from the other groups.

To examine the impact of possibly confirmed suspicions

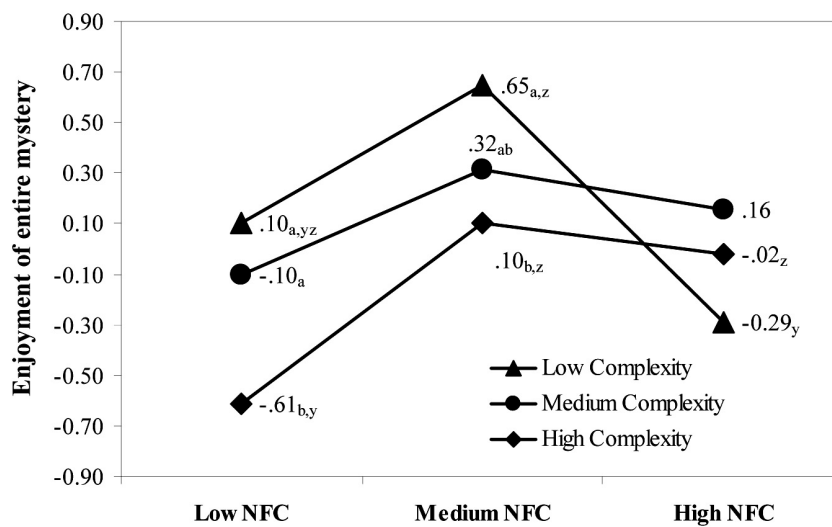


Figure 1. Enjoyment of entire mystery as a function of need-for-cognition and mystery complexity. *Note:* Means within one complexity group with different letters (a/b) differ at $p = .05$. Means within one data series with different letters (y/z) differ at $p = .05$. Multiple comparisons with Sidak adjustment.

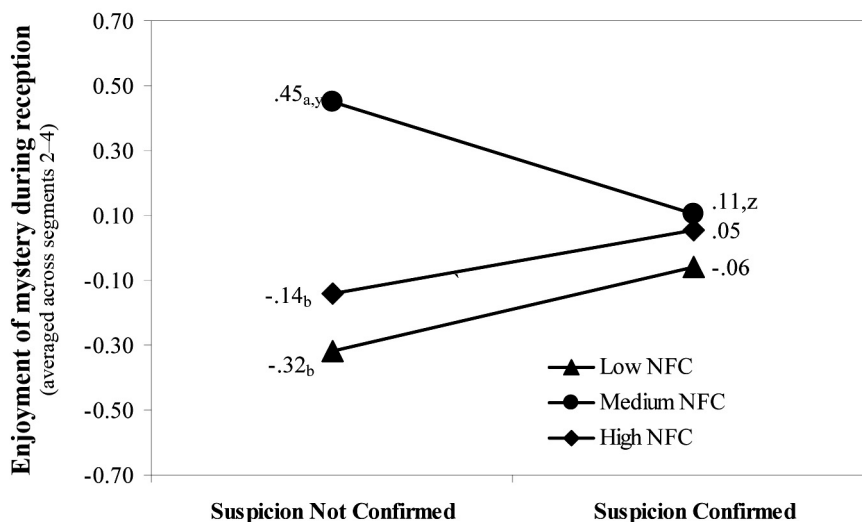


Figure 2. Enjoyment of entire mystery as a function of need-for-cognition and suspicion confirmation. *Note:* Means within one complexity group with different letters (a/b) differ at $p = .05$. Means within one data series with different letters (y/z) differ at $p = .05$. Multiple comparisons with Sidak adjustment.

suggested in RQ1, the ANOVA model reported above was extended with the suspicion for the actual culprit indicated right before the resolution text segment as a dichotomous variable for confirmed/not confirmed. (The majority of participants (55%) rated their certainty that Priscilla Thurlby, the actual culprit, was the murderer at 3 or lower, while 45% rated it at 4 or 5 and were thus coded as "confirmed.") All effects reported above emerged as significant again. Furthermore, an interaction with suspicion confirmation and need-for-cognition emerged, $F(2, 135) = 4.5, p = .013, \eta^2 = .062$. As illustrated in Figure 2, need-for-cognition did not matter among those whose suspicion was confirmed. However, mystery readers with medium need-for-cognition enjoyed having their suspicion thwarted, but those with low or high need-for-cognition disliked that (Sidak adjustment for multiple comparisons).

To explore the robustness of these effects, we extended this ANOVA model furthermore with the variable for "most clues incorrect/correct." All effects reported above

were again significant. No additional effects reached significance.

Mystery Enjoyment During Reception

To address RQ2, a mixed ANOVA was conducted with mystery complexity and need-for-cognition as three-step between-subject factors, suspicion confirmation as two-step between-subject factor, baseline enjoyment as covariate, and the enjoyment measures for the last three text segments as repeated dependent measures. Need-for-cognition again had a significant impact, $F(2, 126) = 4.63, p = .011, \eta^2 = .068$, and so did mystery complexity, $F(2, 126) = 3.88, p = .023, \eta^2 = .058$. The interaction between these two between-subject factors was significant as well, $F(4, 126) = 2.97, p = .022, \eta^2 = .086$, and is illustrated in Figure 3. The confirmation of suspicions' effect failed to reach significance, $F(2, 126) = 2.92, p = .058, \eta^2 = .044$. Baseline enjoyment's impact was signif-

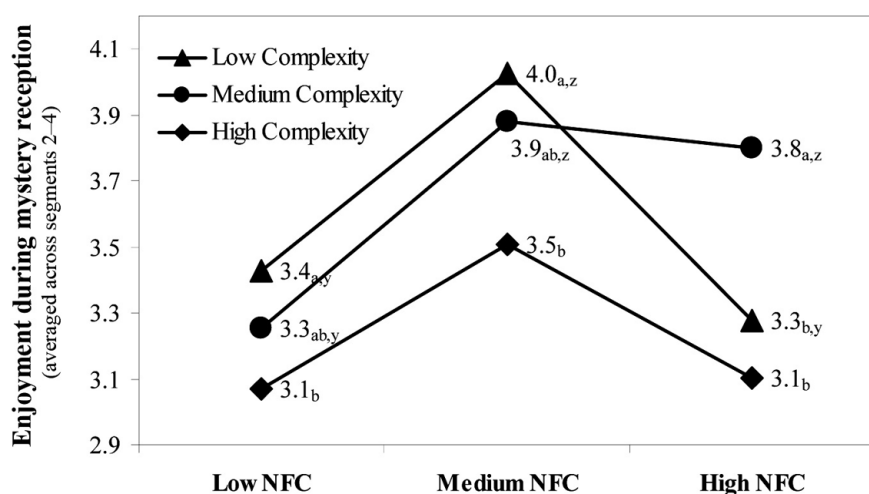


Figure 3. Enjoyment of mystery reception as a function of need-for-cognition and mystery complexity. *Note:* Means within one complexity group with different letters (a/b) differ at $p = .05$. Means within one data series with different letters (y/z) differ at $p = .05$.

icant, $F(1, 135) = 121.42, p < .001, \eta^2 = .474$, and there was also a marginally significant interaction between the within-subject factor of repeated enjoyment measures and the covariate, $F(2, 252) = 2.62$, GG-corrected, $p = .081, \eta^2 = .020$, because the association between baseline enjoyment and later enjoyment decreased somewhat over time.

To explore the robustness of these effects, we extended this ANOVA model yet further with the variable "most clues incorrect/correct." All effects reported above were again significant. No additional effects reached significance.

Furthermore, we examined the evaluation of the fourth story segment, as it presented the resolution and was thus crucial for the story as such. An ANOVA with the same factors as above and enjoyment of the first segment as covariate showed the same impacts as for the analysis of entire mystery enjoyment. When using this measure plus enjoyment of the entire mystery as repeated measures, no interactions with the within-subject factor emerged. This indicates that the impacts of complexity and need-for-cognition were about the same for outcome enjoyment as for enjoyment of the entire mystery.

Effects on Affective Responses

To see whether mystery complexity affected affective responses (RQ3), the same ANOVA model as above with need-for-cognition, mystery complexity, and suspicion confirmation as independent variables was applied to surprise, mysteriousness, and appeal. Yet no influence of theoretical interest emerged. This pattern also did not change when including whether participants' suspicions had been confirmed and whether most of the presented clues had been correct. Other findings reflected in the ANOVA can be summarized as follows. For surprise as criterion, suspicion confirmation emerged as relevant; a simple t -test revealed that those who had indicated to be fairly certain that

the actual culprit was the murderer (response options 4 and 5 out of 5) were significantly less surprised than the rest of the sample ($M = 2.1$ vs. $2.9, t(152) = 6.2, p < .001$). Baseline enjoyment influenced mysteriousness ($r = .24, p = .003$) and appeal ($r = .62, p < .001$).

Supplementary Analyses

A simple regression model with baseline enjoyment in the first block and surprise and mysteriousness in the second block of predictors and enjoyment of entire mystery as criterion yielded, beside an impact of the baseline ($\beta = .56, p < .001$), that mysteriousness ratings had a positive impact on enjoyment ($\beta = .20, p = .004$). Surprise did not approach significance.

Discussion

This investigation studied effects of mystery complexity and recipients' need-for-cognition on mystery enjoyment. While these factors certainly affected mystery enjoyment, also in combination and partly in interaction with confirmed or thwarted suspicions, our two hypotheses were not supported. We had expected that mystery complexity would have a curvilinear impact on mystery enjoyment in that medium complexity would be enjoyed more than low or high complexity. Instead, we found a linear impact pattern because the mystery was generally more enjoyable the simpler it was. We had expected a linear impact of need-for-cognition on mystery enjoyment, as people with a preference for cognitively challenging tasks were assumed to enjoy mystery more. Yet we found a curvilinear effect in that mystery readers with medium levels of need-for-cognition enjoyed the mystery the most. This curvilinear pattern probably emerged because readers with medium need-for-cognition did not care much

whether their suspicions were confirmed or not, as their enjoyment was independent of that. The other readers generally indicated less enjoyment when their suspicions were thwarted (RQ1). Lastly, combinations of complexity and need-for-cognition levels also mattered because the linear impact for the complexity effect was not evident within the high need-for-cognition group and because the curvilinear impact of need-for-cognition was most pronounced for the low-complexity mystery version. However, mystery complexity and need-for-cognition did not affect affective responses and appeal of the mystery much.

These results extend findings from an earlier study that also indicated that certain personality traits produce very different responses to mystery story features. As it stands, both need-for-cognition and self-esteem channel evaluative responses to mystery in crucial ways. Earlier research (Knobloch-Westerwick & Keplinger, 2006) demonstrated that self-esteem determines whether mystery readers enjoy or dislike surprising and confirming outcomes. Both current and earlier findings indicated that perceptions of how mysterious the story is plays an important role in mystery enjoyment. Furthermore, both current and earlier findings showed the importance of need-for-cognition for mystery enjoyment – the present data indicate that high need-for-cognition results in greater enjoyment of medium complexity in a mystery compared to low and high complexity. Our prior investigation had yielded that need-for-cognition was negatively related to mystery enjoyment during exposure, probably because the presented mystery featured a simple plot, comparable to the low complexity version in the present study.

Interestingly, impacts on the enjoyment during the mystery exposure did hardly differ from the impacts on overall enjoyment. We found in preliminary analyses that the two phenomena were closely related. Other research has found differences between online enjoyment and postexposure evaluations (e.g., Vorderer, Knobloch, & Schramm, 2001). Yet given that the current study used a relatively short story, recipients were apparently better able to reflect their experience in the end. Another potential explanation is that need-for-cognition as a trait affects more the overall appreciation of mystery, as it reflects how much people like to ponder information. Other traits, such as trait curiosity mentioned above, that relate more to anticipations of information, may actually influence experiential changes more than the personality characteristic we looked at in this investigation that went through great length for a process orientation. We plan on extending the research approach to an investigation that looks at trait curiosity in the future.

The present investigation tapped into the processes during mystery exposure by manipulating several sequential clues and collecting responses while the plot unfolded. There are limitations to this approach inasmuch the interspersed questions interrupt the normal reading process and produce reflections on recipients' responses that otherwise not occur. Nonetheless, in order to fully understand the entertainment experience of mystery exposure, one needs some measures during the actual exposure and processing of the plot. The current

study explored the option of repeated measures in between text segments. Alternative methods could measure reading times of the text segments to operationalize depth of information processing or could collect continuous response measures (e.g., Vorderer et al., 2001) during exposure to a mystery television show. Yet future research could employ a control group without such interspersed measures to tap into any effects that this approach might have.

Some limitations of the current study need to be mentioned. (1) We employed a "forced exposure" design, and participants did not choose from a variety of entertainment offerings, which makes the consumption situation more task-like than under real-life circumstances. (2) Measuring responses to mystery and personality traits in one session may impair the quality of the data, as the prior session part could affect subsequent responses. In our case, asking participants about suspicions and then confirming them or thwarting them might influence how items from the need-for-cognition scale are rated. However, personality measures about stable traits are unlikely to vary greatly due to such situational circumstances. (3) Furthermore, any future replication of the current research should also aim for more variation in need-for-cognition scores by using a more diverse sample than university students. (4) Finally, replicating the current design with other mystery stories would show how stable the reported effects are.

More questions for further mystery enjoyment research are readily at hand. Other mystery characteristics that affect complexity, most importantly number of suspects, should be examined in their effects on mystery recipients. Furthermore, components that encroach on the cognitive considerations resulting from clues are of interest – for instance, character liking, severity or brutality of the crime, or perceived perpetrator motive should all influence suspicions. Most likely, many of these aspects interact with characteristics of the mystery reader, similar to the role on need-for-cognition scrutinized in the present study.

The present study contributes to our understanding of why crime fiction is so widely popular among diverse audiences. More precisely, it reveals that certain factors that are commonly suggested to draw readers or viewers to crime fiction (Knobloch, 2003) do not account for its enjoyment. Apparently mystery readers do *not* look for complicated riddles in short mystery stories, instead they generally like them better when they are comparatively simple. Hence, even though mysteries can be considered an entertainment genre with an emphasis on cognitive processing of the plot, compared to other genres' greater emphasis on emotional aspects (Knobloch, 2003), enjoyment of short mystery stories is obviously not based on particularly challenging riddles. Furthermore, individuals who generally enjoy engaging in thoughts do not like mysteries more overall. Accordingly, the appeal of the genre is not based on brainteasers, as commonly suggested (Knobloch-Westerwick & Keplinger, 2006); indeed the current finding that being confirmed in one's suspicions can increase enjoyment indicates that mystery exposure and its potentially

self-bolstering effects may serve the common entertainment exposure function of mood management (Knobloch-Westerwick, 2006; Zillmann, 1988). This should be crucial for crime fiction being suitable for everyday "light" entertainment and enjoyment without great cognitive effort, resulting in a tremendous reach of diverse audiences.

References

- Berlyne, D.E. (1960). *Conflict, arousal, and curiosity*. New York: McGraw-Hill.
- Bless, H., Waenke, M., Bohner, G., Fellhauer, R.F., & Schwarz, N. (1994). Need for cognition: Eine Skala zur Erfassung von Engagement und Freude bei Denkaufgaben [Need for cognition: A scale measuring engagement and happiness in cognitive tasks]. *Zeitschrift für Sozialpsychologie*, 25(2), 147–154.
- Brewer, W.F., & Lichtenstein, E.H. (1981). Event schema, story schema, and story grammars. In J. Long & A. Baddely (Eds.), *Attention and performance IX* (pp. 363–379). Hillsdale, NJ: Erlbaum.
- Brewer W.F., & Lichtenstein, E.H. (1982). Stories are to entertain: A structural-affect theory of stories. *Journal of Pragmatics*, 6, 473–486.
- Brewer, W.F., & Ohtsuka, K. (1988). Story structure, characterization, just world organization, and reader affect in American and Hungarian short stories. *Poetics*, 17, 395–415.
- Bryant, J., Mullikin Parcell, L., Bryant, J.A., & Kwon, J.C. (2000, August). *A systematic content analysis of eight decades of best-selling English-language mystery novels*. Presentation at the conference of the Internationale Gesellschaft für Empirische Literaturwissenschaft IGEL, Toronto, Canada.
- Bryant, J., & Vorderer, P. (2006). *The psychology of entertainment*. Mahwah, NJ: Erlbaum.
- Cacioppo, J.T., & Petty, R.E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116–131.
- Cacioppo, J.T., Petty, R.E., Feinstein, J.A., & Jarvis, W.B.G. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin*, 119, 197–253.
- Collins, R.P., Litman, J.A., & Spielberg, C.D. (2004). The measurement of perceptual curiosity. *Personality and Individual Differences*, 36, 1127–1141.
- Dowler, K. (2002). Media influence on attitudes toward guns and gun control. *American Journal of Criminal Justice*, 26, 235–247.
- Hoeken, H., & van Vliet, M. (2000). Suspense, curiosity, and surprise: How discourse structure influences the affective and cognitive processing of a story. *Poetics*, 26, 277–286.
- Holbrook, R., & Hill, T. (2005). Agenda-setting and priming in prime time television: Crime dramas as political cues. *Political Communication*, 22, 277–295.
- Knobloch, S. (2003). Suspense and mystery. In J. Bryant, D. Roskos-Ewoldsen, & J. Cantor (Eds.), *Communication and emotion* (pp. 379–395). Mahwah, NJ: Erlbaum.
- 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, 259–287.
- Knobloch-Westerwick, S. (2006). Mood management: Theory, evidence, and advancements. In J. Bryant & P. Vorderer (Eds.), *The psychology of entertainment* (pp. 239–254). Mahwah, NJ: Erlbaum.
- Knobloch-Westerwick, S., & Keplinger, C. (2006). Mystery appeal: Effects of uncertainty and resolution on the enjoyment of mystery. *Media Psychology*, 8, 193–212.
- Knobloch-Westerwick, S., & Keplinger, C. (2008). Impacts of plot characteristics and trait curiosity on mystery enjoyment. Manuscript in preparation.
- Oliver, M.B. (2002). Individual differences in media effects. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 507–525). Mahwah, NJ: Erlbaum.
- Renner, B. (2006). Curiosity about people: The development of a social curiosity measure in adults. *Journal of Personality Assessment*, 87, 305–316.
- Romance Writers of America (2004). 2004 Romance-fiction sales statistics, reader demographics and book-buying habits. Retrieved October 11, 2005, from <http://www.rwanational.org/pdfs/StatisticsBrochure2004.pdf>
- Soulliere, D.M. (2003). Prime-time murder: Presentations of murder on popular television justice programs. *Journal of Criminal Justice and Popular Culture*, 10, 12–38.
- Van Den Bulck, J. (2004). The relationship between television fiction and fear of crime: An empirical comparison of three causal explanations. *European Journal of Communication*, 19, 239–248.
- Vorderer, P., & Knobloch, S. (2000). Drama, suspense, and conflict. In D. Zillmann & P. Vorderer (Eds.), *Media entertainment: The psychology of its appeal* (pp. 59–72). Mahwah, NJ: Erlbaum.
- Vorderer, P., Knobloch, S., & Schramm, H. (2001). Does entertainment suffer from interactivity? The impact of watching an interactive TV movie on viewers' experience of entertainment. *Media Psychology*, 3, 343–363.
- Vorderer, P., Wulff, H.J., & Friedrichsen, M. (Eds.). (1996). *Suspense: Conceptualizations, theoretical analyses, and empirical explorations*. Mahwah, NJ: Erlbaum.
- Weaver, J.B. III, & Tamborini, R. (Eds.). (1996). *Horror films: Current research on audience preferences and reactions*. Mahwah, NJ: Erlbaum.
- Zillmann, D. (1988). Mood management through communication choices. *American Behavioral Scientist*, 31, 327–340.
- Zillmann, D. (1991). The logic of suspense and mystery. In J. Bryant & D. Zillmann (Eds.), *Responding to the screen. Reception and reaction processes* (pp. 281–303). Hillsdale, NJ: Erlbaum.
- 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). Mahwah, NJ: Erlbaum.
- Zillmann, D. (2000). Humor and comedy. In D. Zillmann & P. Vorderer (Eds.), *Media entertainment: The psychology of its appeal* (pp. 59–72). Mahwah, NJ: Erlbaum.
- Zubayr, C., & Geeste, S. (2005). Krimis im deutschen Fernsehen: Angebot, Nutzung und Bewertung von Kriminalfilmen und -serien [Crime fiction in German television: Offerings, use, and evaluation of crime movies and series]. *Media Perspektiven*, 10, 511–520.

Date of acceptance: April 25, 2008



Silvia Knobloch-Westerwick received her PhD from the Department of Journalism and Communication Research, University of Music and Drama, Hannover, Germany. She is presently an Associate Professor at the School of Communication, Ohio State University in Columbus, OH, USA. Prior appointments at communication departments at the University of California, Davis, CA,

USA; University of Michigan, Ann Arbor, MI, USA; University of Dresden, Germany; postdoctoral research fellow at the University of Alabama, Tuscaloosa, AL, USA. Her research addresses media effects and message selection in the entertainment media and in the news as well as the consequences of selective exposure.

Silvia Knobloch-Westerwick
Ohio State University
School of Communication
3036 Derby Hall
154 N. Oval Mall
Columbus, OH 43210
USA
Tel. +1 614 247-6801
Fax +1 614 292-2055
E-mail knobloch-westerwick.1@osu.edu



Caterina Keplinger earned her MA in communication science at the Dresden University of Technology, Germany, in 2003. She is currently pursuing a PhD in communication science at the University of Music and Drama, Hannover, Germany. Her research interests include media effects in entertainment and news. She has gained professional experience in the fields of political education

and public relations and works as a marketing coordinator in Dresden, Germany.

Caterina Keplinger
Louisenstraße 67
D-01099 Dresden
Germany
Tel. +49 351 374-2824
Fax +49 351 215-6575
E-mail caterinakeplinger@web.de