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Reading and its influence on antisocial behaviour

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Abstract

Reading fiction serves as an educational instrument that teaches people about social skills and their own- and other's emotions. Nevertheless, possible negative effects of reading are rather undiscovered. Therefore, the current study investigated the relationship between reading, as a form of perspective taking, and antisocial behaviour. Based on the research findings of Bal and Veltkamp (2013) a lack of transportation while reading would lead to less emotional engagement, which was predicted to cause selfish compensation behaviour. To verify these findings an online experiment was conducted ($N=102$). During the study, participants were asked to either read the original version of a fictional text (high engagement condition) or an added version (low engagement condition), which was intended to be unpleasant due to added spelling and grammar mistakes. Afterwards, the degree to which transportation, empathy, theory of mind, and antisocial behaviour were evoked were measured. It was hypothesised that people reading the disengaging text would feel less transported into the story, would score lower on empathy and theory of mind and would report higher scores on a subsequent dice rolling task (=improved scores) to have a better chance of winning a price. However, the result was that, instead of being disturbed by the mistakes, people assigned to the low engagement condition scored significantly higher on transportation and empathy than people in the high engagement condition. But no effect could be found from reading on antisocial behaviour. Possible explanations were an unsuccessful manipulation and the lack of a control condition.

Keywords

Antisocial behaviour, perspective taking, reading, transportation, empathy, theory of mind

Introduction

“Books are the quietest and most constant of friends; they are the most accessible and wisest of counselors, and the most patient of teachers.” — Charles William Eliot

“A reader lives a thousand lives before he dies, said Jojen. The man who never reads lives only one.” — Martin (2011)

Since the invention of the printing press by Gutenberg in 1440, reading became a beloved and very popular activity among people from different ages and backgrounds all around the world. His invention offered the first possibility for mass distribution of information and knowledge. For this reason, almost 600 years later, there are millions of novels and texts available about almost every topic or question one can imagine, and there is always something new to discover. Even if texts are not necessarily read in paper forms anymore, but also on portable e-readers or on tablets, the strong demand for the written word is still unbroken.

According to Gerrig (1993, in Bal & Veltkamp, 2013) reading a book, or as it is also called a *fictional narrative*, gives the reader the opportunity to put oneself into the shoes of others. Hereby, it offers readers the chance to escape and to unwind from their daily demands and to recover from their personal lives by following the journeys of strangers (Bal & Veltkamp, 2013). While imagining oneself in an alternative world, people can learn from the experiences and struggles of narrative figures or as Pinker (2011) states, by questioning the decisions and comprehend another's train of thought. For this reason, researchers as Hakemulder (2000, in Djikic & Oatley, 2014) proposed that reading can serve as a *moral laboratory*, which is supported by the work of Mar, Oatley, Hirsh, dela Paz and Peterson (2006) who found a positive relation between fiction-exposure and social abilities, which also included the ability to understand others and empathy.

Empathy is defined as a sensitivity to and understanding of the physiological and emotional states of others' (Smith, 2006; Pino & Mazza, 2016). According to research, empathy consists of two dimensions: mentalising and emotional sharing (Pino & Mazza, 2016; Shamay-Tsoory et al., 2009). Mentalising is the cognitive component of empathy, meaning the ability to understand what others are thinking or feeling, while the emotional sharing dimension describes the competency to emotionally *feel* or *re-experience* what others are feeling (Pino & Mazza, 2016). Hence, empathy seems to be a crucial human capacity to establish interpersonal relationships and it enables them to interact successfully in social groups.

Nevertheless, it is still unknown to which extent reading, as a form of perspective taking, influences the behaviour of readers. Today, some studies show that perspective taking can lead to pro-social behaviour. Van de Pieterman (2015) for example, demonstrated that participants who were asked to take the perspective of a fictional character, by imagining how they would feel in a given situation, had a higher tendency to help picking up papers than participants in the control condition. However, almost no studies exist which deal with the possible negative effects of perspective taking while reading.

Although, if we look at perspective taking in other research contexts, such as business negotiations, also contradicting results were found. In a study by Pierce, Kilduff, Galinsky and Sivanathan (2013) the researchers showed that perspective taking can lead to both prosocial as well as hypercompetitive or antisocial behaviour. In their study, they asked volunteers to imagine themselves (e.g. as another form of perspective taking), in cooperative or competitive negotiation situations and afterwards to rate the unethical intentions of their counterparts and themselves. One of the main results was that participants who imagined themselves in a competitive working environment, were more likely to engage in antisocial behaviour such as being willing to use unethical tactics or to lie to their imagined counterpart in order to protect themselves from the conceived evil (Pierce et al., 2013).

Nonetheless, regarding this example, it is important to stress that the relational context, being in a negotiating situation, was considered to be the main influencing factor for behaving antisocially. Still, imagining oneself in a negotiating situation, remains to be just another form of perspective taking by which this antisocial behaviour was triggered. Therefore, it would be interesting to inquire whether other forms of perspective taking, such as reading, could provoke similar protection mechanism in people. Would they also lead to antisocial behaviour?

Since the study of Pierce et al. (2013) was one of the first studies which investigated the relationship between perspective taking and antisocial behaviour, more research is needed to prove whether their findings are reproducible, in order to determine whether perspective taking *only* leads to pro-social behaviour or, on the contrary, also to antisocial behaviour. Besides, due to its popularity, it would be interesting to use reading as a form of perspective taking to explore this relationship further. Especially because, by now, literature mainly focused on the positive influences of reading on performance instead of negative ones. Therefore, the research question is the following:

How does perspective taking while reading influence antisocial behaviour?

Theoretical framework

Theory of mind (ToM) or mind reading, describes the human ability to identify and understand mental states of oneself and others (Kidd & Castano, 2013; Turner & Felisberti, 2017), or in other words, ToM is the comprehension that all individuals have their own desires, intentions, knowledge and beliefs (Black & Barnes, 2015). Therefore, it is a very important competency to successfully interpret and predict the behaviour of others (Turner & Felisberti, 2017) and to maintain interpersonal and intergroup relationships (Kidd & Castano, 2013). Previous studies found evidence for two different ToM's: affective- and cognitive ToM. Affective ToM includes the ability to perceive and understand others' emotions, whereas cognitive ToM deals with the interpretation and representation of others' intentions and beliefs (Shamay-Tsoory & Aharon-Peretz, 2007; Shamay-Tsoory, Harari, Aharon-Peretz, & Levkovitz, 2010). Cognitive ToM was found to be positively linked to empathy, but in a case of lower scores on affective ToM or impairments to the orbitofrontal cortex, also to antisocial behaviour (Shamay-Tsoory & Aharon-Peretz, 2007; Shamay-Tsoory et al., 2010). Therefore, people should foster affective ToM activities in all sorts of backgrounds, in education, at work and in everyday situations to raise people to empathic and prosocial individuals. According to Kidd and Castano (2013) and Mar, Oatley, Hirsh, dela Paz and Peterson (2006), one practice which seems promising in promoting and refining interpersonal sensitivity is reading fiction.

According to previous research, reading can be connected to many positive outcomes, such as literacy-related benefits in reading and writing performance, better text comprehension (Clark & Rumbold, 2006), improved understanding of other cultures (Johnson, 2012; Johnson, Huffman, & Jasper, 2014), increased social abilities (Mar et al., 2006), increased Theory of Mind (Kidd & Castano, 2013) and most importantly with greater understanding of human nature and decision making (cf. Djikic, Oatley, Zoeterman, & Peterson, 2009; Kidd & Castano, 2013; Oatley, 2016). Still, the question remains, what does reading provoke in people that makes it so influential?

In general, literature can be classified roughly into two groups: fiction and nonfiction. Nonfictional writing (e.g. newspapers, scientific publications) is aimed at telling the truth and facts. Therefore, it mainly addresses real world issues, presented by argumentation and logic (Bal & Veltkamp, 2013); whereas fictional narratives (e.g. stories, plays) focus on the world of the imagination (Kurland, 2000), in which rather 'truthlikeness' (Bal & Veltkamp, 2013, p. 2) is created.

Additionally, fiction can also be further distinguished in *literary fiction* and *popular*

fiction (Kuijpers, 2014; Oatley, 2016) or as Barthes (1974) phrased it, in *writerly* and *readerly* texts (Barthes, 1974). Popular fiction or readerly texts are intended to entertain and to give readers an enjoyable experience (Kuijpers, 2014). For this reason, these writings are rather presented in a familiar and traditional manner which is easy to understand and also applicable for more passive readers (Ironstone, Leitch, Onyango, & Unruh, n.d.; Kuijpers, 2014). In contrast, literary fiction or writerly texts challenge the reader because these texts contain more stylistic devices (e.g. metaphors etc.) and characters which are more sophisticated or ‘round’, which in turn ‘defamiliarise’ the reader (cf. Kidd & Castano, 2013; Oatley, 2016). Thus, literary fiction or writerly texts request a more active role from the reader in interpreting and analysing the texts, in order to understand the real meaning behind the lines. In addition, Barthes (1974) affirmed that active involvement gives readers the chance to become co-authors of the fictional stories. Thereby reading turns into a meaningful experience that can cause personal and educational insights which they can use in their lives.

Nevertheless, Herman and Culler (1999) and Bal and Veltkamp (2013) indicated that fictional narratives can only be influential for its readers if they are realistic and believable because if this is the case, readers can get drawn or absorbed into a story, which is defined as *transportation* (Green and Brock, 2000) or *immersion* (Hartung, Burke, Hagoort, & Willems, 2016). In general, transportation is being described as a mental state “marked by deep concentration, losing awareness of one’s self, one’s surroundings and track of time” (Kuijpers, 2014, p. 28). Moreover, transportation is characterised by the vividness of the experience it creates in the reader, which gets caused by *visual imagery* (Green & Brock, 2000; Kuijpers, 2014). While taking the perspective of a fictional character, people get the opportunity to identify with them and simultaneously to experience similar emotions (Kuiken et al., 2004). Hence, by building a mental representation of the text, people perceive how it would feel to be someone else, which can finally lead to the commonly described feeling of ‘standing in someone else’s shoes’ and increased emotional engagement (Bal & Veltkamp, 2013; Gernsbacher, 1997; Kidd & Castano, 2013).

A good example of such a transportation experience and its possible outcomes provides the study of Goldstein (2009). In his study, Goldstein showed that recalling negative autobiographical experiences, such as a death of a family member, produced intense feelings of deep sadness and anxiety in people; whereas watching fictional movies produced only feelings of sadness. Surprisingly, both sensations of sadness were equally intense for their perceivers, no matter if they were perceived in real life or through transportation. For this reason, Goldstein concluded “when we allow ourselves to experience a tragedy on screen we

enjoy the feeling of sadness because we know that we can walk away. Perhaps because the sadness is unadulterated, it is cathartic” (Goldstein, 2009, p. 237). Hence, many researchers claim that experiencing emotions in fiction could help people to explore and understand their feelings and it would prepare them to deal with those in their daily lives without making themselves vulnerable to long-term consequences (such as the pain caused by the loss of a beloved family member). Moreover, positive side-effects of fictional experiences could be a gradual positive change of the self and enhanced abilities to feel empathy (cf. Djikic & Oatley, 2014; Goldstein, 2009; Kidd & Castano, 2013; Mar et al., 2006; Pino & Mazza, 2016).

However, what happens when no emotional engagement, no identification or no transportation takes place during the reading process? According to the study results of Bal and Veltkamp (2013), absence of transportation was associated with a decrease in empathy for fiction readers. Thereupon, Bal and Veltkamp argued that low transportation levels may lead to feelings of frustration, rejection and disgust which could motivate disengaged readers to become more self-centred and selfish in order to protect their self-concept in relation to others (Bal & Veltkamp, 2013; Pelowski & Akiba, 2011). The result might be, that disengaged readers might engage more in antisocial behaviour than engaged readers to equilibrate their negative reading experience with an act of selfishness, such as lying or cheating, in order to bring their negative state of mind back to a normal one. This assumption is in line with the findings of the earlier mentioned study by Pierce et al. (2013) who also showed that people engaging in self-protecting behaviour, acted antisocially. But what exactly is antisocial behaviour?

Antisocial behaviour is often used as an umbrella term for various forms of deviant behaviour (e.g. violations, disrespect of authority or the rights of others, theft, dishonesty, fraud). Thus, one can distinguish between verbal and physical harming behaviour. Anyhow, something can also be determined as antisocial if it is contrary to the laws and customs of society, in a way that it causes disapproval in others or disadvantages to others (Oxford dictionary, 2017). Nevertheless, it is important to emphasize that antisocial behaviour is not only committed by criminals or lawbreakers, but also by ‘normal’ people who value morality, but who act indecently when they have the opportunity to do so (Ayal & Gino, 2011).

For instance, a study by Mazar, Amir and Ariely (2008) showed that many people engage slightly in cheating behaviour when they expect no punishment or detection. In several experiments, participants were asked to roll a dice to determine how much payment they would receive for participating in their study. Hereby, participants were not observed

nor controlled or at least participants believed they were not controlled, which made it possible for people to cheat to earn more money. However, the majority of the participants cheated only for a certain degree of profit which was about 10-20% higher than their actual performance and far below the maximum possible payoff. Consequently, it can be concluded that many people cheat if they have the chance, but only on a small scale to stay undetected.

Combining the introduced research findings into a bigger picture, it could be expected that readers who are not being transported into a fictional story would get frustrated and consequently more self-centred, which could motivate them to engage in more antisocial behaviour than readers who are transported. Furthermore, it can be assumed that readers who are not transported into a story would also score lower on empathy than people who are transported. And lastly, due to the fact that empathy and affective ToM seem to be positively linked, it can be presumed that people who score high on empathy would also score high on affective ToM.

Current research

In the following, this study will investigate whether disengagement while reading can facilitate antisocial behaviour. Therefore, an experiment will be conducted in which Perspective Taking, Empathy, Cognitive ToM, Affective ToM and Antisocial Behaviour (Dice Rolling) are measured and manipulated in order to receive new insights into their relationship. In this research, participants were randomly assigned to one of two experimental conditions after which they received a text with instructions according to their condition (*High engagement* for imagining how they would feel in the situation of the engaging text, *Low engagement* for imagining how they would feel in the situation of the disengaging text). To check whether the manipulation was successful, the variable Transportation was measured. Afterwards, similarly, the levels of Empathy, Cognitive ToM and Affective ToM were measured. To measure Antisocial Behaviour, participants were asked to roll five dice and to report what number (from 5 to 30) they rolled. Hereby they were not observed or controlled, which left the participant with the choice to either report their true core or to lie in terms of improving their personal score, which goes hand in hand with having a better chance of winning a price which will be raffled among the participants with the highest score.

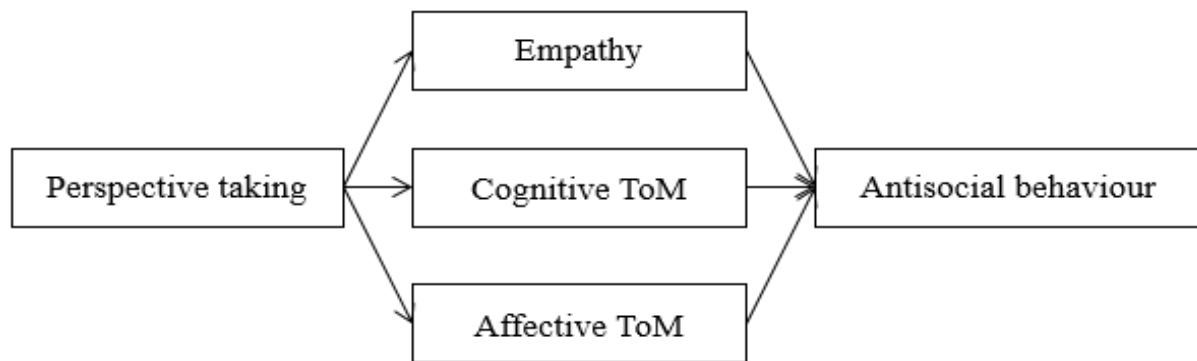


Figure 1. *Conceptual Model of Current Research.*

To answer the research question the following hypotheses are stated:

- H1:** Participants in the high engagement condition score higher on empathy than participants in the low engagement condition.
- H2:** Participants in the high engagement condition score higher on cognitive theory of mind than participants in the low engagement condition.
- H3:** Participants in the high engagement condition score higher on affective theory of mind than participants in the low engagement condition.
- H4:** Participants in the low engagement condition score higher on antisocial behaviour than participants in the high engagement condition.

Method

Design

The research employed a between-groups design, in which participants were randomly assigned to one of two conditions, either to the ‘high engagement’ condition or the ‘low engagement’ condition, which all belonged to the independent variable reading. The dependent variable was the total score from a dice rolling task including five dices, the participants would report to the researcher. Hereby, the individual total score was said to give participants the chance to win a 20€ voucher for a Dutch online shop (bol.com), if their total score was the highest. Afterwards, a questionnaire was used to derive scores on the possible mediating variables *Empathy*, *Cognitive ToM* and *Affective ToM*. Furthermore, *Transportation* was measured as a manipulation check for the independent variable. The

ethical committee of the University of Twente approved the study in advance. The data collection took place between May 4 and May 12, 2017.

Participants

A convenience sample was used to recruit the participants. The majority of the volunteers were recruited via SONA Systems, the 'Psychology Test Subject Pool' of the University of Twente. In addition, another channel through which the survey was distributed was Facebook, being the most popular social media channel. Participants who signed up via the SONA platform got 0.5 research credits for their participation. The rest of the participants did not get a reward.

In total, 140 participants took part in this study. Cases estimated as not valid were removed from the dataset. Reasons for being estimated as 'not valid' were not answering all research questions, which was the case for 18 participants, spending less than two or longer than eight minutes for reading the fictional text, which was the case for 17 participants, reporting an impossible total score on the dice rolling task, which was the case for one participant, or not consenting with the data being used for the actual purpose of the study after the debriefing, which was the case for two participants. In total, data of 38 people were removed. Therefore, the final sample which was used in the analysis consisted of 102 people, ranging in age from 18 to 61 years (74 female (72.5%), $M_{age} = 23.63$; $SD = 8.12$). Of the remaining sample, 26 participants (25.5 %) were Dutch, 66 participants (64.7 %) German and 10 participants (9.8%) had another nationality. At the time of this study, the highest achieved level of education was Secondary school for 1 participant (1%) and High school/Abitur for 67 people (65.7%). 20 participants (19.6%) had finished their Bachelor degree, 7 (6.9%) their Master degree, 3 (2.9%) their Doctoral degree and 4 people (4.0%) had another level of education.

Materials

Qualtrics Survey. All instructions and texts which were used in this research were put into the Qualtrics software, an online survey programme, which offers its users a variety of survey tools. It simplifies the data collection and the following data analysis. Besides, the Qualtrics software was also used to automatically assign participants randomly to the different conditions.

Texts. In this study, it was intended to create two different reading experiences for the participants in order to measure their influence on human behaviour. On the one hand, a text was required which would create a sympathetic, loving and engaging reading experience for

the reader and on the other hand, a text was required which would ideally create an annoying, unidentifiable and thereby disengaging reading experience.

For the high engagement condition, the original version of the short story “Elvis Died on the Florida Barber College” written by Roger Dean Kiser (n.d.) (Appendix C.1) was picked, which deals with the story of a little boy who lives in an orphanage, who is treated very unfair by his caregivers of the orphanage. The short story is characterised by the excitement and hopes of a little boy, which get destroyed through the malicious behaviour of the caregiver. For this reason, it was expected that this text would create a sympathetic reaction in the reader and that people would feel compassion for the main character.

For the disengaging narrative condition, the same short story was used. However, to give the participants an annoying and frustrating reading experience, the researcher added spelling and grammatical errors which were expected to disturb the reading flow of the participants. The intention was to make it harder for the readers to transfer themselves into the story. It was intended that by adding many errors, the main attention of the reader would rather be directed towards the outer form of the text than paying lots of attention to the content of the story. For this reason, it was supposed that readers would find it hard to identify with the little boy and that the mistakes would give the readers an annoying or irritating reading experience, which could restrain the reader from producing empathy for the main character. Table 1 contains extracts of the texts of each condition to illustrate the difference between them. The complete versions can be found in Appendix C.

Table 1

Extracts of Texts used in each Condition

High Engagement	Low Engagement
At ten years old I could not figure out what it was that this Elvis Presley guy had, that the rest of us boys did not have. I mean, he had a head, two arms and two legs, just like the rest of us. Whatever it was he had hidden away must have been pretty darn good because he had every young girl at the orphanage wrapped around his little finger. About nine o'clock on Saturday morning I	At ten years old I could not figoure out what it were, that the Elvis Presley gui had the rest of us boys doesn't had. I mean the rest of us just like he had a had, two arm, and two leg. whatever it was he had hidden away have pretty darn good because he had every young gil at the orphanage wrapped around his little fingers. About nine o'clock on Saturday noon I decided to ask Eugene

<p>decided to ask Eugene Correthers, one of the older boys, what it was that made this Elvis guy so special. He told me that it was Elvis' wavy hair and the way he moved his body.</p>	<p>Correthers, one of the older boys, what it were that made this Elvis dude so speciale. He told me that it were Elvis' wavy hair and the way he mowed his bodie.</p>
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Dice rolling task. For the dice rolling task, an online version of a traditional six-sided die was used. The probabilities of rolling a 1, 2, 3, 4, 5 or 6 were all the same. To make the dices accessible online, the website <http://www.roll-dice-online.com/> was used.

Procedure

It was decided to conduct the survey online because through this approach a higher rate of participation was expected. Although it would have been easier to control the environmental circumstances in an offline setting, an online survey had the advantage that the participants could choose for themselves when and where to fill in the questionnaire and therefore were more likely to take part.

Before the study began, a welcome page was shown on the screen that informed about the overall research conditions and its reputed goal. Participants were given a 'cover' goal, namely that the research was aiming at collecting data about subjective reading preferences, to reduce the chance of revealing the researcher's hypothesis (see Appendix A). If the participants agreed, they were asked to give their informed consent to start with the research by clicking on 'next'.

All participants started off with answering questions about their demographical information such as gender, age, nationality and highest education and a few questions concerning their reading behaviour (see Appendix B). Afterwards, the Qualtrics software automatically assigned the participants to one of the two conditional groups (high vs. low engagement condition).

In the following, the participants were instructed to carefully read one version of the short story (depending on their assigned experimental condition) and to imagine how they would feel in the protagonist's position (see Appendix B). It is important to mention that all participants were asked to read the text only once, to fully concentrate on the feeling they had while reading the text.

Afterwards, to assess the dependent variable Empathy and Transportation (as the manipulation check), the participants were asked to read several text related statements (see

Appendix D), while keeping their experience from the text in mind, and to rate them on a five-point Likert scale, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”), in order to estimate to which degree they conformed with those statements. Next, Cognitive and Affective ToM were measured by the Yoni task (see Appendix E).

After filling in all the items, a page opened which told the participants that they had to play a game by using the external website <http://www.roll-dice-online.com/> (see Appendix F). All participants were instructed to roll five dices and to report their total score in the survey after they were finished. To make it more interesting for the participants to roll high numbers, they were informed that the participant with the highest total score would win a 20€ voucher for an online shop. To check whether the dices were fair, the participants were explicitly advised to roll the dice more than once. However, it was highlighted that only the first throw was relevant for the winning action and therefore should be kept in mind. On the last instruction screen, participants were asked to fill in their first total score. Then, the study was officially over.

On the final page of the survey, the participants were debriefed about the actual purpose of the study and were thanked for their participation (see Appendix G). Furthermore, the participants were asked a second time whether they agreed to participate in this study, in case people reconsidered and refused to take part, due to the actual research goal. In the end, the researcher’s email address was given to provide participants with the opportunity to ask questions or to contact the researcher for any other research related remarks.

Measurements

Reading seriousness. To monitor whether the participants read the texts seriously, the time which people spent on the page text page while reading was measured. It was examined whether participants needed a reasonable amount of time to read the text carefully (not less than two or longer than eight minutes), or just scrolled down the page. This was done without making the participants aware because this measurement was intended as a control tool for being able to draw conclusions on that behaviour, as well as for the possibility to exclude participants from the study if necessary. If participants took shorter than two minutes or longer than eight minutes, their data was excluded from the further analysis.

Empathy and Transportation. The construct Empathy was measured with seven items from the “Interpersonal Reactivity Index” from Davis and Association (1980). All items were tailored to the text to measure the empathy within the reader, which was caused by the text they read. An example item was “I had tender, concerned feelings for the main

character”. With a Cronbach’s Alpha of .90, the internal consistency of the scale was of excellent reliability.

Transportation was measured with ten items from the “Narrative Transportation Scale” from Green and Brock (2000). An example item was “While I was reading the text, I could easily picture the events in it taking place.” It was decided to exchange the word ‘narrative’ through the word ‘text’ in all questions because it was assumed that not all people used this word very regularly. With a Cronbach’s Alpha of .78 the scale had an acceptable reliability. To hide which constructs were measured, the 17 items were randomly put into one scale.

Cognitive and Affective Theory of Mind. To measure both Cognitive and Affective theory of mind, the Yoni task from Shamay-Tsoory & Aharon-Peretz (2007) was used. This test consisted in total of 98 trials. 36 trials measured cognitive theory of mind, 48 trials measured affective theory of mind, and 14 additional physical trials were added to ensure that the participants understood the task and avoided responding automatically to eye gaze. In each trial, an outline of a face named Yoni is shown, surrounded by four objects or faces, or both. Based on a textual instruction at the top of the screen, the eye gaze and facial expressions of Yoni and the other faces, the participant was asked to indicate to which object/person Yoni was referring. In the cognitive trials, both Yoni’s facial expression and the textual instruction are emotionally neutral. However, in the affective trials, Yoni’s expressions also provide affective information. Both, Cognitive and Affective ToM were scored by the number of trials that were answered correctly. With a Cronbach’s Alpha of .87 for the trials of Cognitive Theory of Mind and a Cronbach’s Alpha of .83 for the trials of Affective Theory of Mind, both had a good reliability.

Antisocial behaviour. Antisocial behaviour was measured by a dice rolling task with five dice (for a detailed description read the procedure part). Behaving antisocially meant lying about their actual score, or in other words reporting a different score than one actually rolled during the first try. For the participants, the advantage of lying was that they had a bigger chance on winning the promised price. Due to the fact, that the experimenter was not able to monitor the individual activity on the dice rolling website, it was impossible to say which scores were actually rolled. For this reason, lying was impossible to detect on the individual level, but it was possible to compare the mean values of the two conditional groups. So, in case one conditional group scored significantly higher in comparison to the other group, it could be indicated that one group was more dishonest, or behaving more antisocially.

Results

Normality testing

Before the study data was further investigated, a Shapiro-Wilk test was conducted to determine whether the data for the dependent variables (Empathy, Cognitive ToM, Affective ToM and Dice Rolling) and the manipulation variable (Transportation) were normally distributed (see Table 3 in Appendix H.1) The alpha scores for the dependent variable Dice Rolling $p(\text{high engagement}) = 0.70$ $p(\text{low engagement}) = 0.10$ and for the manipulation variable Transportation $p(\text{high engagement}) = 0.16$, $p(\text{low engagement}) = 0.80$ did not deviate significantly from normal; however for the dependent variables Empathy $p(\text{high engagement}) = 0.01$, $p(\text{low engagement}) = 0.04$, Cognitive ToM $p(\text{high engagement}) = 0.00$, $p(\text{low engagement}) = 0.00$ and Affective ToM $p(\text{high engagement}) = 0.00$, $p(\text{low engagement}) = 0.00$, the scores were significantly non-normally distributed. Therefore, in the following, it was chosen to test the variables Transportation and Dice Rolling with parametric tests and to test Empathy, Cognitive ToM and Affective ToM with non-parametric tests.

Randomisation Check

To check whether the participants were evenly distributed among the high and the low engagement conditions in terms of age and gender, an independent-samples t-test and a chi-square test were conducted. The independent-samples t-test showed no significant difference in the scores for reading the engaging text ($M = 24.06$, $SD = 9.83$) and for reading the disengaging text ($M = 23.20$, $SD = 6.02$); $t(100) = 0.535$, $p = 0.59$ (two-tailed). This indicated that participants in the two conditional groups did not differ with respect to age and were evenly distributed. The chi-square test showed that the participants in the high engagement condition and the participants from the low engagement condition did not significantly differ by gender $\chi^2(1, n = 102) = 0.44$, $p = .51$. This indicated that there was no significant association between gender and engagement.

Furthermore, to check whether there were significant differences in the normal reading tendencies between both experimental conditions (low vs. high engagement), the answers on reading preference item one and two were compared. Hereby, it was chosen to give participants, who gave an estimation between two values (e.g. 5 - 6 books), an average score between those two values (5.5) because these questions were only intended to give an overall impression and otherwise their data would have been unusable.

According to two independent-samples t-tests, no significant difference was found for the average number of read books, between the high ($M = 2.77$, $SD = 2.95$) and the low

engagement conditions ($M = 2.93$, $SD = 2.01$); $t(100) = -0.33$, $p = .74$ (two-tailed); as well as no significant difference could be found for the average weekly hours of reading for the high ($M = 7.20$, $SD = 9.05$) and the low engagement conditions ($M = 7.63$, $SD = 6.36$); $t(100) = -0.28$, $p = .78$ (two-tailed). Therefore, it was decided to not consider age, gender or any reading tendency variable as covariates in the following analyses.

Descriptive statistics

An overview of medians, means, interquartile ranges, standard deviations and minimum and maximum scores of the dependent variables, divided into the two engagement conditions, can be found in Table 2.

Table 2

Descriptive Statistics of the Dependent Variables

	Engagement							
	High				Low			
	Mdn / M	IQR / SD	Min	Max	Mdn / M	IQR / SD	Min	Max
Empathy	2.14	1.14	1.00	4.14	2.43	1.14	1.14	5.00
Cognitive ToM	.94	.17	.44	1.00	.97	.11	.64	1.00
Affective ToM	.94	.13	.63	1.00	.92	.13	.67	1.00
Dice Rolling	17.63	4.77	4.00	29.00	18.09	5.58	3.00	33.00

Note. *Mdn* = Median. *M* = Mean. *IQR* = Interquartile Range. *SD* = Standard Deviation.

Min = Minimum. *Max* = Maximum. *ToM* = Theory of Mind. $N(\text{High Engagement}) = 51$.

$N(\text{Low engagement}) = 51$.

Manipulation check

First, to decide whether the independent variable transportation had the intended effect on the participants, a manipulation check was executed. To examine whether the manipulation was successful, an independent t-test was conducted to compare the transportation scores for the two experimental groups (high vs. low engagement). It was expected that participants, who were assigned to the high engagement condition, would score higher on transportation than participants who were assigned to the low engagement condition. A significant difference in scores between the two conditions was found $t(100) = -2.32$, $p = .02$ (two-tailed). However, contrary to the initial expectation, it seemed that

reading the disengaging text ($M = 2.92$, $SD = 0.66$) evoked more transportation than reading the engaging text ($M = 2.62$, $SD = 0.64$).

Correlation

To test the degree of relationship between the dependent variables Empathy, Cognitive ToM, Affective ToM and Dice Rolling, a Spearman correlation was conducted. The results of the analysis can be found in Table 4. There was a large significant positive correlation between cognitive and affective theory of mind ($r = .66$, $p < 0.01$). But this was also expected because both variables measure different components of the same construct, namely theory of mind.

Table 4

Spearman Correlations between the Dependent Variables

	1	2	3	4
1. Empathy	-	-.10	-.06	-.02
2. Cognitive ToM		-	.66**	-.07
3. Affective ToM			-	.07
4. Dice rolling				-

Note. ToM = Theory of Mind. $N = 102$.

** Correlation is significant at the 0.01 level (2-tailed).

Hypotheses testing

Hypothesis 1. To test whether the participants in the high engagement condition scored significantly higher on the dependent variable Empathy than the participants in the low engagement condition, an independent-samples Mann-Whitney U test was conducted. The test revealed a reversed significant difference in the empathy scores of the participants from the high engagement condition ($Mdn = 2.14$, $n = 51$) and participants from the low engagement condition ($Mdn = 2.43$, $n = 51$), $U = 1599$, $z = 2.00$, $p = 0.045$, $r = 0.20$. This means, against the initial expectation, that participants who read the disengaging text developed significantly more empathy for the fictional character than participants who read the engaging text. To support the findings of the Mann-Whitney U test, also a boxplot (see Appendix H.2) was generated which indeed produced the same result. However, based on the fact that the effect size was $r = 0.20$, it can be said that this effect was very small (Cohen, 1988). For this reason, the first hypothesis was rejected.

Hypothesis 2. To test whether the participants in the high engagement condition

scored significantly higher on the dependent variable cognitive ToM, another independent-samples Mann-Whitney U test was conducted. The test revealed no significant difference in the cognitive ToM scores of the participants from the high engagement condition (Mdn = 0.94, $n = 51$) and participants from the low engagement condition (Mdn = 0.97, $n = 51$), $U = 1379.5$, $z = 0.54$, $p = 0.59$, $r = 0.05$. This means that participants who read the disengaging text did not significantly score higher on cognitive ToM than participants who read the engaging text. For this reason, the second hypothesis was rejected.

Hypothesis 3. To test whether the participants in the high engagement condition scored significantly higher on the dependent variable affective ToM, another independent-samples Mann-Whitney U test was conducted. The test revealed no significant difference in the affective ToM scores of the participants from the high engagement condition (Mdn = 0.94, $n = 51$) and participants from the low engagement condition (Mdn = 0.92, $n = 51$), $U = 1369.5$, $z = 0.46$, $p = 0.64$, $r = 0.05$. This means that participants who read the disengaging text did not significantly score higher on affective ToM than participants who read the engaging text. For this reason, the third hypothesis was rejected.

Hypothesis 4. It was hypothesised that participants, who were assigned to the low engagement condition, would significantly report higher total scores on the dice rolling task than participants in the high engagement condition, thus would engage in more antisocial behaviour. An independent-samples t-test was conducted, to compare the total scores for the high and the low engagement conditions. The independent-sample t-test showed no significant difference in scores for the low engagement ($M = 18.09$, $SD = 5.58$) and the high engagement ($M = 17.63$, $SD = 4.77$) conditions; $t(100) = -0.45$, $p = 0.65$ (two-tailed). Accordingly, participants in the low engagement condition did not report significantly higher total scores on the dice rolling task than the participants in the high engagement condition. For this reason, the fourth hypothesis was rejected.

Regression analysis

A multiple linear regression was performed to explore the prediction of the Dice Rolling scores from the dependent variables Empathy, Cognitive ToM and Affective ToM. A non-significant model was observed [$F(3,98) = .70$, $p = .55$] with an adjusted R-squared of 0.02. In predicting the Dice rolling scores, the beta values for Empathy, Cognitive ToM and Affective ToM were -0.21, ($p = .74$), -9.58, ($p = .16$) and 10.14 ($p = .22$). Due to the low R-squared value, it could be said that the dependent variables explained only 2.1% of the variability of the dependent variable Dice Rolling. Therefore, it became evident that the

dependent variables Empathy, Cognitive ToM and Affective ToM had almost no influence on the scores of the dependent variable Dice Rolling.

Discussion

General discussion

The purpose of this research was to get a deeper insight into the relationship between fiction reading and antisocial behaviour. The main conclusion of this research was that, regarding this sample, the extent of engagement (high vs. low) with a text did not influence antisocial behaviour. Contrary to the initial expectation, participants who read the erroneous version of the short story, seemed to be more likely to feel empathy for the narrative character than participants who read the original version. Therefore, due to the reversed effect, the first hypothesis had to be rejected.

In addition, considering the manipulation check, the same pattern of findings was found. Participants in the low engagement condition were significantly more transported into the story than the participants in the high engagement condition. Unexpectedly, based on the findings it seemed as if the edited narrative, which was meant to be disengaging, was emotional more transporting than the original text. **Therefore, it can be assumed that the manipulation did not work.**

A possible explanation for this surprising reversed effect could be that some participants might have thought that the added spelling- and grammar mistakes looked authentic in the story, as the main character was a little boy. It is reasonable to think that the language use and style, which were intended to disengage or distract people from reading, fit to the writing abilities one would expect of a little child, which conversely could have attracted the attention and the compassion of the readers instead of disturbing them. Besides, looking at the social environment of the main character, which for examples included the cruel caregiver who was rather interested in harming the orphans than nurturing them, it would be comprehensible if the participants thought that the writing abilities of the main character were impaired due to the lack of external support and care. Consequently, this could have led to the unexpected high transportation and empathy scores of the low engagement condition.

Nevertheless, all the other hypotheses had still to be rejected because no further significant differences were found. This means that the scores from the two conditional groups did not differ in respect to any other dependent variable. To sum it up, the main

research question, “How does perspective taking while reading influence antisocial behaviour?”, can be answered as follows: Reading engagement could not be shown to have a direct influence on the tendency whether people behave antisocially or not.

The findings are to some extent in line with previous research. For instance, Bal and Veltkamp (2013), showed that an increase of emotional transportation enhanced empathy. Considering the scores of the low engagement condition, this result could be partially confirmed with the current research. Nonetheless, given that, unintentionally, the low engagement group developed the higher scores, the found results are very difficult to interpret. It is unclear whether the spelling mistakes were responsible for this increase or whether another factor produced this difference. Therefore, additional research is needed to investigate this relationship further.

However, these results must be treated with caution as, in comparison to the research of Bal and Veltkamp (2013) which measured Empathy and Transportation at several times, the current study measured those constructs only once. The main reason was that due to time and financial restrictions it was decided to not include any additional measurement sessions. Although, a study by Appel and Richter (2007) revealed that transportation and empathy underlie an ‘absolute sleeper effect’, which lets both constructs increase over time, since individuals need time to progress the things they read. Consequently, it is possible that the scores of the current study would also have increased over time. Therefore, instead of speaking of an increase, **it would be better to call it an initial level of Transportation and Empathy.**

Furthermore, no connection could have been found between lower empathy scores resulting in higher total dice rolling scores as was expected by Bal and Veltkamp (2013). Again, this lack of findings can be traced back to the failure of the intended manipulation.

Considering the results for the cognitive and affective ToM scales, this study was not able to replicate the study outcomes of Shamay-Tsoory and Aharon-Peretz (2007) in which they showed that cognitive ToM was positively linked to empathy or negatively to antisocial behaviour. In our sample, all participants answered at least 63% percent of all affective ToM items correctly, this percentage is assumed to be a moderate score. A possible reason for the different study results could be that the current study used only healthy persons as participants, whereas Shamay-Tsoory and Aharon-Peretz (2007) also used participants who suffered from different kind of brain lesions.

Limitations

First, one of the major limitations of the current study was that the chosen research design did not include a control condition, hence there was no group of participants who was not manipulated. For this reason, no baseline measurement for the scores of the dependent variables Empathy, Cognitive ToM, Affective ToM or Dice Rolling were available to compare the scores of the manipulated groups with. As a consequence, even if no significant difference was found between the two manipulated conditions, it cannot automatically be assumed that there would also be no difference between the scores of the control and the experimental conditions.

Second, it is questionable whether the dice rolling task, which was intended to measure antisocial behaviour, was an appropriate measurement tool. One point of concern was, whilst analysing the raw research data, it became apparent that many participants must have been confused about how to report their individual dice rolling score correctly, since many of them answered the question differently than expected. For instance, a lot of people filled in their average score of their dice rolling trial or they wrote down the summation formula of the five dice, instead of adding the numbers up to one total score. Hence, it is unclear whether all participants understood that they could adapt their personal score, or be dishonest about it, what is crucial for this research. On the one hand, one reason could be that the instructions were not clear enough or on the other hand, that the website confused the participants in terms of what to fill in, since not only the numbers of the dice rolling trial were presented but also information about an average score etc. Therefore, it might have been better to use a website with a simpler design.

Apart from that, another problem with the dice rolling task was that some participants already suspected that they were tested in terms of antisocial behaviour because after completing the online survey, several persons expressed their doubts toward the researcher whether the website was truly anonymous and irretraceable or whether the latter could retrieve their personal data. This shows that some people might have felt inhibited to answer what they truly wanted to answer, which could have influenced their reported total scores. According to Grimm (2010), especially sensitive issues such as religion, politics, but also personal issues such as cheating are prone to *social desirability bias*, which is the tendency to give socially desirable responses. In this case, this could mean rather choosing to report the true total score instead of adjusting it, to protect oneself from being labelled as being a liar which is societal reprehensible. Consequently, based on the feedback, it is disputable whether the research assessed natural behaviour.

Third, as previously mentioned in the beginning of this discussion, it can be assumed that the chosen short story did not have its intended effect because the low engagement condition reported higher transportation and empathy scores than the participants from the high engagement condition. However, it is uncertain whether spelling and grammar mistakes, in general, are inappropriate distracting factors or whether the content of this short story did interfere with the used manipulation procedure. It must be noticed that the spelling mistakes were used based on the intuition of the researcher due to a lack of literature addressing the influence of spelling mistakes on reading engagement or transportation. An alternative procedure to disengage readers which seems promising, comes from the study of Appel (2008) which also focused on the influence of fictional narratives on readers. Appel (2008) stresses, whether a reader likes a story or not depends on whether the ending or the outcome is perceived as *just* or *unjust*. People appreciate story endings which contain a ‘good defeats bad’ plotline (Schmitt & Maes, 2006), which means that the ‘good’ protagonist (the hero) is rewarded whereas the ‘bad’ protagonist (the antihero) is punished. Contrarily, an *unjust* ending is said to be frustrating for the reader which may evoke a negative attitude towards fiction reading (Appel, 2008). Therefore, in the future, it could be better to use an unjust story ending, in which for example the little boy is not being pitied from the barber after he got the wrong haircut, but one in which the cruel caregiver is being rewarded by being praised by the barber, which could possibly disengage the readers better than using spelling mistakes.

Lastly, again relating to the oral feedback of the participants, another shortcoming of this research was, that the Yoni task, which was used to measure cognitive and affective ToM, was perceived as very laborious and time-consuming. As a result, many participants reported that they felt frustrated and annoyed during and after this research part. Hence, it is possible that the Yoni task overshadowed the reading part to a certain degree which would mean it took the participants’ attention away from the fictional narrative, which could have decreased the influence of the reading part. This would be very unfortunate since the overall intention of this whole research was, to find out how reading can influence antisocial behaviour. Therefore, it must be doubted whether the length of the Yoni task was proportioned to the length of the reading part.

Future research

To refer to the previous points, since the manipulation did not work properly and due to the lack of a control condition, it was quite hard to draw conclusions concerning possible differences between the experimental groups. For this reason, in case of a repetition of this

study, researchers are advised to add a control condition to the existing experimental set-up. This would give them a possibility to compare the scores of the manipulated groups with an unaffected sample. In practice, this could mean adding an experimental group who reads a factual text instead of a fiction text or to let one group not read at all. However, in case one decides to not let people read at all, also an alternative empathy measurement would need to be considered because in the current research all empathy items were tailored to the fictional texts. Second, to improve the manipulation procedure, aside from the spelling mistakes, also other sorts of manipulation techniques should be tried out as well. Again, based on the findings of Appel (2008), an unjust story ending could be an encouraging alternative to successfully disengage readers. Furthermore, as empathy and transportation seem to be subjects to an ‘absolute sleeper effect’, future researchers should reconsider choosing a study design with at least two measurement points, to check whether time can have an important impact on these constructs and to make it easier to compare resulting outcomes with previous research. Besides, if the overall study design is being altered, it should also be deliberated to revise the chosen antisocial measurement, to make it easier to detect dishonest behaviour. For instance, instead of using an external website which generates various dice rolling scores, one could think of designing a fake website, which always gives people the same total score because then deviant scores would strike out immediately and differences could actually be observed and not only assumed. Last, future researchers are advised to shorten the currently used Yoni task or to search for shorter alternatives to avoid possible overshadowing effects, with the aim to place the reading part in the main centre of attention.

Adding value of current research

Regardless, of the several improvement aspects of the current research and the further work which is required, the study was also valuable. As stated above, there has been little research conducted in the field of the possible negative effects of fiction reading. In the past, almost all conducted studies mainly focused on the positive effects of reading, which is also comprehensible in the light of the fact that reading is used as an educational tool with hundreds of years of tradition to promote mental and relational skills in humans. However, since possible negative effects are still rather unexamined, this current research provided some new insights into the relationship between reading and prosocial behaviour. Therefore, the main value of this research is of explorative nature.

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Appendix A: Opening page (including informed consent)

Dear participant,

Thank you for taking part in this research. The study is about reading and consists of four parts: a text, two questionnaires and a game. The goal of this study is to gain insight into individual reading preferences. The whole study will take about 30-40 minutes. There are no 'right' or 'wrong' answers in the questionnaire, I am interested in your personal experiences.

Yours sincerely,
Neele Rothfeld

Before you can start to complete the survey, it is important for you to read the following information attentively.

I hereby declare that I have been informed in a manner which is clear to me about the nature and method of the research as described in the aforementioned information. My questions have been answered to my satisfaction. I agree of my own free will to participate in this research. I reserve the right to withdraw this consent without the need to give any reason and I am aware that I may withdraw from the experiment at any time. If my research results are to be used in scientific publications or made public in any other manner, then they will be made completely anonymous. My personal data will not be disclosed to third parties without my express permission. If I request further information about the research, now or in the future, I may contact n.c.rothfeld@student.utwente.nl.

If you have any complaints about this research, please direct them to the secretary of the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente, Drs. L. Kamphuis-Blikman P.O. Box 217, 7500 AE Enschede (NL), telephone: +31 (0)53 489 3399; email: l.j.m.blikman@utwente.nl).

I have provided explanatory notes about the research. I declare myself willing to answer to the best of my ability any questions which may still arise about the research.'

If you agree, you may now proceed.

Appendix B: Demographics, Reading Preference Questions and Text Instruction

Demographical questions:

What is your gender?

Female

Male

How old are you? _____

What is your nationality?

Dutch

German

Other _____

What is your highest achieved level of education?

Secondary modern school (Hauptschule)

Middle school (vmbo, Mittlere Reife)

High school (havo, vwo, (Fach)Abitur)

Bachelor's degree

Master's degree

Doctoral degree

Other _____

Reading Preference Questions:

How many books did you read in the last 3 months? _____

How many hours do you spend on reading during a regular week? _____

What is your favourite literature genre? _____

Please rank the following statements according to your personal preference on a scale from 1 (totally disagree) to 5 (totally agree).

	1	2	3	4	5
I like to read books to relax myself					
I only read books for school or work matters					
I do not like reading					

Text Instruction (for all conditions):

On the next page, you will find a fictional text. Please read this text only once. As you read, try to imagine how you would feel if you would experience the described situation. How would it affect your life? Concentrate on putting yourself in the shoes of the main character (the boy).

Appendix C: Engaging and disengaging text

Appendix C.1: Engaging text

Elvis Died on the Florida Barber College

At ten years old I could not figure out what it was that this Elvis Presley guy had, that the rest of us boys did not have. I mean, he had a head, two arms and two legs, just like the rest of us. Whatever it was he had hidden away must have been pretty darn good because he had every young girl at the orphanage wrapped around his little finger. About nine o'clock on Saturday morning I decided to ask Eugene Correthers, one of the older boys, what it was that made this Elvis guy so special. He told me that it was Elvis' wavy hair and the way he moved his body.

About a half an hour later all the boys in the orphanage were called to the main dining-room and told that we were all going to downtown Jacksonville, Florida to get a new pair of Buster Brown shoes and a haircut. That is when I got this big idea, which hit me like a ton of bricks. If the Elvis hair cut was the big secret, then that's what I was going to get.

All the way to town that was all I talked about. The Elvis hair cut that I was going to get. I told everybody, including the matron from the orphanage who was taking us to town, that I was going to look just like Elvis Presley and that I would learn to move around just like he did and that I would be rich and famous one day, just like him.

I was smiling from ear to ear when I got my new Buster Brown shoes and I was very proud as I walked around the store showing everyone. They shined really, really good and I liked looking at the bones in my feet through this special x-ray machine that they had in the shoe store that made the bones in your feet look green. I could hardly wait for my new hair cut and now that I had my new Buster Brown shoes I would be very happy to go back to the orphanage and practice being like Elvis.

We finally arrived at the big barber shop, where they cut our hair for free 'cause we were orphans. I ran up to one of the barber chairs and climbed up onto the board that he put across the arms to make me sit up higher. I looked at the man and said "I want a Elvis hair cut. Can you make my hair like Elvis?" I asked him, with a great big smile on my face. "Let's just see what we can do for you, little man," he said. I was so happy when he started to cut my hair. Just as he started to cut my hair the matron motioned for him to come over to where she was standing. She whispered something into his ear and then he shook his head, like he was telling her, "No". She walked over to another man sitting in the office chair and spoke to him. Then the little man walked over and said something to the man who was cutting my hair. The next thing I knew, the man who was cutting my hair told me that they were not allowed to give us Elvis hair cuts. I saw him put this comb thing onto the end of the clippers and then I saw all my hair falling onto the floor.

When he finished shaving off all my hair and made me smell real good with this powder, he handed me a nickel and told me to go outside to the cracker machine and buy myself a candy bar. I handed him the nickel back and told him that I was not hungry. "I'm so sorry, baby" he said, as I climbed out of his barber chair. "I am not a baby", I said, as I wiped the tears from my eyes. I sat down on the floor and brushed the hair off my new Buster Brown shoes so they would stay shiny and new. I got up off the floor, brushed off my short pants, and walked towards the door. The matron was smiling at me sort of funny like. The man who had cut my hair walked over to her and said to her, "You are just a damn bitch, lady." She yelled back, real loud, at him and then she walked toward the office, as fast as she could. The man hit the wall with his hand and then he walked outside where he stood against the brick wall, smoking a cigarette. I slowly walked outside and stood beside him. He looked down, smiled at me, then he patted me on the top of my bald head. I looked up at him with my wet red eyes and said, "Do you know if Elvis Presley has green bones?"

Appendix C.2: Disengaging text

Elvis Dyd on the Florida Barber Colege

At ten years old I could not figoure out what it were, that the Elvis Presley gui had the rest of us boys doesn't had. I mean the rest of us just like he had a had, two arm, and two leg. whatever it was he had hidden away have pretty darn good because he had every young gil at the orphanage wrapped around his little fingers. About nine o'clock on Saturday noon I decided to ask Eugene Correthers, one of the older boys, what it were that made this Elvis dude so specialle. He told me that it were Elvis' wavy hair and the way he mowed his bodie

About a halv and hour later all the bojs in the orphanage were exclaimed to the main dining-room and told that we were all to downtown Jacksonville, Florida to become a new a haircut and pair of Buster Brown shoes. That is when I got this wow idea, which hit me like a ton of brik. If the Elvis hair cut was the big secret, then that what I was would do.

All the way to town that was all I talked aboutt. The Elvis hair cut that I was going to gain. I told everybodie, in-cluding the matron from the orphanage who was taking us there, that I was going to look just like Elvis Preslej and that I would learn to move around just like he done, and that I would be ritch and famous one day, just like hi.

I was smiiling, walking in the store, from ear to ear when I got my new Buster Brown shoes and I was very proud as I the store showing everyone. They shined so much really, really good and I liked looking at the bones in my feet through this special machine that made the bones in your feet look green. I could toughly wait for my new haircut and now that I have had my new Buster Brown shoes I should be very happe to go back to the orphanage and train being like E.

Finally arrived we at the big barber, where they cut our hair for free 'cause we are orphans. I ran up to one of the barber chait and climbed up onto the board that he put across the arm to sit me up higher. I looked at the man and said "I want a Elvis hair cut. Can you make my hair like thiss?" I asked him, with a great big smile on my faze. "just see what we can do for you, little man," hee said. I was so happy when he started to cute my hair. Just as he started to cut my hair the matron signale for him to come over to where she was stood. She whispered something into his ear and then he shook his head, like he was telling her, "Noo". She walked over to another man sitting in the office chair and spoke to him. Then the little man was walking to another man who walked to the barber over and said something to the man who was cutting my hair. The next thin, the man who was cutting our hair told me that they were not allowed to give me Elvis hair. I saw him put this comb thing onto the end of the clippers and then I saw all my hair falling into the floor.

When he finishe shaving off all my heir and made me smell real good with this pouders, he handed me a euro and told outside to the cracker and buy myself a candybar. I, him handed the nickel back and told him that I was not houngrly. "I'm so sorry, baby" he said, as I climbed out of his barber chait. "I am not a baby", I said, as I whipped the tears from my eyes. I sat down on the flooor and brushed the hair of my new Buster Brown shoes so they would stay shinny and neuw. I got, up off the floor, brushed off my short pants, and walked towards the dore. The matron was smiling at me sort of funny like. The the man which had cut my hair walked over to her and said to her, "You are just a damn bitch, lady." She yelled back, real laud, at him and then she walked toward the office, as fast as she should. The man hitt the wall with his hand and then he goes outside where he stood against the brick wall, smoking a cigaarette. I slowly walked outside and stood beside hm. He looked down, smiled at me, then he patted me on the top of my bald head. I looked up at him, with my weet red eyes and said, "Do you knov if Elvis Preisley has green bones!"

Appendix D: Empathy and Transportation Scales

Please indicate to what extent the following statements describe how you felt while reading the text. Select at each statement the answer that fits you best.

Empathy

1. I had tender, concerned feelings for the main character.
2. I did not feel very sorry for the main character. (*)
3. When I read about the main character being taken advantage of, I felt kind of protective towards him.
4. The main character's misfortune did not disturb me a great deal. (*)
5. When I read about the main character being treated unfairly, I did not feel very much pity for him. (*)
6. I was quite touched by the things that happened to the main character.
7. I would describe myself as a pretty soft-hearted person.

Transportation

1. While I was reading the text, I could easily picture the events in it taking place.
2. While I was reading the text, activity going on in the room around me was on my mind. (*)
3. I could picture myself in the scene of the events described in the text.
4. I was mentally involved in the text while reading it.
5. After the text ended, I found it easy to put it out of my mind. (*)
6. I wanted to learn how the text ended.
7. The text affected me emotionally.
8. I found myself thinking of ways the text could have turned out differently.
9. I found my mind wandering while reading the text. (*)
10. The events in the text are relevant to my everyday life.

1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree

Note. Items with (*) were recoded.

Appendix E: Yoni Task Instruction

Now, you will perform the Yoni task, which consists of three parts: A, B, and C.

The Yoni task is about Yoni (red), who refers to one out of four objects and persons around him. You have to choose the correct object or person based on the textual information above (blue) and Yoni's eye gaze or facial impression (red). Try to choose the right object or person **as fast as possible**. In the examples below, the right answer is displayed in green.

Example 1

Yoni is thinking of ____



Example 2

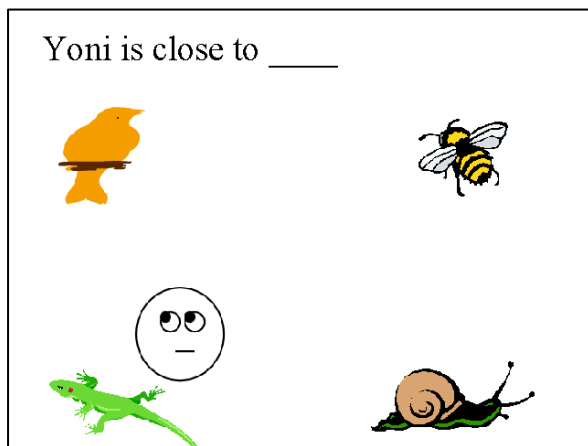
Yoni is thinking about the toy that ____ wants



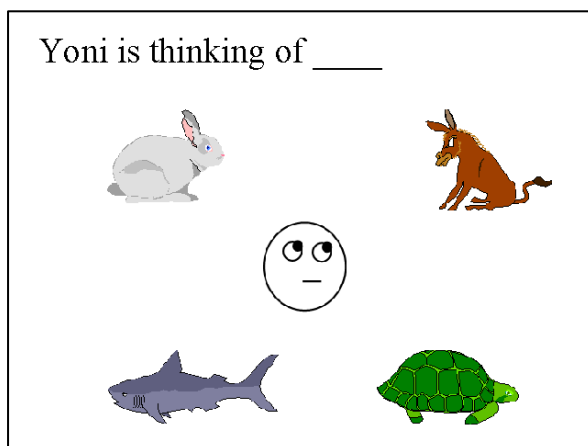
Click *next* to start the Yoni task.

Appendix E.2: Example items

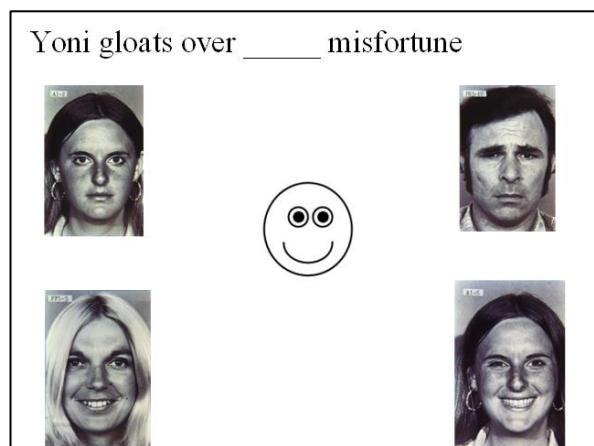
Directional item (test trials):



Cognitive Theory of Mind item:



Affective Theory of Mind item:



Appendix F: Dice Rolling task instructions

Roll the dice introduction (engaging/disengaging condition)

ROLL THE DICE AND MAKE A CHANCE ON WINNING A 20€-VOUCHER FOR BOL.COM!

This is the last part of this study, so you are almost finished!

In this last part, I want you to play a little game.

In this game, you are asked to roll 5 dice. Afterwards, I would like you to report your personal score (adding all numbers together for example: $2 + 5 + 5 + 5 + 3 = 20$) and to write the number in the box at the bottom of the next page.

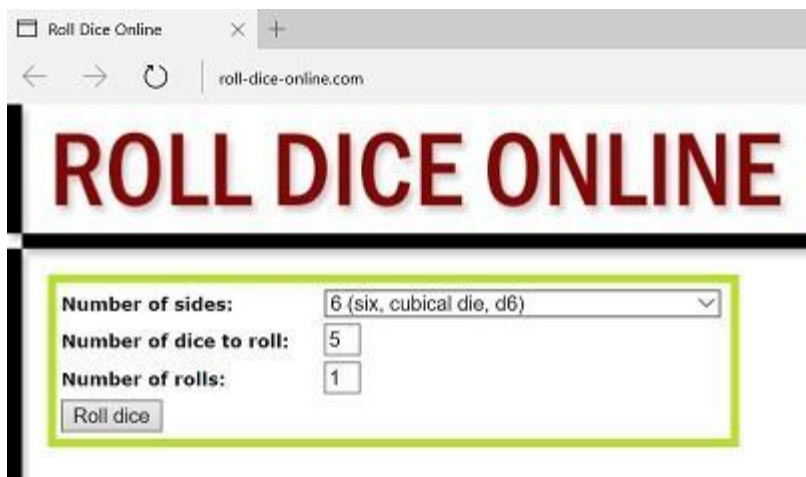
ATTENTION: If you are the player with the highest total score, you can win a gift voucher worth 20€, for the online shop bol.com.

For further instructions, go to the next page.

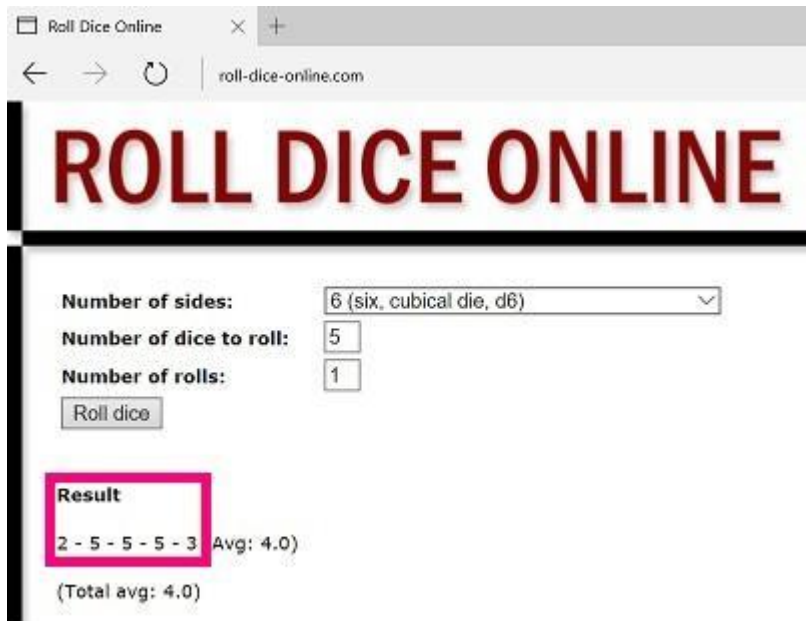
Game instructions (both conditions):

Game instructions: Please, read the instructions carefully before you start!

In the first picture, you can see what you need to adjust to have the right settings (**green box**), meaning that you roll 5 dice at the same time automatically. Afterwards you click on 'Roll dice'.



If you did that, you can see your results as being shown in the second picture (**pink box**), which you need to add together to get your total score. In this example this would be: **total score: $2 + 5 + 5 + 5 + 3 = 20$.**



The screenshot shows a web browser window with the title 'Roll Dice Online' and the URL 'roll-dice-online.com'. The main heading is 'ROLL DICE ONLINE' in large, bold, red letters. Below the heading, there are three input fields: 'Number of sides:' with a dropdown menu showing '6 (six, cubical die, d6)', 'Number of dice to roll:' with a text box containing '5', and 'Number of rolls:' with a text box containing '1'. A 'Roll dice' button is located below these fields. The 'Result' section is highlighted with a red box and shows '2 - 5 - 5 - 5 - 3 Avg: 4.0'. Below the result, it says '(Total avg: 4.0)'.

Please feel free to roll the dice more often if you want to check whether the dice are fair, but remember:

Keep the score of your **first trial** in mind because at the end of this page, you are asked to write your individual score in the box saying '*total score*'.

ATTENTION: Please open the link in a new tab, otherwise it would be possible that you end the survey and all your answers could be lost.

LINK: <http://www.roll-dice-online.com/>

Total score:

Appendix G: Debriefing

Thank you very much for participating in this study!

As you may have guessed, this study was not just about collecting data about subjective reading preferences.

The true purpose of this study is to investigate if reading can have a negative influence on behaviour. More specifically, it was tested whether reading generates feelings that enhance antisocial behaviour. For this reason, you have been randomly assigned to one of two experimental groups and got to read either the original version of the short story “Elvis Died on the Florida Barber College” written by Roger Dean Kiser or a manually added version, which included many spelling and grammatical mistakes. This was done in order to generate two different reading experiences, namely one which was engaging and one which was rather disengaging or frustrating. On this basis, the constructs empathy, transportation, theory of mind and antisocial behaviour have been measured.

It was expected that people reading a frustrating text, would report higher numbers on the dice rolling task than the rest, to have a bigger chance on the advertised price. To check whether this assumption was right or wrong, the average group level score (engaging text group/disengaging text group) will be calculated in order to see if one experimental group reported higher total scores than the other group.

Unfortunately, I need to tell you that the price (the gift voucher) does not actually exist, which is why no participant has the chance on winning it! The price was only used to make the game more exciting and to motivate people to be willing to give their very best in the game.

The true goal of the research was not revealed to you to make sure the hypotheses of the study would not be guessed beforehand. If you have any additional questions about the study, you can contact the researcher by sending an e-mail to n.c.rothfeld@student.utwente.nl.

Do you agree that your data will be used for the real goal of the study as described above?

If not, your data will be deleted and it will not be used for any analyses.

- ☐ Yes
- ☐ No

Click on 'submit' to end the survey.

Appendix H: Normality Test Results and Boxplot for Empathy Scores

Appendix H.1: Normality Test Results

Table 3

Test of Normality for Dependent Variables and Manipulation variable

		Shapiro-Wilk		
	Engagement	Statistic	df	Sig.
Empathy	High	,934	51	,007
	Low	,952	51	,040
Transportation	High	,966	51	,156*
	Low	,986	51	,803*
Cognitive ToM	High	,754	51	,000
	Low	,813	51	,000
Affective ToM	High	,865	51	,000
	Low	,902	51	,000
Dice Rolling	High	,984	51	,696*
	Low	,962	51	,100*

Notes. ToM = Theory of Mind. * = Normally distributed, Sig.= Significance

Appendix H.2: Boxplot for Empathy Scores

