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Using Fiction to Promote Empathy: A Comparison of the Effect of Reading Short

Fictional Stories and Watching Short Fictional Films on Empathy in a Student Sample.

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Abstract

There is extensive evidence supporting the notion that fiction improves empathy. As people become narratively engaged or transported into fictional stories, they identify more with characters triggering empathic responses. Furthermore, empathic responses may elicit affective reactions. There is strong evidence to suggest that literary fiction successfully promotes empathy, however; there is less evidence attesting to whether watching fictional films can also promote empathy. This study was designed to further existing research and aimed to compare the effects on empathy of reading short fictional stories versus watching short fictional films. A multidimensional approach to empathy was taken where the IRI was used to assess aspects of both cognitive and affective empathy. To achieve the study aim, 72 university students were recruited and assigned to engage in one of four fictional materials (two literary stories and two films). Results from a series of ANOVAs found that narrative engagement was stronger for film-watchers than readers, as was positive affect. Some aspects of empathy improved with exposure to fiction. While the increase in empathic concern and perspective taking was the same extent for both those who read the literary stories and those who watched the films, the tendency to fantasise about the thoughts and emotions of fictional characters increased more for the film-watchers. Findings support prior claims that fiction promotes empathy and extends this to include fictional films as well. These findings support the use of film in empathy training programs as an appealing and accessible way to enhance empathy.

Keywords: empathy, narrative engagement, affect, cognitive, fiction, literary

Using Fiction to Promote Empathy: A Comparison of the Effect of Reading Short

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Sample.

A great fictional character once said, *"You never really understand a person until you consider things from his point of view – until you climb inside of his skin and walk around in it"* (Lee, 1960, p. 30). Atticus Finch, in *To Kill a Mockingbird* (Lee, 1960), states that to truly accept and appreciate the perspective of another, it is necessary to adopt their psychological and emotional state. As a multidimensional construct, a distinction is often made between cognitive empathy (the mental capacity to understand the psychological states of others as differentiated from one's own) and affective empathy (the capacity to feel the emotions of others). Cognitive empathy, often referred to as Theory of Mind (ToM) Empathy, in its most basic form is necessary for human survival as social agents. These complex emotional and cognitive empathic processes may be enhanced through training. These processes are thought to occur repeatedly when we engage with fiction, as people become narratively transported into fictional stories. There is strong evidence to suggest that literary fiction successfully promotes empathy however; there is less evidence attesting to whether watching fictional films can also promote empathy. This study was designed to further existing research by comparing the effects of reading short fictional stories and watching short fictional films on empathy.

Background

Despite the vast psychological literature on empathy, there is no one clear definition of the construct. Early work by Davis (1983) provides evidence for a multidimensional approach to empathy, which incorporates components of affect and cognition. Davis (1983) identifies four aspects of empathy that best explain the extent to which individuals respond to

others, comprising of a person's tendency to: (a) fantasise about the feelings and actions of fictional characters in books, movies and plays; (b) sympathise with, and feel concern for, unfortunate others; (c) spontaneously adopt the psychological perspectives of others; and (d) feel personal distress and unease in interpersonal encounters. Together these aspects provide understanding of a singular, global concept of empathy (Davis, 1983).

Empathy development typically begins in childhood and expands in adolescence. The tendency to feel personal distress in tense interpersonal situations is likely to decrease with age, while the ability to consider the psychological state of others tends to increase (Davis, 1983). The acquisition of true empathy begins in adolescence, with an identification with fictional characters, and becomes more accessible in early adulthood as young adults develop the ability to introspect (Hatcher et al, 1994). Identification and introspection allow for the development of more complex cognitive and emotional empathic capacities (such as the tendency to adopt the psychological perspectives of others and show empathic concern).

All mammals possess the capacity for basic empathy, among the emotional processes that have evolved in response to increased socialized environments (Brothers, 1989; Panksepp & Panksepp, 2013). Empathy is considered crucial for social interactions (Brothers, 1989). It is, however, thought that human empathy has evolved beyond a basic mirroring of emotions in others, to include complex processes that enable the comprehension and appreciation of the psychological states of others (Panksepp & Panksepp, 2013). Historically, it was mostly accepted that empathy is an innate and static human characteristic that develops alongside cognition and emotions. Davis (1990) claims, however, that certain aspects of empathy are able to improve through training.

Hofmann et al. (2016) reviewed 32 programs that aimed to train children in ToM skills and found that ToM can be successfully enhanced in children. These programs made use of exercises that involved imagination, modelling, role-playing and more, that required

children to adopt an alternative viewpoint (Hofmann et al., 2016). Lam, Kolomitro and Alamparambil (2011) reviewed 29 articles pertaining to empathy training and found that 93% of them reported positive findings in terms of empathy development. Of these articles, most (83%) showed improved cognitive components of empathy. It was proposed that while individuals are trainable in cognitive empathy, they are less likely to develop the ability to feel the emotions of others through teaching (Lam, Kolomitro, & Alamparambil, 2011).

Programs in empathy training need to direct learners to adopt an alternative mental state (Hofmann et al., 2016), that requires them to consider the perspectives of other people (Bal & Veltkamp, 2013). One way in which this is done, is through the use of fiction (Bal & Veltkamp, 2013; Black & Barnes, 2015; Johnson, 2012; Kidd & Castano, 2013; Oatley, 2016).

Fiction promotes empathy

Oatley (2016) refers to fiction as "simulations of social worlds" (p. 618). By engaging in social simulations, people become involved in encounters that are not their own and are able to experience perceptions of others that they may never experience themselves in reality (Oatley, 2016). Through character identification, consumers of fiction adopt the psychological perspectives and the emotional states of fictional characters (Busselle & Bilandzic, 2009; Davis, 1990). This may enhance the development of socio-emotional skills, such as empathy, necessary for real life interpersonal encounters, and may be translated into positive social behaviours (Johnson, 2012). Engaging in fiction is less threatening for people than actual incidents, as people can adopt the perspectives of human characters without the risk of negative consequences that may present in real life (Kidd & Castano, 2013; Pino & Mazza, 2016).

The association between fiction and empathy is supported with evidence. Findings from early correlational studies suggest that exposure to fiction is more strongly related to

general socio-emotional skills, including empathy, than exposure to non-fiction. Despite

Lam, Kolomitro and Alamparambil's (2011) claim that affective empathy is not trainable,

this association has been found for both cognitive (Black & Barnes, 2015; Kidd & Castano,

2013; Mar et al., 2006; Mar, Tackett, & Moore, 2010; Mar, Oatley, & Peterson, 2009) and

affective empathy (Bal & Veltkamp, 2013; Johnson, 2012; Koopman, 2015; Mar et al., 2006;

Mar, Oatley, & Peterson, 2009).

Mar, Oatley, and Peterson (2009) attempted to respond to the popular theory that

empathy is enhanced through reading fiction, simply because more empathic people are

readier to project themselves in situations that challenge their perspectives, and tend to read

more. The study examined the relationship between narrative fiction and empathy while

statistically controlling for the personality trait of openness, the tendency to be drawn into

stories, and gender. In the sample of 252 adult participants, it was found that exposure to

fiction still predicted empathy, even when accounting for possible covariates (Mar et al,

2009). This suggests that the capacity to improve empathy exists for all people, despite

individual differences.

Narrative Engagement mediates the relationship between fiction and empathy

Busselle and Bilandzic (2009) define narrative engagement (transportation) as the

"overall sensation of being engrossed in a story" (p. 325). This is also described as the

experience of being transported into the alternative reality of a story (Appel, Gnambs,

Richter, & Green, 2015; Busselle & Bilandzic, 2009; Green & Brock, 2000). Busselle and

Bilandzic (2009) distinguish four necessary dimensions of narrative engagement: (a)

narrative comprehension; (b) attentional focus; (c) emotional engagement; and (d) narrative

presence. Through these a person is able to transpose themselves into the fictional world and

adopt the perspectives of the characters. The process of assuming emotional states of fictional

characters is identified by Davis (1983) to be one of the dimensions of empathy.

Correlational findings from an investigation by Johnson (2012) showed that student participants who were more transported into a fictional story displayed higher affective empathy for characters. Similarly, Bal and Veltkamp (2013) found that of their 66 Dutch student participants, those that were more transported showed higher levels of empathy. It also emerged that when transportation was absent, empathy was reduced, as in the case of non-fiction readers. An explanation offered for this was that when the readers were unable to identify with the characters, nor were sufficiently transported into the story, they become disengaged or frustrated, which reduced their emotional sensitivity (Bal & Veltkamp, 2013a).

The association between affect, narrative engagement and empathy

Johnson (2012) suggested that narrative engagement was linked to the affective responses in participants who read the fictional materials and that this in turn promoted prosocial behaviour. A study by Kawakami and Katahira (2015) investigated the influence of empathy on affect evoked by sad music. Findings revealed a direct association between perspective taking tendencies and emotional responses to sad music. Additionally, enjoyment of sad music was found to be associated with positive emotions. Similarly, De Wied et al. (1994) found that high-trait empathy showed high levels of emotional response to sad movies but that this correlated with greater positive responses of enjoyment. The act of enjoyment correlates to higher narrative engagement with the material due to the inherent pleasure received from it and the desire to increase said pleasure. While Kawakami et al. (2015) found that the sad music elicited negative emotions from the listeners, the ability to discriminate between one's own emotions and that of others allows for regulation of these emotions. Davis et al. (1987) proposes that positive affect is influenced mostly by cognitive processes and negative emotions mostly by emotional processes (Davis et al., 1987). Perspective taking is considered a cognitive aspect of empathy, which may explain why positive emotions may be elicited during exposure to media, even if the media is sad.

Types of fiction that promote empathy

Research comparing the effects of popular fiction and literary fiction on aspects of ToM was conducted by Kidd and Castano (2013). Kidd and Castano (2013) conducted five experiments with adult participants. They made use of different measures of empathy throughout the process. The overall findings verified their hypothesis by suggesting that literary fiction has a greater positive influence on ToM than non-fiction or popular fiction. Results from Black and Barnes's (2015) study corroborated these results, as they concluded that literary fiction improves empathy, as measured by the Reading the Mind in the Eyes test (RME).

In an attempt to expand on the work done by Kidd and Castano (2013) and Black and Barnes (2015), Pino and Mazza (2016) required participants to read an entire book, as opposed to the short excerpts and stories used in prior studies. The study compared empathy outcomes from 214 student participants required to read either a non-fiction, science-fiction or literary fiction book. Assignment was random and empathy measures were administered before and after reading. In support of previous findings, only those who read the literary fiction novel showed significant signs of improved empathy. Literary fiction offers more complex social simulations that demand deeper narrative engagement (Mar & Oatley, 2008). Literary fiction also centers around human characters, which provides larger scope for identification (Pino & Mazza, 2016). Readers may therefore be required to pay close attention to the nuances of varying psychological states (Black & Barnes, 2015).

Results from an experiment conducted by Koopman (2015) provide an interesting extension to prior work. The study addressed whether personal experiences with the subject matter (depression or grief) in narrative fiction could account for enhanced empathic responses in adults. When comparing expository life narrative and literary fiction, life narratives were observed to have similar effects on empathy as literary fiction. Koopman

(2015) also examined the correlations between prior experience, subject matter of the narrative, type of narrative, and empathy. It was found that experience with depression was necessary to predict empathy through fictional narratives with depression as the subject matter, but that the subject matter of grief predicted empathy regardless of prior experience with grief.

Findings from a study by Vezzali, Stathi, Giovannini, Capozza and Trifiletti (2015) seem to contradict prior notions that literary fiction enhance empathy, while other genres do not. Although not explicitly measuring empathy, the study found that fantasy fiction (the Harry Potter books) was useful in promoting prejudice reduction and enhancing prosocial behaviour towards stigmatized groups (Vezzali, Stathi, Giovannini, Capozza, & Trifiletti, 2015).This was thought to have occurred due to the fact that the young participants (fifth-grade learners) identified strongly with the *Harry Potter* characters (Vezzali et al., 2015).

Although theories around narrative engagement and identification speak to all forms of narrative materials, the assumption that empathy is enhanced through literature only persists. Empirical evidence of effects of other forms of fiction, such as films and plays, on empathy is somewhat lacking. A correlational study of preschoolers in Toronto found that both storybooks and films were associated with greater ToM in young children (Mar et al., 2010). Films have been used in educational programs to strengthen humanistic issues, including empathy, for both medical and social science students (Blasco & Moreto, 2012; Gramaglia, Jona, Imperatori, Torre, & Zeppegno, 2013; Petkari, 2017; Shankar, Rose, Balasubramanium, Nandy, & Friedmann, 2016). University courses have used films as a tool to create awareness of medical and social issues, and were seen to reduce stigma and increase compassion, (Blasco & Moreto, 2012; Gramaglia et al., 2013; Petkari, 2017; Shankar et al., 2016). However, the true impact of films on emotional and cognitive social skills is not well documented.

Summary

The literature reviewed suggests reading fiction can improve certain aspects of empathy for both adults and children. Identification and transportation (narrative engagement) occur when consumers of fiction become completely immersed in an imaginary world of fictional narratives. When these processes occur, people adopt the psychological perspectives and emotional states of characters. Despite some contradictions, most findings confirm that literary fiction enhances empathy best, as readers are most engaged and able to identify with human characters. While educational interventions often make use of film material to promote learning and social development, there is a lack of empirical work aimed at investigating the relationship between fictional film, narrative engagement and empathy.

Aim and hypotheses

The main study aim was to compare the effect of reading fictional short stories and watching short fictional films on empathy. Narrative engagement and affective response to fiction has been linked to empathy and were also compared.

Hypothesis 1: There will be no difference in narrative engagement for those who read short fictional stories and those who watch short fictional films

Hypothesis 2: There will be no difference in affect scores for those who read short fictional stories and those who watch short fictional films

Hypothesis 3: Empathy will increase after the exposure to fiction.

Hypothesis 4: The change in empathy scores will be the same for those who read short fictional stories and those who watch short fictional films.

Method

The study employed an experimental design. The independent variable manipulated was the type of fictional material: (a) short fictional stories or (b) short fictional films. The

dependent variables that were measured were (a) narrative engagement, (b) affect and (c) empathy.

Participants

Sample characteristics. A sample of 72 undergraduate psychology students completed the study. The age of the students ranged from 18 to 51 years ($M = 21.61$, $SD = 5.45$). The vast majority of the students (68, 94%) were under the age of 24 years. Sixty participants (83%) were female, and 55 (76%) spoke English as a home language. Sixty-seven participants (93%) reported having read at least one book in the last year, and 14 participants (19%) reported that they had read more than nine books. Of those that did read, 54 (75%) preferred reading fiction over non-fiction. All participants reported that they had watched at least one film in the past year, and 60 (83%) reported that they had watched more than nine films. Fifty participants (75%) preferred fiction over non-fiction films. Fifty-four participants (75%) read as a hobby, and 57 (69%) watched films as a hobby. Only four participants (5%) did not consider either reading or film-watching as hobbies.

Sample size calculations. G*Power 3.1 software was used to determine the minimum sample size required for a mixed design, within-between, repeated measures analysis of variance (ANOVA). *A piori* calculations, with α set at the conventional level of .05, suggested that a sample size of 34 was required to yield statistical power of .82 (Cohen, 1992), with a medium effect size of Cohen's $f^2 = .25$.

Sampling procedure. Participants were recruited by means of convenience sampling through the UCT Department of Psychology Student Research Participation Programme (SRPP). All students at UCT who take psychology undergraduate courses are required to partake in SRPP in exchange for course credits. Students were invited to participate in the study through an email advertisement sent out using the VULA page (UCT's online student platform). There were no explicit exclusion criteria for participation in this study. As English

is the medium of instruction at UCT, it was assumed that all student participants had a sufficient level of English and adequate language and reading ability to understand and engage with the material and measures. Participants were asked to bring their own headphones, but these were supplied to those who did not have access to any. Special measures were put in place for participants who needed assistance due to disability (i.e. wheelchair access).

Instruments

The study employed four self-report measures: (a) a socio-demographic questionnaire; (b) a measure of narrative engagement; (c) a measure of affect; and (d) a measure of multidimensional empathy. It also made use of four fictional materials: two short stories and two short films.

Socio-demographic questionnaire. Participants were asked to state their age; whether or not their home language was English; as well as some questions that addressed their reading and film-watching habits. Questions included here were: "How many books have you read in the last year?"; "Do you prefer reading fiction or non-fiction?"; "Do you read as a hobby?"; "How many movies have you watched in the last year?"; "Do you prefer watching fiction or non-fiction films?" and "Do you watch films as a hobby?". Participants selected their answers from a number of options provided in a drop-down menu (e.g., yes/no and fiction/nonfiction/other). Participants were required to answer each question before being able to move on and were not able to comment on any of the responses.

Narrative engagement. Busselle and Bilandzic's (2009) Narrative Engagement Measure (NEM) was used to measure the extent to which participants in both groups (story and film), were transported into the narratives. The NEM is a 12-item, self-report measure answered on a 7-point Likert scale, ranging from "Not at all" to "Very much". The measure consists of four elements, which include items assessing narrative understanding, attentional

focus, emotional engagement, and narrative presence. Items include: "At points, I had a hard time making sense of what was going on in the story/film"; "I found my mind wandering while the film was on/ reading the story."; "During the film/story, my body was in the room, but my mind was inside the world created by the story."; and "The story affected me emotionally." (see Appendix A for full measure and scoring instructions). The measure taps into the unconscious cognitive and affective processes at play during reading and film watching, such as comprehension, attention, emotional arousal and the sensation that one has left the actual world and entered that of the story. Scores were totalled to yield a single overall score of narrative engagement for each participant.

The NEM been used repeatedly with student samples, to measure narrative engagement while reading (Bal & Veltkamp, 2013), and watching films (Busselle & Bilandzic, 2009). Original psychometric properties show Cronbach's alpha scores of above .80 for the entire 12-item scale (Busselle & Bilandzic, 2009).

Affect. The Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988) is a self-report measure used to evaluate the extent to which individuals feel positive and negative emotions. It may be applied to current or more general affect states. The PANAS requires respondents to use a scale ranging from 1 ("very slightly or not at all") to 5 ("extremely") to indicate the extent to which they feel or felt the particular emotions from a list of 20 (see Appendix B for full measure and scoring instructions). Positive (PA) and negative affect (NA) were scored and considered separately for the analyses.

The PANAS may be used to assess current or general affect state (mood). It was used in this study to assess baseline mood before exposure to fiction and again to assess the current affect of the participants directly after exposure. The original psychometrics show relatively high internal consistency ($\alpha = .88$ for PA and .87 for NA), satisfactory test-retest reliability ($r = .68$ for PA and .87 for NA), and high construct validity (Watson et al., 1988).

Empathy. The Interpersonal Reactivity Index (IRI; Davis, 1980) is a measure of multidimensional empathy. The 28-item self-report measure comprises four subscales: (a) fantasy scale (FS); (b) empathic concern (EC); (c) perspective taking (PT); and (d) personal distress (PD). Each subscale assesses a distinct feature of empathy, that ensures aspects of both cognitive and affective empathy are considered (Davis, 1980).

The FS includes items that evaluate a person's tendency to transport themselves into the stories in books, films and plays, so as to experience what the characters are feeling. Examples of these items are: "I really get involved with the feelings of the characters in a novel" and "After seeing a play or a movie, I have felt as though I were one of the characters". The PT scale assesses a person's general tendency to spontaneously adopt the psychological perspectives of others. Items in the PT scale include: "I sometimes try to understand my friends better by imagining how things look from their perspective" and "Before criticizing somebody, I try to imagine how I would feel if I were in their place". The FS and the PD consider cognitive empathic processes. Both the EC and PD scales deal with the typical emotional reactions of people to others involved in affective empathic processes. Items in the EC scale include "I often have tender, concerned feelings for people less fortunate than me" and "I am often quite touched by things that I see happen". These items tap into a person's tendency to sympathise with and feel concern for others. The PD scale deals with a person's feelings of anxiety and distress in response to interpersonal situations. Items in this scale include: "I sometimes feel helpless when I am in the middle of a very emotional situation" and "I tend to lose control during emergencies" (Davis, 1983). The 7 items in each subscale are answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well" (see Appendix C for the full measure and scoring instructions). The subscale scores were totalled and considered separately for analysis.

The IRI is widely used in research exploring fiction and empathy and has been used extensively with university students (Bal & Veltkamp, 2013; Johnson, 2012; Mar et al., 2006). The original psychometric properties show strong internal reliability, with Cronbach's alpha scores ranging from .70 to .78 for the four subscales, as well as test-retest reliability, with correlations between .61 and .79 for males and .62 and .81 for females.

Reading and film materials. Two short fictional films and two short fictional literary stories were selected for use in the experimental manipulation. The materials were chosen based on criteria outlined by Kidd and Castano (2013), together with suggestions made by Black and Barnes (2015). Each film and story was fictional, focused on human subjects, and depicted at least two human characters. The two written stories chosen were *The Runner* by Don Delillo (1988), used in both the Kidd and Castano (2013) and Black and Barnes (2015) studies, and *Puppy* by George Saunders (2007), which was also used by Black and Barnes (2015). Both stories were between 2000 and 3500 words and took approximately 10 to 20 minutes to read. Both were of the literary fiction genre and written by multi-award-winning authors. Films were chosen from online databases and accessed via YouTube. The first film was Carl Mason's (2015) *Imagine* (running time: 10 minutes), which was nominated in 2016 for multiple Screen Test Awards and for the Best Director Under 18 category at the Winchester Film Festival. The second film, *The Most Beautiful Thing* (running time: 11 minutes), was written and directed by Cameron Covell (2012). It won two LACHSA 2012 Moon Dance Awards, for Best Film and for Best Actor. Both films were of the drama genre.

Procedure

Students were invited to participate in the study through an email advertisement sent out via VULA (UCT's online platform). The advertisement included a link to the Part 1 questionnaire, administered online using Survey Monkey. Included in this survey was the sociodemographic questionnaire, and the first administration of the IRI measure of empathy.

This would have taken no longer than 30 minutes to complete. Once students had completed part 1, they were invited to sign up for the second part, via the Vula platform and took place in-person. A number of time slots were available, and the computer laboratory could cater for a maximum of 10 people at a time.

Part 2 took place in the ACSENT laboratory in the UCT Department of Psychology. Participants sat at computers with headphones and accessed the content via a SurveyMonkey survey, which was already loaded onto the computers when participants arrived. The survey included a consent form, measures, fictional material and a debriefing form, all of which were completed and submitted online. After providing consent, participants completed an initial PANAS measure to assess baseline affect (mood). They then clicked on a link to access one of the four fictional materials. After having read or watched their assigned content, participants returned to the survey to complete the rest of the questionnaire, which included the NEM, a second PANAS, and the IRI measure. The entire session took between 25 and 45 minutes.

Data collected from SurveyMonkey was coded and transcribed into Microsoft Excel spreadsheets and SPSS for storage and analysis.

Ethical considerations.

The study followed the University of Cape Town (UCT)'s ethical guidelines for conducting research involving human participants. Ethical clearance was granted by an Ethics Review Committee of the Faculty of Humanities (see Appendix D). Participants were made aware of the procedures, the voluntary nature of their participation and the confidentiality of the information that they provided in a consent form (see Appendix E). Participants acknowledged and agreed to the terms stated in the consent form before commencing with the study. Participants were also required to read through a detailed debriefing form (see Appendix F) before leaving the venue, which provided the details of the

researcher and the researcher's supervisor, as well as additional support services should they

be needed. There were no foreseeable physical or psychological risks to participants.

Participants were, however, required to engage with fictional material that may have been of

a sensitive nature. One participant made mention of the fact that the subject matter of the film

that she had watched was very similar to her own experience, but she did not report feeling

distressed and requested that her data be included.

Data Analysis

Data were analysed using SPSS (Version 25). For all analyses, significance was set at

$p < .05$. A range of preliminary analyses were performed before any main analysis was

conducted:

a) Descriptive statistics were considered.

b) Factor analyses, using principal components, and reliability analyses were

performed to assess the psychometric properties of each measure.

c) A one-way Analysis of Variance (ANOVA) was conducted to evaluate the mean

NEM scores for each of the four groups. The groups were coded as '1' for the

group who read *Runner*, '2' for the group who read *Puppy*, '3' for the group who

watched *Imagine* and '4' for the group who watched *The Most Beautiful Thing*.

Levene's test was significant (F (3,68) = 3.65, p = .02), which indicated

heterogeneity of variance in the data. To compensate for the violation of the

assumption of homogeneity of variance, the Welch test was interpreted as it

adjusts for degrees of freedom and is unaffected by unequal variance and is

therefore more reliable. This was followed by the post-hoc Games-Howell, to

determine where the differences occurred between groups. The results from the

ANOVA justified collapsing the four groups into two, Story (n = 35) and Film (n

= 37).

d) A comparison of baseline affect between Story and Film groups was done using a

one-way ANOVA. Pre-PA and pre-NA mean group scores were compared, in

order to assess whether or not the mood of participants in each group was

equivalent before the experimental manipulation. A difference in baseline mood

between groups may could account for differences found between mean group

affect scores after exposure to fiction. This would, therefore, need to have been

controlled for in order to make valid claims about the data. Levene's test for

homogeneity of variance was not significant ($p > .05$), therefore the assumption of

homogeneity of variance was upheld.

The main analyses employed various statistical techniques in order to test each of the

4 hypotheses.

Hypothesis 1. A one-way ANOVA was used to compare the effects of story ($n = 35$)

and film ($n = 37$) on narrative engagement. Levene's test was significant ($F_{(1,70)} = 13.30$ p

$= .001$), indicating a violation in the assumption of homogeneity. Thus, the Welch test was

interpreted as this is a more reliable test when this assumption has been violated.

Hypothesis 2. A one-way ANOVA was used to compare the effects of story ($n = 35$)

and film ($n = 37$) on (a) PA and (b) NA. Levene's tests were not significant ($p > .05$),

indicating the assumption of homogeneity was upheld.

Hypotheses 3 & 4: A series of mixed design, between-within subject ANOVAs were

performed to compare the effects of reading short stories and watching short films on each of

the IRI subscales (FS, EC, PT and PD). A between-subjects comparison between the story

group ($n = 35$) and the film group ($n = 37$) and a within-subjects, repeated measures factor,

time (2 levels) was set up. The difference between the mean scores of each subscale before

exposure to fiction and after were compared. These were coded as 'pre-' and 'post-'

respectively. Levene's test scores, for all the ANOVAs, were not significant ($p > .05$),

indicating that the assumption of homogeneity of variance was upheld in each case.

Results

Preliminary analyses.

  Descriptive Statistics. Descriptive statistics for the study variables are presented in

Table 1.

Table 1

Descriptive Statistics for Study Variables.

	Min	Max	*M*	*SD*
NEM	17.00	84.00	60.76	16.86
PA_POST	11.00	48.00	26.97	8.61
NA_POST	10.00	35.00	16.40	5.73
FS_PRE	9.00	24.00	17.38	3.88
FS_POST	8.00	24.00	19.06	3.82
EC_PRE	4.00	28.00	22.86	3.92
EC_POST	6.00	28.00	23.46	4.11
PT_PRE	10.00	28.00	19.85	3.90
PT_POST	7.00	28.00	20.56	4.56
PD_PRE	2.00	27.00	13.79	5.34
PD_POST	1.00	28.00	13.54	5.74

  The boxplot (Figure 1) shows approximate normal distributions, very little skewness

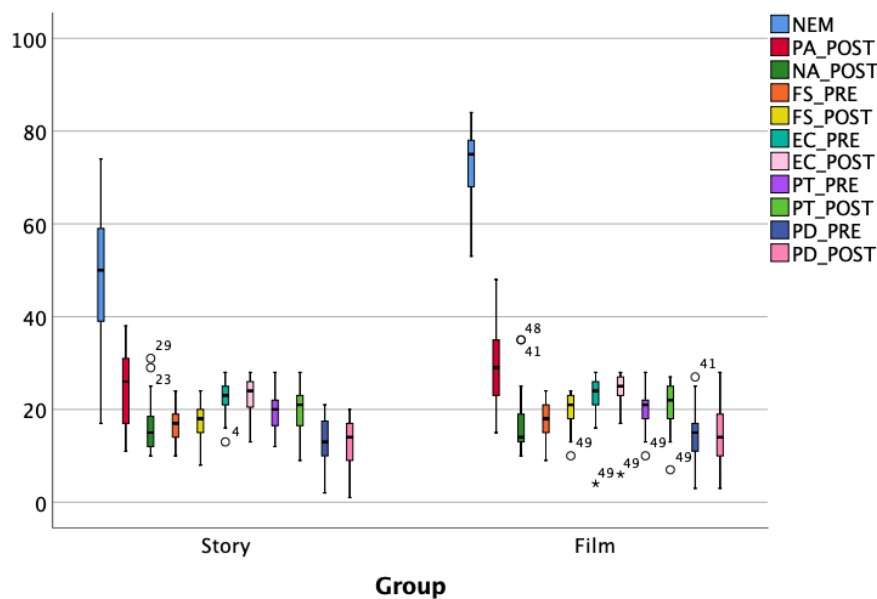and few outliers for all continuous variables.

Figure 1   Boxplot representing continuous variables organised according to groups

Factor and reliability analyses for NEM. An initial confirmatory factor analysis

proposed that a four-factor solution, suggested in the original literature (Busselle &

Bilandzic, 2009), was not supported within the data. Further exploration revealed that a

single-factor solution was better warranted for the data (loading scores were all above .67)

(See Appendix G). This verified the use of a single totalled NEM score to represent narrative

engagement. Cronbach's alpha for the entire measure was .93, suggesting strong internal

consistency.

Factor and reliability analyses for PANAS. Apart from two items, "Alert" and

"Ashamed", items loaded well on PA and NA in the confirmatory factor analysis. While

loading scores were .31 for "Alert" and .34 for "Ashamed", the rest of the items loaded

between .54 and .85 (see Appendix H). Cronbach's alpha scores of .87 and .86 for PA and

NA respectively showed strong internal reliability, consistent with the original literature

(Watson, Clark, & Tellegen, 1988). It was thus appropriate to use the PA and NA scales

separately in this study.

Factor and reliability analyses for IRI. Results from a confirmatory factor analysis indicated that a four-factor solution, as suggested by the original literature (Davis, 1986), was appropriate for this data. Apart from Question 1 ("I daydream and fantasize, with some regularity, about things that might happen to me."), which did not load, items loaded relatively well over the four factors, after the varimax rotation (scores between .44 and .83) (see Appendix I). Question 1 was thus removed from the data. The removal of Question 1 resulted in the Cronbach's alpha coefficient for the FS subscale increasing from .65 to .67. Cronbach's alpha coefficients for the other subscales were .78, .68 and .83 for FS, PT and PD respectively.

Collapsing the groups. Results from the one-way ANOVA comparing the effect of the four groups on NEM were examined (see Figure 2). A significant difference was found between the mean NEM scores for groups 1 ($n = 18$) and 3 ($n = 17$); 1 ($n = 19$) and 4 ($n = 18$); 2 and 3, and 2 and 4 ($p < .001$ in each case). Significant differences were not found, however, between groups 1 and 2 or between groups 3 and 4 ($ps > .05$). These findings indicate that little variation, in terms of narrative engagement, existed between groups 1 and 2 or between 3 and 4. Groups 1 and 2 were thus collapsed into story ($n = 35$), and groups 3 and 4 were collapsed into film ($n = 37$).
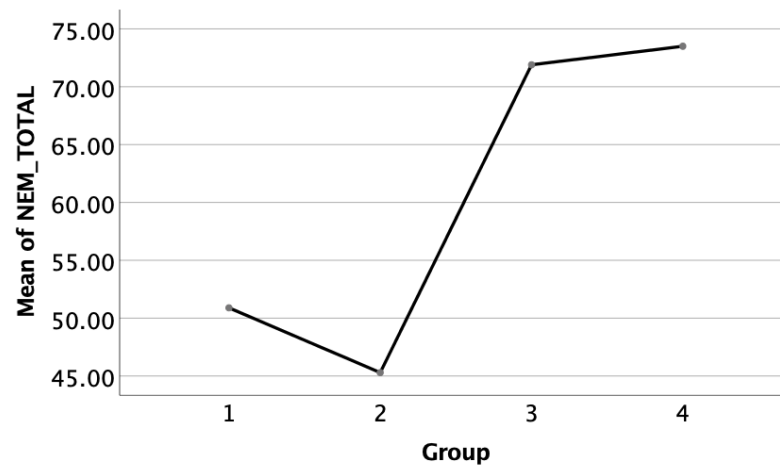
Figure 2.   Plot showing mean NEM scores for each group.

Comparing baseline affect. Results from the one-way ANOVA comparing the group mean scores for NA and PA were examined. Significant differences between pre-NA scores as well between pre-PA scores for Story and Film groups were not found ($ps > .05$). This indicates that the general mood of the participants was equivalent for each group before exposure to the different fictional materials.

Main analyses

Hypothesis 1. Results from the one-way ANOVA revealed a significant difference between the Story and Film groups ($F(1,51.33) = 78.00$, $p < .001$) for narrative engagement. The mean scores (see Table 2) indicate that those who watched short films were more engaged in the fictional story than those who read short stories. These results do not support hypothesis 1, as narrative engagement was much greater for those who watched the films than for those who read the stories.

Hypothesis 2. Results from the one-way ANOVA revealed a significant difference between the Story and Film groups ($F(1,70) = 6.39$, $p = .01$) for positive affect. The mean

scores (see Table 2) indicate that those who watched short films showed higher positive affect than those who read short stories. The difference between Story and Film groups was not significant for negative affect ($p > .05$). These results provide partial support for hypothesis 2. Whereas negative affect was the same for both groups, positive affect was much greater for those who watched the films than for those who read the stories.

Hypotheses 3 & 4. No interaction effect nor a significant difference between means for Story and Film were found for PD. No significant difference between pre-PD scores and post-PD scores was found, indicating that PD scores did not change with exposure to fiction for either group.

No interaction effect, nor significant difference between mean group scores were found for EC and PT. Significant differences were, however, found between pre- and post-EC scores for Story and Film groups ($F (= 4.48, p = .04$). Similarly, significant differences were found between pre- and post-PT scores for Story and Film groups ($F = 4.07, p = .048$). The effect sizes for both of these was 6%. Mean scores (see Table 2) indicate that scores for EC and PT increased slightly after exposure to fiction and that the extent of this increase was not different for the two groups.

A significant interaction effect of group and time on FS was found ($F = 9.80, p = .003$) (see Figure 3), with an effect size of 12%. This means that there was a significant difference found between the pre-FS scores and post-FS scores for both Story and Film groups, however the extent of this was significantly different for the groups. Mean scores indicate that FS scores increased after exposure to fiction (see Table 2). Results of the pairwise comparisons showed that the extent of this increase was far greater for Film than for Story group ($p < .001$).

Results from the ANOVAs demonstrate that FS, PT and EC scores improved after exposure to fiction. While PT and EC improved equally for both story and film, the

improvement in FS was far greater in film. These results provide partial support for hypotheses 2 and 3. Three of the four aspects of empathy did improve with exposure to fiction, and this improvement was similar for the story and film groups in two of the three cases.
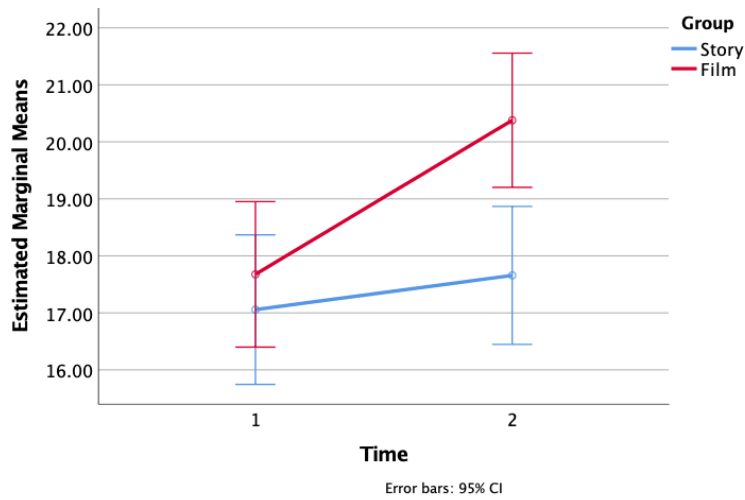

Figure 3   Plots of marginal means for FS indicating interaction effect between group and time on FS.

Table 2

Mean Scores for Dependent Variables Before and After Exposure to Fiction

	Group	*M*	*SD*
NEM	Story	48.17	14.56
	Film	72.68	7.79
PA_POST	Story	24.43	8.29
	Film	29.38	8.318
NA_POST	Story	16.34	5.37
	Film	16.46	6.12
FS_PRE	Story	17.06	3.80
	Film	17.68	3.98
FS_POST	Story	17.66	3.78
	Film	20.38	3.40
EC_PRE	Story	22.60	3.40
	Film	23.11	4.39
EC_POST	Story	22.83	3.91
	Film	24.05	4.26
PT_PRE	Story	19.51	3.99
	Film	20.16	3.83
PT_POST	Story	19.91	4.51
	Film	21.16	4.57
PD_PRE	Story	13.11	4.81
	Film	14.43	5.79
PD_POST	Story	12.89	4.96
	Film	14.16	6.39

Discussion

The main goals of this study were to compare the effect of reading short fictional stories and watching short fictional films on empathy. The findings revealed that narrative engagement and positive affect scores were higher for those who watched the films than for those who read the stories. There was no difference between negative affect scores between the two groups. Empathy did improve for both groups in terms of fantasy, empathic concern and perspective taking, however; neither type of fictional material improved personal distress

scores. Fantasy scale scores increased significantly more for those who watched the films than for those who read the stories.

Narrative engagement was found to be higher for the Film group than for the Story group. This suggests that the students were more transported into the fictional world created by the films than the literary stories. This result did not support the first hypothesis as narrative engagement did not occur to the same extent for the Story and Film groups. One possible explanation for this result may be attributed to the nature of the sample population. On average, participants watched more films than they read books. This could mean that in general, participants enjoyed watching films more than reading, and were, therefore, readier to project themselves into the film, as opposed to the stories. Another possible explanation, suggested by Green et al. (2008), is that mental imagery in film is provided to the viewer, which enables immediate engagement. Written text, in contrast, requires readers to create their own mental images, which is more cognitively demanding (Davis, Hull, Young, & Warren, 2014). Still another possibility is that the film content could simply have been more appealing to participants, or participants may have related more to the specific films' characters, hence leading to a more immediate identification with the characters which is central to engagement (Busselle & Bilandzic, 2009). While on the other hand, literary fiction is said to demand deeper engagement (Mar & Oatley, 2008) which may only be attained with some time.

Exposure to the films was found to elicit more positive affect than exposure to the stories, as seen in higher PA scores for the Film group. There was, however, no significant difference found between group NA scores, indicating that the stories and films had the same effect on the negative affect of the participants. Differences in positive affect scores meant that the second hypothesis was not fully supported. Johnson (2012) found that the more transported the participants were, the higher their affective response was to the fictional

material. It is likely that the higher narrative engagement scores seen in the Film group could have accounted for the higher positive affect. Furthermore, film-watching is a multisensory experience, which may enable film-watchers to respond affectively faster than readers (REF). In the study by Kawakami and Katahira (2015), positive emotions reflected the enjoyment of sad music. Perhaps this could be applied to the film materials too. While the films were dramas, which are usually more sombre, they seemed to elicit positive emotions which seems to indicate enjoyment. Perhaps participants who watched the films simply enjoyed the films more than the participants who read the stories, which led to increased positive emotions.

Scores on three out of the four IRI subscales measuring empathy increased after exposure to fiction. Scores for EC and PT increased to the same degree for Story and Film groups. This suggests that the tendency to adopt alternative psychological perspectives, as well as the tendency to feel sympathy and concern for others, were enhanced to the same extent for those who read the fictional stories and those who watched the fictional films. As perspective taking is associated with ToM and empathic concern is associated with affective empathy (Davis, 1983), the results indicate that there is a capacity for both cognitive and affective empathy to improve with fiction. These key findings support previous evidence advocating for the use of fiction to promote empathy (Bal & Veltkamp, 2013; Black & Barnes, 2015; Johnson, 2012; Kidd & Castano, 2013; Koopman, 2015; Mar et al., 2006; Mar, Tackett, & Moore, 2010; Mar, Oatley, & Peterson, 2009).

A significant interaction effect of group and time on FS scores was observed. FS scores increased for both story and film, but the extent of this increase was far greater for film. The tendency to imagine the psychological and emotional state of characters showed a larger increase for those who watched the film materials. The higher narrative engagement shown in those who watched films may account for the greater increase in fantasy scale scores for Film. Previous research supports the role of narrative engagement in mediating the

relationship between fiction and empathy (Bal & Veltkamp, 2013; Johnson, 2012). It is also likely that the increased fantasy scale scores contributed to the higher positive affect for the Film group (Kawakami & Katahira, 2015).

The results also showed that the tendency to respond emotionally to situations (assessed through the PD scale) did not increase after exposure to fiction. Davis (1983) suggests that a person's tendency to feel personal distress in tense situations often decreases with age. Affective responses, such as this, are also less trainable than cognitive empathy (Lam et al., 2011). Increasing the tendency to adopt negative emotions of others is also hardly desirable. More advanced, positive aspects of empathy, such as the tendency to adopt the perspectives of others and show empathic concern are, however, trainable in older adolescents and adults, as they have acquired the means for identification and introspection. Participants were considered to be at optimum age for training in these more advanced empathic abilities (Hatcher et al., 1994).

These findings support the third study hypothesis, as aspects of empathy increased with exposure to fiction. Although two out of the three aspects of empathy, assessed through the IRI, were the same for the Story and Film groups, fantasy scale scores were greater for the film-watchers after exposure, and thus the fourth hypothesis was not fully supported.

The findings of the study support the use of both short literary fictional stories and short fictional films as a means of promoting empathy in young adults. There is already an extensive literature supporting the use of literary fiction to enhance empathy (Black & Barnes, 2013; Kidd & Castano, 2013; Koopman, 2015; Pino & Mazza, 2016). This study has shown that narrative engagement was higher for those who watched films than for those who read the literary fiction, and that this in turn had greater impact on improving empathy and positive affective responses. These findings therefore add to evidence regarding fiction and empathy.

Limitations and suggestions for further research

Although the results supported and extended previous research, this study has a number of limitations. In order to collapse the four groups into two, the NEM scores were compared. This may have accounted for the similarities in the extent to which participants were transported by the fictional material, but, this it does not take into account other possible differences such as content variation. Perhaps future studies of this kind could better control for these differences. The materials chosen for this study were of the same genre and thus results are limited to dramatic fictional films. Future studies should examine the effects of varying genres of fiction on empathy. Furthermore, investigations should also examine the effects of potential covariates, such as age and predisposition to empathy, which may influence the results.

Although evidence found in the study advocates for the use of fictional films to improve empathy, a control group would be necessary so as to compare the effects of fictional and non-fictional films. Without a control group, this study was not able to claim that it is only fictional film material that promotes empathy. Explanations of the mechanisms involved in improving empathy through fiction were suggested in the findings, however, future studies of this nature should address the questions of why narrative engagement and positive affect were higher for the film group, and how these are linked to the relationship between fiction and empathy.

As with other studies of this kind, it is not possible to reach conclusions about the long-term effect of reading versus watching fictional materials on empathy. Perhaps future studies could focus on longitudinal data and measure the long term effect of repeatedly engaging with fiction over time. Alternatively, similar studies could examine the effect of reading or watching longer materials such as an entire book, longer film or a season of a series so as to enhance the findings of this study.

Conclusion

The association between fiction and empathy is extensively researched. This study adds to the collection of evidence in support of the notion that fiction improves empathy. By comparing the effect of short fictional stories and short fictional films on empathy, the study findings contradict prior claims that empathy is bestenhanced through literary fiction. Furthermore, it extends evidence by suggesting that films also increase narrative engagement, influence affective state and promote empathy in young adults.

The notion that empathy is trainable through fictional films has much to offer educators. Film content is accessible and appealing to young people, and perhaps this increases their readiness to engage. Skilful actors and filmmakers are known for producing material that incites emotional reactions (Davis, Hull, Young, & Warren, 1987), which are more likely to elicit empathic responses. Making use of appropriate fictional film material in educational programs may help to promote empathy in students. This study offers empirical support for the use of fictional films in empathy training programs. Empathy is not only a necessary skill for basic interpersonal encounters, but promotion of empathy has also been associated with improved academic performance, reduced aggression and conduct disorders in children, and increased prosocial behaviour (Hofmann et al., 2016; Johnson, 2012; Koopman, 2015; Malti et al., 2016).

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Appendix A

Narrative Engagement Measure (NEM) – by Busselle and Bilandzic (2009)

Use the scale below, from 1-7, with 1 being "not at all" to 7 being "very much", to select the number that best represents your opinion about narrative that you just read/watched. **READ EACH ITEM CAREFULLY BEFORE RESPONDING.** Answer as honestly as possible.

1	2	3	4	5	6	7

Not at all   **Very much**

Narrative understanding

1. At points, I had a hard time making sense of what was going on in the story.

1	2	3	4	5	6	7

2. My understanding of the characters is unclear.

1	2	3	4	5	6	7

3. I had a hard time recognizing the thread of the story.

1	2	3	4	5	6	7

Attentional focus

4. I found my mind wandering while reading/watching the story.

1	2	3	4	5	6	7

5. While reading/watching, I found myself thinking about other things.

1	2	3	4	5	6	7

6. I had a hard time keeping my mind on the story that I was reading/watching.

1	2	3	4	5	6	7

Narrative presence

7. During reading/watching, my body was in the room, but my mind was inside the world created by the story.

1	2	3	4	5	6	7

8. The story created a new world, and then that world suddenly disappeared when the story/film ended.

1	2	3	4	5	6	7

9. At times during reading/watching, the story world was closer to me than the real world.

1	2	3	4	5	6	7

Emotional engagement

10. The story affected me emotionally.

1	2	3	4	5	6	7

11. During reading/watching, when a main character succeeded, I felt happy, and when they suffered in some way, I felt sad.

1	2	3	4	5	6	7

12. I felt sorry for some of the characters in the story.

1	2	3	4	5	6	7

Notes: Items 1 – 6 are negatively scored and Items 7 – 12 are positively scored

Appendix B

Positive and Negative Affect – PANAS (Watson, Clark, & Tellegen, 1888)

Instructions for baseline assessment of affect

This scale consists of a number of words that describe different **feelings and emotions**. Read each item and then select the number on the scale that indicates **the extent to which you felt this way over the past week.**

Instructions for use after exposure to fiction

This scale consists of a number of words that describe different **feelings and emotions**. Read each item and then select the number on the scale that indicates to **the extent to which you feel this way right now**, that is, at present moment.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	☐	☐	☐	☐	☐
Distressed	☐	☐	☐	☐	☐
Excited	☐	☐	☐	☐	☐
Upset	☐	☐	☐	☐	☐
Strong	☐	☐	☐	☐	☐
Guilty	☐	☐	☐	☐	☐
Scared	☐	☐	☐	☐	☐
Hostile	☐	☐	☐	☐	☐
Enthusiastic	☐	☐	☐	☐	☐
Proud	☐	☐	☐	☐	☐
Irritable	☐	☐	☐	☐	☐
Alert	☐	☐	☐	☐	☐
Ashamed	☐	☐	☐	☐	☐
Inspired	☐	☐	☐	☐	☐
Nervous	☐	☐	☐	☐	☐
Determined	☐	☐	☐	☐	☐
Attentive	☐	☐	☐	☐	☐
Jittery	☐	☐	☐	☐	☐
Active	☐	☐	☐	☐	☐
Afraid	☐	☐	☐	☐	☐

Scoring instructions:

	Very slightly or not at all	A little	Moderately	Quite a bit	extremely
All questions	1	2	3	4	5

The total score is calculated by finding the sum of the 10 positive items, and then the 10 negative items. Scores range from 10-50 for both sets of items. For total positive score, a high score indicates more of a positive affect. For the total negative scores, a lower score indicates less of a negative affect.

Appendix C

The Interpersonal Reactivity Index (IRI) by Davis (1983)

The following statements inquire about your **thoughts and feelings** in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale from **A ("does not describe me well")** to **E ("describes me very well")**. When you have decided on your answer, fill in the letter next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can.

Fantasy Scale

1. I daydream and fantasize, with some regularity, about things that might happen to me.

A	B	C	D	E

5. I really get involved with the feelings of the characters in a novel.

A	B	C	D	E

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it

A	B	C	D	E

12. Becoming extremely involved in a good book or movie is somewhat rare for me.

A	B	C	D	E

16. After seeing a play or movie, I feel as though I were one of the characters.

A	B	C	D	E

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

A	B	C	D	E

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

A	B	C	D	E

Perspective-taking scale

3. I sometimes find it difficult to see things from the "other guy's" point of view.

A	B	C	D	E

8. I try to look at everybody's side of a disagreement before I make a decision.

A	B	C	D	E

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

A	B	C	D	E

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

A	B	C	D	E

21. I believe that there are two sides to every question and try to look at them both.

A	B	C	D	E

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

A	B	C	D	E

28. Before criticising somebody, I try to imagine how I would feel if I were in their place.

A	B	C	D	E

Empathic Concern Scale

2. I often have tender, concerned feelings for people less fortunate than me.

A	B	C	D	E

4. Sometimes I don't feel sorry for other people when they are having problems.

A	B	C	D	E

9. When I see someone being taken advantage of, I feel kind of protective towards them.

A	B	C	D	E

14. Other people's misfortunes do not usually disturb me a great deal.

A	B	C	D	E

18. When I see someone being treated unfair, I sometimes don't feel very much pity for them.

A	B	C	D	E

20. I am often quite touched by things that I see happen.

A	B	C	D	E

22. I would describe myself as a pretty soft-hearted person.

A	B	C	D	E

Personal Distress Scale

6. In emergency situations, I feel apprehensive and ill-at-ease.

A	B	C	D	E

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

A	B	C	D	E

13. When I see someone get hurt, I tend to remain calm.

A	B	C	D	E

17. Being in a tense emotional situation scares me.

A	B	C	D	E

19. I am usually pretty effective in dealing with emergencies.

A	B	C	D	E

24. I tend to lose control during emergencies.

A	B	C	D	E

27. When I see someone who badly needs help in an emergency. I go to pieces.

A	B	C	D	E

Scoring instructions:

A = 0
B = 1
C = 2
D = 3
E = 4

The following questions were scored negatively: 3, 4, 7, 12, 13, 14, 15, 18, and 19

Appendix D

Letter of Ethical Clearance

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3417
Fax No. (021) 650 4104

06 June 2018

Toni Feldman
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Toni

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your study, *Using Fiction to Promote Empathy. A Comparison of the Effect of Reading Short Stories and Watching Short Films on Transportation and Empathy.* The reference number is PSY2018-034.

I wish you all the best for your study.

Yours sincerely

Floretta Boonzaier
Associate Professor
Ethics Review Committee

Appendix E

Informed Consent

Informed Consent

University of Cape Town

Using Fiction to Promote Empathy

Purpose

I am a UCT Psychology Honours student investigating possible associations between reading fiction and/or watching films and empathy.

Procedure

If you decide to participate in this study, you will be asked to complete a series of online questionnaires. Following this, you will either read a short story or watch a short film, and then complete another questionnaire. The entire study should take between 1 hour and an 1½ hours to complete. You will receive **3 SRPP** points for your participation.

Possible Risks

The study does not involve any foreseeable risks of social, psychological, or physical harm. However, it is important that you are aware that the reading and film material may contain content that could cause some emotional reactions. If during the study you feel uncomfortable or too distressed to continue, you will be able to remove yourself from participation immediately, at any point during the procedures. **Please note that if you do not complete the full study, you will not be awarded any SRPP points.**

Possible Benefits

If you complete all three parts of the study, you will receive **3 SRPP points**.

Voluntary Participation

Participation in this study is completely voluntary. You are free to refuse to answer any question without giving reasons for your refusal. Your decision regarding participation in this study will not affect your grades or academic career. If you decide to participate, you are free to change your mind and stop participation at any time without any negative consequences.

Please note, however, if you do not complete every section of entire study, you cannot be awarded any SRPP points.

Confidentiality

Information about you obtained for this study will be kept confidential. Your name, consent form and other identifying information will be kept secure on a password-protected computer. There will be no link between your personal information, the answers that you give and the results of the study. The results will not be available to your university or any current or future employers, nor will it be made available to anyone else. Any reports or publications about the study will not identify you or any other study participant.

Questions

If you have any study-related questions, problems or emergencies you can contact me on:

Toni Feldman   FLDTON001@myuct.ac.za

Or my supervisor on:

Lauren Wild   Lauren.Wild@uct.ac.za

If you have questions about your rights as a study participant, or any comments or complaints about the study, please contact:

Rosalind Adams at the UCT Department of Psychology.

Phone:021 650 3417

Email: rosalind.adams@uct.ac.za.

I have read the above and am satisfied with my understanding of the study and its possible benefits and risks. My questions about the study have been answered. I hereby voluntarily consent to participation in the research study as described.

☐ Yes

Appendix F

Debriefing Form

Debriefing Form

University of Cape Town

Thank you for participating in this research study.

This form provides you with information about the study in which you have just participated, and explains in full the methods of collection of data for this research study.

Title of Research Study

Using Fiction to Promote Empathy

Principal Investigators, Ethics Committee, and Telephone Numbers

Toni Feldman (Researcher)	Lauren Wild (Supervisor)
Department of Psychology	Department of Psychology
University of Cape Town	University of Cape Town
FLDTON001@myuct.ac.za	Lauren.Wild@uct.ac.za

What is the purpose of this research study?

The purpose of this research study is to better understand if and how films promote empathy. Previous research supports the notion that reading fictional stories enhances empathy. This is seen both in terms of affective empathy (the ability to feel the emotions of others) and cognitive empathy (the ability to understand the mental states of others, as differentiated from one's own). It is thought that this occurs through the process of transportation into the story. Transportation, also referred to as narrative engagement, is a process whereby one becomes engrossed, or immersed in a story. Although there is theoretical support for the process of transportation occurring through engaging with any fictional material, such as books and films, most studies only deal with reading books and evidence supporting its occurrence in films is lacking. The study in which you participated hopes to address this gap in the literature by investigating whether transportation occurs though watching short films, and thus empathy is enhanced.

What was done during this research study?

During this study, you were required to complete a number of online questionnaires about your socio-demographics, mood and empathic traits. You were required to undergo an intervention,

either read a short story or watch a short film. You were then asked to complete further questionnaires about your engagement with the materials, the extent to which you were transported into the story and your thoughts about the story that you read/ film you watched.

Was there any deception used in this research study?

No.

Is there anything further required of you?

Please do not disclose anything that happened during these research sessions to anyone else, as this may bias future participants and their performance. If you are feeling stressed at the end of the research study, please inform me or my supervisor on:

Toni Feldman   FLDTON001@myuct.ac.za

Lauren Wild   Lauren.Wild@uct.ac.za

or make use of the following details for further support:

The Student Wellness Counselling Service:

Ivan Toms Building

28 Rhodes Ave, Mowbray,

Middle Campus

Tel: 021 650 1017

SADAG Student Care Line:

0800 24 25 26 free from a Telkom line or SMS 31393/32312 for a call-me-back

Appendix G

Results from the Factor Analysis Results for NEM

Table G1

Communalities for items on NEM

	Initial	Extraction
Q1	1.00	.63
Q2	1.00	.48
Q3	1.00	.67
Q4	1.00	.63
Q5	1.00	.47
Q6	1.00	.70
Q7	1.00	.61
Q8	1.00	.45
Q9	1.00	.53
Q10	1.00	.50
Q11	1.00	.62
Q12	1.00	.53

Extraction Method: Principal
Component Analysis.

Table G2

*Component Matrix^a showing
item loadings for 1 component*

	Component
	1
Q1	.79
Q2	.69
Q3	.82
Q4	.80
Q5	.69
Q6	.84
Q7	.78
Q8	.67
Q9	.73
Q10	.71
Q11	.79
Q12	.73

Extraction Method: Principal
Component Analysis.
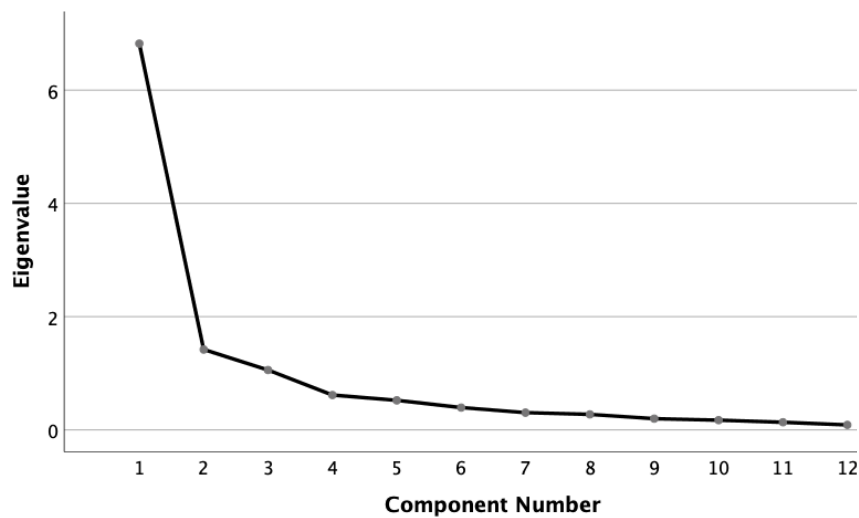a. 1 components extracted.
Scores below .3 suppressed

Figure G1.   Scree Plot Showing Item Loadings

Appendix H

Results from the Factor Analyses for PANAS

Table H1

Communalities for items on the PANAS

	Initial	Extraction
Interest	1.00	.48
Excited	1.00	.50
Strong	1.00	.39
Enthusiastic	1.00	.71
Proud	1.00	.50
Alert	1.00	.19
Inspired	1.00	.65
Determined	1.00	.63
Attentive	1.00	.56
Active	1.00	.46
Distressed	1.00	.51
Upset	1.00	.46
Guilty	1.00	.29
Scared	1.00	.60
Hostile	1.00	.51
Irritable	1.00	.55
Ashamed	1.00	.17
Nervous	1.00	.53
Jittery	1.00	.35
Afraid	1.00	.75

Extraction Method: Principal Component Analysis.

Table H2

Rotated Component Matrix[a] showing item loadings for 2 components

	Component	
	PA	NA
Interest	.67	
Excited	.68	
Strong	.61	
Enthusiastic	.82	
Proud	.69	
Alert	.31	.30
Inspired	.79	
Determined	.79	
Attentive	.70	
Active	.65	
Distressed		.67
Upset	-.38	.56
Guilty		.54
Scared		.77
Hostile		.69
Irritable		.69
Ashamed		.34
Nervous		.70
Jittery		.57
Afraid		.85

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
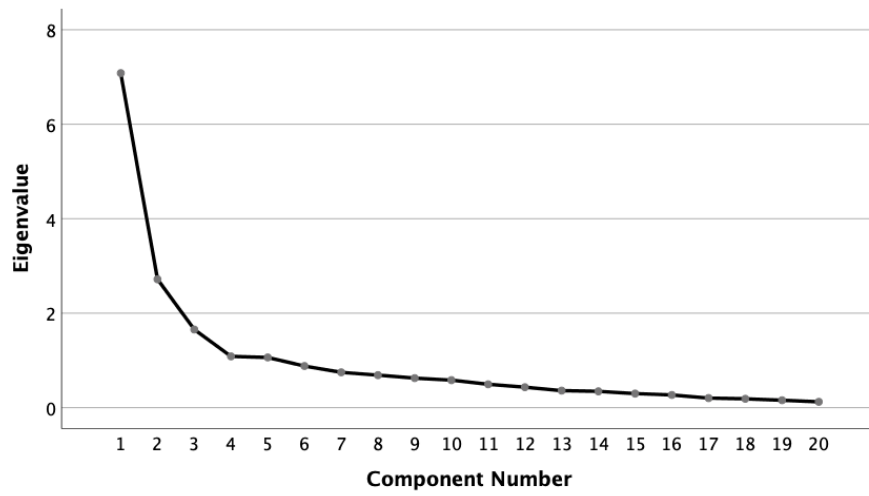a. Rotation converged in 3 iterations.
Scores below .3 suppressed

Figure H1.   Scree Plot Showing Item Loadings

Appendix I

Results from the Factor Analysis for IRI

Table I1

Communalities for items on IRI

	Initial	Extraction
Q1	1.00	.12
Q5	1.00	.47
Q7	1.00	.61
Q12	1.00	.43
Q16	1.00	.24
Q23	1.00	.46
Q26	1.00	.37
Q2	1.00	.66
Q4	1.00	.21
Q9	1.00	.58
Q14	1.00	.53
Q18	1.00	.29
Q20	1.00	.53
Q22	1.00	.55
Q3	1.00	.41
Q8	1.00	.33
Q11	1.00	.33
Q15	1.00	.30
Q21	1.00	.52
Q25	1.00	.54
Q28	1.00	.49
Q6	1.00	.45
Q10	1.00	.23
Q13	1.00	.43
Q17	1.00	.45
Q19	1.00	.72
Q24	1.00	.74
Q27	1.00	.67

Extraction Method: Principal Component Analysis.

Table I2

Rotated Component Matrix^a showing factor loading for 4 components

	Component			
	PD	EC	PT	FS
Q1				
Q5		.46		.44
Q7				.73
Q12				.62
Q16				.36
Q23				.66
Q26				.56
Q2		.81		
Q4		.44		
Q9		.76		
Q14		.66		
Q18		.49		
Q20		.59		.40
Q22		.73		
Q3	-.31		.56	
Q8			.56	
Q11			.55	
Q15			.45	
Q21			.64	
Q25			.73	
Q28		.30	.55	
Q6	.65			
Q10	.46			
Q13	.64			
Q17	.66			
Q19	.78		-.31	
Q24	.83			
Q27	.80			

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
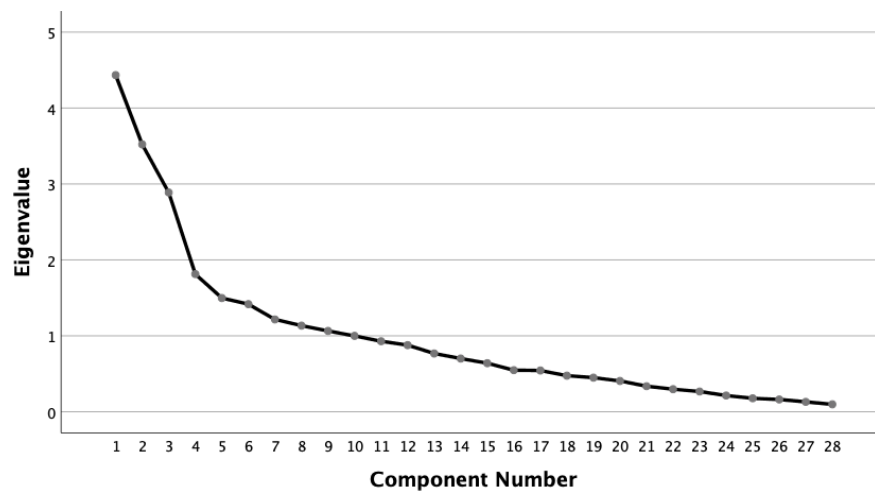a.   Rotation converged in 6 iterations.
Scores under .4 were suppressed

Figure I1.   Scree Plot Showing Item Loadings