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Cultivating empathy in middle school students through narrative fiction

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Abstract

The purpose of this study was to investigate whether reading narrative fiction can potentiate empathy in middle school students. Participants were randomly assigned to two groups: narrative fiction group and expository nonfiction group. Participants in the narrative fiction group were asked to read a passage from a novel selected from the 5th grade Common Core reading curriculum. Participants in the expository nonfiction group were asked to read a passage from a science book from the 5th grade Common Core science curriculum. Pretest and posttest data were collected using the Interpersonal Reactivity Index (IRI). Results of this study indicate that narrative fiction very likely has a positive effect on empathic thinking as measured by the IRI when compared to expository nonfiction. Additionally, results indicate that long term exposure to narrative fiction may also be correlated with empathic thought. Results also indicate that high IRI Fantasy subscale scores predict posttest overall IRI scores following immediate exposure to narrative fiction.

Cultivating empathy in middle school students through narrative fiction

In recent years, psychologists and childhood development experts have expressed concern with the apparent decline in empathy among children and young adults (Konrath, O'Brien & Hsing, 2011). Empathy is broadly defined as a person's ability to care about and share other people's emotional experiences (Konrath et al, 2011). Research indicates that human's interpersonal abilities are fueled, at least in part, by empathy (Konrath et al, 2011). Empathy is associated with prosocial behavior and seems to enable people to relate to others in a way that promotes cooperation and unity rather than conflict and isolation (Konrath et al, 2011). Many researchers argue that empathy is one of the primary evolutionary advantages of our species (Konrath et al, 2011). Therefore, it can be argued that acquisition of empathy is an essential aspect of childhood development.

Despite the apparent importance of empathy in both interpersonal skills and prosocial behavior, a recent meta-analysis of college students' scores on the Interpersonal Reactivity Index (IRI) indicates self-reported empathic concern and perspective taking among college students' has declined significantly since 1980 (Konrath et al, 2011). There has been an especially steep drop in the past 10 years (Konrath et al, 2011). Studies have also indicated that the number of adults who read narrative literature fell below 50 percent for the first time ever in the past 10 years (Konrath et al, 2011). While there is no data specifically linking the decline in empathy with the decline in reading, research indicates that adults who read less fiction report themselves to be less empathic (Mar et al., 2011). This decline in reading could help explain certain interpersonal and societal trends that suggest people today are not as empathic as previous generations. Although the literature pertaining to reading and empathy in children is limited, there is research

that suggests this correlation may be found in children as well. One study found that the number of children's stories parents expose their preschoolers to has been found to predict preschoolers' ability to understand the emotions of others (Konrath et al, 2011).

However, because research in this area applied to children is limited, further research with expanded age groups is necessary. Furthermore, research in this area is also mostly limited to correlational studies. Therefore, further research utilizing experimental manipulation is necessary to establish a more reliable causal link between reading and empathy.

Review of literature

Components of Empathy

It is generally agreed that empathy consists of cognitive and affective components (Davis, 1983, Decety and Jackson, 2006 and Vingemont and Singer, 2006). Cognitive empathy consists of the ability to engage in perspective-taking, or a basic understanding of another's thoughts and emotions (Davis, 1980). Cognitive empathy can be understood as one's intellectual ability to recognize the emotion displayed by a given stimulus (Davis, 1980). Affective empathy, meaning feeling concern or compassion for another, consists of emotional contagion, or experiencing identical emotions as another (Davis, 1980). Affective empathy can be understood as one's emotional reaction to a stimulus (Davis, 1980). In order to accurately measure empathy, the independent and interactive contributions of both the cognitive, perspective-taking capabilities or tendencies of the individual, and the emotional reactivity of such individuals must be taken into account.

Recent empathy research has begun to operate under the paradigm that empathy is a complex multidimensional concept. Researchers have made strides toward the development of an individual difference measure of empathy that provides separate assessments of cognitive, perspective-taking abilities as well as of emotional reactivity (Davis, 1980). Furthermore, researchers have begun to move beyond the dichotomous cognitive and affective categorization of empathy towards a more complex understanding of the underlying mechanisms of empathic thought. Davis (1980) asserts that there are four primary components of empathy: Perspective Taking (tendency to spontaneously adopt the psychological point of view of others) Fantasy (tendency to transpose oneself imaginatively into the feelings and actions of fictitious characters in books, movies, and

plays), Empathic Concern (ability to possess "other-oriented" feelings of sympathy and concern for unfortunate others), and Personal Distress (ability to possess "self-oriented" feelings of personal anxiety and unease when others are in tense interpersonal settings) (Davis, 1980). These four components of empathy can still be categorized within the categories of cognitive and affective; they are simply more specific categorizations of the earlier dichotomous paradigm.

Measures of Empathy

Self-Report Measures

Self-report on pictures-stories measures. These measures of empathy are typically intended to be used with children. In these measures, brief stories are told to a child while being shown pictures (usually photos or drawings) depicting hypothetical protagonists in situations designed to elicit emotions. One of the most frequently used measure is the Feshbach and Roe Affective Situations Test for Empathy. Although picture-story measures were an important early instrument for the study of affective empathy, especially for young children, there has been considerable concern about their psychometric properties. First, the stories typically are short which may not induce sufficient affect to evoke empathy. Using longer stories, however, did not improve the validity of the measure in one study. Second, children's self-reports of empathy in reaction to picture may be affected by social demands. Examiner/examinee sex differences were also found to effect results. Overall, meta-analyses have found weak associations between these measures and prosocial behavior and aggression (Zhou, Valiente, & Eisenberg, 2003).

Self-Report on Questionnaires. Questionnaire measures of empathy are believed to assess empathic responding across a range of settings. One of the most commonly used is Mehrabian and Epstein's (1972) scale of emotional tendency, which has been used mostly with older adolescents and adults. A major problem with this self-report measure is that items seem to tap various aspects of empathy-related responding such as sympathy, susceptibility to emotional arousal, perspective taking, and personal distress (Zhou, Valiente, & Eisenberg, 2003).

Davis's (1983, 1994) IRI resolves this concern because it contains separate scales designed to differentiate among empathic concern (i.e., sympathy), personal distress, fantasy empathy (i.e., vicarious responding to characters in books for film), and perspective taking. This measure has been used primarily with adolescents and adults. Internal reliabilities for the four subscales ranged from .70 to .78, and test–retest reliabilities over two months range from .61 to .81 in research with adults (Davis, 1983, 1994). Test–retest reliabilities over two years in adolescence ranged from .50 to .62 (Davis & Franzoi, 1991).

Compared to picture–story measures, questionnaire assessments of empathy-related responding are more convenient and economical to administer. Moreover, because the questionnaires tap individuals' empathic or sympathetic reactions over a much broader range of behaviors and situations, they likely provide more stable and consistent estimates of empathic responding than measures pertaining to specific situations (Zhou, Valiente, & Eisenberg, 2003).. Indicative of their validity, questionnaire measures of empathy consistently have been found to relate positively to participants' prosocial behavior, and negatively to aggression in middle childhood to adulthood. A limitation of

self-report questionnaire measures of empathy are their susceptible to social desirability. However, overall, these measures have been found to be both reliable and valid (Zhou, Valiente, & Eisenberg, 2003).

***Self-Report in Stimulated Experimental Situations*.** With these types of measures, the emotion-evoking stimuli are usually presented via audiotapes, videotapes, or realistic enactments that aim to make participants believe that the events and people involved in the stimuli are real, not hypothetical (Zhou, Valiente, & Eisenberg, 2003). After the exposure to the evoking stimuli (e.g., a distress film), participants are asked to report their emotional reactions by means of self-ratings on a mood scale with adjectives reflecting empathy. In general, a moderate association has been found between prosocial behaviors and self-report of empathy in empathy-evoking situations for adolescents and adults but not in children (Zhou, Valiente, & Eisenberg, 2003). Almost all types of self-report measures, including self-report in experimentally induced situations, may be affected by study participants' verbal ability and comprehension, particularly when used with children. For example, children may not be able to correctly label an emotion they observe, accurately report how they feel, or differentiate among emotion states(Zhou, Valiente, & Eisenberg, 2003)..

Other-Reports of Empathy-Related Responding. Researchers may also obtain information about participants' empathy-related responding from parents, teachers, or peers. There are several benefits of using other-report measures. First, other-reports can be used to obtain data on children too young to provide accurate self-reports. Second, other-reports are less likely than self-reports to be biased by social desirability. Third, it is possible to use multiple reporters to obtain information about participants' empathy-

related responding in a variety of settings, which is likely to provide more reliable data than that obtained from a single reporter (Zhou, Valiente, & Eisenberg, 2003).

Facial, Gestural, and Vocal Indices of Empathy. Participants' facial, gestural, and vocal reactions to experimentally induced empathy-evoking stimulus (watching videotapes of others in need or distress or responding to someone in distress) can also be used as markers of empathy-related reactions. Alternatively, other-reports of emotional reactions to naturally occurring instances can also be used as markers of empathy. A variety of emotions can be coded from the facial, gestural, and vocal responses to empathy-inducing stimulus. Limitations of this method include the fact that facial expressions are dependent on participants' emotional expressivity which can be influenced by several factors, social desirability being among them. Furthermore, there has been no consistent correlations found between prosocial behavior and facial, gestural, and vocal reactions (Zhou, Valiente, & Eisenberg, 2003).

Physiological Measures of Empathy-Related Responses. Researchers increasingly have used physiological indexes, especially heart rate and skin conductance, as markers of empathy-related responses. These measures have been validated by examining their occurrence in response to different types of evocative stimuli (sympathy- or distress-inducing) and in regard to their ability to predict prosocial behavior. Although these measures have distinct advantages, they also have some disadvantages in regard to ease of use and interpretation. Overall, there is also variance in individual physiological responses to empathy inducing situations (Zhou, Valiente, & Eisenberg, 2003).

Reading and Empathy

Theory of Mind. By the time most children are 4 years old, they have begun to develop an understanding of the mental states of others. This is known as a theory-of-mind (Astington, Harris, & Olson, 1988). This ability is important for social functioning, as it helps children to coordinate relationships with others (Watson, Linkie Nixon, Wilson, & Capage, 1999).

The content of stories appears to be an appropriate means of promoting the acquisition of theory-of-mind and perhaps foster the development of this capacity (Cassidy et al., 1998). Cassidy et al. found that of the books read to preschoolers by a group of parents, over 75% contained some language related to internal states, and a third dealt directly with the concept of false belief, the understanding that an individual's belief or representation about the world may contrast with reality (a key component of theory-of-mind). In an in-depth content analysis of 90 books for 3–4 and 5–6 year-olds, Dyer, Shatz, and Wellman (2000) found that the incidence of mental-state references was as frequent as every three sentences on average. Children's stories are social in nature, centering on interactions between individuals who often have competing goals and frequently describe situations in which characters hold diverging beliefs (Peskin & Astington, 2004). Empirical research related to this idea, however, has not been extensive and has yielded mixed results. In one study, children exposed to stories embedded with mental-state terms were more likely to spontaneously produce such words, but they exhibited no greater understanding of their meaning (Peskin & Astington, 2004). Another study reported that parent-child book reading is correlated with theory-of-mind, but this investigation is reported to have some notable limitations, including reliance on self-

reported reading habits, a single theory-of-mind measure, and lack of control for important mediators such as the child's age, gender, and parental income (Adrian, Clemente, Villanueva, & Rieffe, 2005). Although Astington et al. has previously argued that the acquisition of theory-of-mind may aid story comprehension (particularly stories that involve mental states), it remains unclear whether exposure to storybooks aids the development of theory-of-mind.

Theory of Mind in Children with Autism. The importance of theory of mind in other perspective taking and empathic thought can be highlighted by the lack of theory of mind demonstrated by children diagnosed with Autism spectrum disorder. In an experimental study, researchers demonstrated this lack of theory of mind in children with Autism by using Wimmer and Perner's puppet play paradigm (Baron-Cohen, Leslie, & Frith, 1985). This paradigm is a test in which a marble is placed in different locations and subjects are asked where a puppet would think the marble is based on stories told and acted out by the examiner. The subject knows the marble is in fact in one location while the puppet would think it was in another location, based on the story told by the examiner. The autistic group in this experiment consistently answered by pointing to where the marble really was. They did not point to a 'wrong' location, but rather to the actual location of the marble. However, based on the puppets supposed "knowledge" the puppet would not know the correct location of the marble. These results strongly support the hypothesis that autistic children as a group fail to employ a theory of mind. These researchers claim this failure is due to an inability to represent mental states. As a result of this lack or theory of mind, the autistic subjects are unable to impute beliefs to others

and are thus at a grave disadvantage when having to predict the behavior of other people (Baron-Cohen et al., 1985).

Narrative Collective-Assimilation. The component predicted by Mar et al. to be most affected by reading fiction is affective empathy. Mar et al. clams that the process of identifying with a character in a story does not necessarily mean the reader feels identical emotions with the character, but rather feels emotion for the character, like warmth toward a character who accomplishes a goal (Mar et al., 2011). While feeling for a character may also involve cognitive perspective-taking, this is considered a "relatively independent component that is less 'feeling-focused' than affective empathy" (Mar et al., 2011). The narrative collective-assimilation theory offers a contrasting perspective. The narrative collective-assimilation theory is the theory that experiencing a narrative leads one to psychologically become a part of the collective described within the narrative (Gabriel & Young, 2011). In a test of this hypothesis, both implicit and explicit measures revealed that after reading a passage from either *Twilight* (Meyer, 2005) or *Harry Potter and the Sorcerer's Stone* (Rowling, 1999) participants who read about wizards psychologically became wizards, whereas those who read about vampires psychologically became vampires (Gabriel & Young, 2011). Participants' implicit identification with vampires relative to wizards was assessed using the Implicit Association Test. The participants who read Harry Potter chapters were found to respond more quickly when "me" words and "wizard" words were categorized using the same key rather than different keys, whereas those who read the Twilight chapter were found to respond more quickly when "me" words and "vampire" words were categorized using the same key rather than different keys. Furthermore, participants were administered an explicit measure of collective assimilation,

operationally defined as the Twilight/Harry Potter Narrative Collective-Assimilation Scale. Embedded among filler questions were three items designed to measure collective assimilation of Twilight vampires and three items designed to measure collective assimilation of Harry Potter wizards. The narrative collective-assimilation hypothesis was confirmed: Participants who read the Harry Potter chapters self-identified as wizards whereas participants who read the Twilight chapter self-identified as vampires. The results also suggested that narrative collective assimilation is psychologically meaningful and relates to the basic human need for connection. Specifically, the tendency to fulfill the need to belong through group affiliation moderated the extent to which narrative collective assimilation occurred, and narrative collective assimilation led to increases in life satisfaction and positive mood, two primary outcomes of belonging (Gabriel & Young, 2011).

Reading, Empathy, and Prosocial Behavior

Reading fiction may not only influence empathic feelings for others but may also influence behavior toward others. A recent study found that college age participants who generated higher levels of imagery prior to reading a story were significantly more "transported" into the story and felt significantly higher empathy for the story's characters. These participants were later more likely to demonstrate prosocial behavior in a simulated task (Johnson, D. R., Cushman, G. K., Borden, L. A., & McCune, M. S., 2013). Individuals in this "imagery-generation" condition were asked to imagine items in detail prior to reading a story. Once given the passage they were given no specialized instruction other than to read the passage as they normally would. Participants in the "imagery-generation" group were found to be over 3 times more likely to exhibit

prosocial behavior following reading a passage a than individuals in the “leisure-reading condition” which did not prompt participants to engage in imagery generation (Johnson et al, 2013). These finding are unique, because the story the participants were asked to read contained no acts of prosocial behavior that may have primed the participants to act in a prosocial manner.

There are several theories that relate to elucidating these findings. These theories emphasize the importance of imagery as an important component in influencing empathic thought and prosocial action through narrative fiction

Simulation of Social Experience Theory. The simulation of social experience theory proposes that narrative fiction allows the reader to simulate and learn about prosocial and empathic decision making while reading (Mar & Oatley, 2008). Mar and Oatley (2008) propose that mental imagery is the key mechanism through which a reader is able to project oneself into a story and engage in the simulation necessary to learn from narrative fiction. To engage in simulation, one must “see what the characters see, hear what they hear, that is, experience what they experience”. While the readers experience the events of the story along with the characters, they are learning about subtleties of interpersonal relationships, drawing inferences about plot, and becoming emotionally impacted by the story. According to Mar and Oatley (2008) simulation causes readers to engage in a type of perspective-taking. Readers imagine what the characters must be feeling, rather than how the reader would feel in the same situation. For instance, instead of feeling sadness with a character, the reader feels compassion for the character. One primary consequence of this other-focused perspective-taking is growth in an individual’s ability to feel for another (Mar & Oatley 2008). This ability to potentiate other

perspective taking, can lead to greater empathic thought, and in turn greater prosocial behavior. Other researchers have demonstrated this progression using an experimental design in which students induced to feel empathy for an interviewed drug addict recommended allocating more Student Senate funds to an agency that would help drug addicts (Batson, Chang, Orr, & Rowland, 2002; Batson, Early, & Salvarani, 1997).

Social Learning Theory. Social learning theory posits that learning is a cognitive process that takes place in a social context and can occur purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement (Bandura, 1977). According to social learning theory and the more recent general learning model, exposure to behavior via media can elicit the same behavior in viewers (Gentile et al., 2009). Specifically, the general learning model states that exposure to both violent and prosocial media induces an exposure-congruent internal state that elicits aggressive and prosocial behavior, respectively. Many fictional narratives include characters that exhibit prosocial behavior. According to social learning theory, the more an individual simulates and learns from the characters exhibiting prosocial behavior, the more likely the individual will perform prosocial behavior as a consequence (Gentile et al., 2009).

Internal States Related to Reading and Prosocial Behavior

***Elevation*.** Consistent with the general learning model, another internal state closely related to empathy, called elevation, also leads to prosocial behavior (Haidt, 2003). Elevation is the experience of "warm, pleasant, or tingling feelings" while observing someone engage in virtuous or prosocial behavior (Haidt, 2003). Studies show that watching videos or reading brief summaries of real instances of prosocial behavior

induces feelings of elevation and prosocial behavior (Freeman, Aquino, & McFerran, 2009). In a fictional context, researchers have shown that exposure to prosocial song lyrics and playing prosocial video games leads to empathic feelings and prosocial behavior (Gentile et al., 2009).

Transportation. The theory of transportation offers important insight into the experiences of the individual while reading narrative fiction (Green & Brock, 2000). Green and Brock (2000) propose that individuals who become fully immersed or transported into a story experience high levels of imagery, cognitive engagement, and emotional involvement. Holmes and Mathews (2010) have shown mental imagery is tightly linked to emotional experience. A growing literature suggests mental imagery potentiates positive and negative emotion due to its likeness to real-world perception (Holmes & Mathews, 2010). It follows that enhanced mental imagery may also increase feelings of empathy while reading a compelling story and, in turn, lead to prosocial behavior. Green and Brock (2000) posit that transportation into a story occurs when an individual is fully engaged, experiences high imagery, and is emotionally impacted by the story.

Hypotheses

Hypothesis 1. It was predicted that middle school students exposed to a passage of narrative fiction would self-report higher levels of overall empathic thinking than students exposed to a passage of expository writing.

Hypothesis 2. It was predicted that individuals in the narrative fiction group with high baseline scores on the Fantasy Scale of the IRI would have a more significant increase in overall empathic thinking compared to their baseline scores.

Hypothesis 3 It was predicted that students who reported reading more narrative fiction for pleasure over the past month would self-report higher pre-test levels of empathic thinking.

Methods

Participants

Participants were comprised of 7th and 8th grade students (Ages 12-14) in 2 language arts classes chosen at random (N=31) from a middle school in southeast Colorado Springs, CO consisting of a diverse socio-economic and racial makeup. Middle school students were chosen due to their developmental profile. By age 11 most children have passed Piaget's concrete operational stage and have moved into the formal operational stage. Students were asked to participate in person by the researcher. The researcher addressed each class individually and explained the study. Assent and consent forms were distributed in class. Teachers were asked to identify students who are not yet reading on a 5th grade reading level. No students were identified and therefore no data was excluded from the study. All participants were also identified as English proficient.

Materials, Design, and Procedure

Reading Group. Participants were randomly assigned to two groups in a between-subjects design: narrative fiction group and expository nonfiction group.

Table 1.

Demographics of Participants

Narrative (N=16)		**Expository (N=15)**	
Age	**Gender**	**Age**	**Gender**
14	Female	14	Female
14	Female	14	Male
14	Female	14	Female
14	Male	14	Male
14	Male	13	Female
14	Female	14	Female
13	Female	14	Female

14	Female	14	Male
13	Male	13	Female
14	Female	12	Female
13	Female	13	Female
13	Female	12	Female
13	Female	13	Male
13	Male	12	Male
12	Female	12	Male
13	Female	14	Female
13	Female		

Participants in the narrative fiction (N=16) group were asked to read a passage from *Shiloh* by Reynolds Naylor (439 words), a novel selected from the 5th grade Common Core reading curriculum. Participants in the expository nonfiction group (N=15) were asked to read a passage from *Stars*, by Ker Than (426 words), a science book from the 5th grade Common Core science curriculum. Each passage was comparable length. Reading groups were not even due to an odd overall N.

Interpersonal Reactivity Index. Pretest and posttest data was collected using Davis's Interpersonal Reactivity Index (see appendix A). The IRI is comprised of 28-items answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well". The measure has 4 subscales, each made up of 7 different items each. These subscales are Perspective Taking (the tendency to spontaneously adopt the psychological point of view of others) Fantasy (taps respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays), Empathic Concern (assesses "other-oriented" feelings of sympathy and concern for unfortunate others), and Personal Distress (measures "self-oriented" feelings of personal anxiety and unease when others in tense interpersonal settings).

Procedure. Pretest and posttest data were collected one week apart. Pretest data was collected using the Interpersonal Reactivity Index (IRI). All participants were also asked to fill out an additional questionnaire containing the following questions:

- How many books have you read in the past month (0-5, 5-10, 10-15, 15-20, 20 or more)
- Do you read for fun (yes/no)
- Age
- Sex

One week following pretest data collection participants in the narrative fiction group were asked to read a passage from *Shiloh* and participants in the expository nonfiction group were asked to read a passage from *Stars*. Immediately after reading the passages, students were asked to fill out the same self-report measure of empathy used in pretest data collection (Interpersonal Reactivity Index). Students who did not participate in the research study were offered an alternative assignment.

Analysis

All data was analyzed using Microsoft Excel data analysis software. The following statistical methods were utilized:

Hypothesis 1. An independent samples t-test was used to compare overall empathy scores between the two groups (narrative fiction & expository writing). A paired samples t-test was used to compare pretest and posttest IRI scores in the narrative condition. Another paired samples t-test was used to compare pretest and posttest IRI scores in the expository condition.

Hypothesis 2. A correlation was used to examine if pre-test Fantasy subscale score and post-test overall empathy score were positively related

Hypothesis 3. A correlation was used to examine if amount of narrative fiction read for pleasure predicts higher pretest levels of empathic thinking.

Results

Hypothesis 1. An independent-samples t-test was conducted to compare empathic thinking in narrative fiction and expository nonfiction conditions. The groups were not equivalent, based on pretest numbers. A significant difference was found in the posttest IRI scores for narrative fiction (M= 71.88 SD= 11.41) and posttest IRI expository nonfiction (M= 61.2, SD= 13.53) conditions; t(27)=2.37, p = 0.025. These results suggest that exposure to narrative fiction very likely has a positive effect on empathic thinking, as measured by the IRI, when compared to exposure to expository nonfiction. Specifically, these results suggest that participants were more likely to demonstrate empathic thought immediately following exposure to narrative fiction than when exposed to expository nonfiction.

Table 2.

Narrative Condition Scoring Higher than Expository Condition on Posttest IRI

	Narrative Posttest	*Expository Posttest*
Mean	71.875	61.2
Variance	130.1166667	183.1714286
Standard Deviation	11.40686928	13.53408396
Observations	16	15
Hypothesized Mean Difference	0	
df	27	
t Stat	2.366751692	
P(T<=t) one-tail	0.012686873	
t Critical one-tail	1.703288446	
P(T<=t) two-tail	0.025373746	
t Critical two-tail	2.051830516	

A paired-sample t-test was also conducted to compare pretest and posttest scores within the narrative fiction condition. A non-significant difference was found in pretest narrative fiction IRI scores (M= 70.38 SD= 11.99) and posttest narrative fiction IRI scores (M=

71.88, SD= 11.41); t(15)=0.79, p = 0.44. These results indicate that there was an overall increase in empathic thinking following exposure to narrative fiction when compared with pretest scores. However, because the difference in mean scores did not reach statistical significance, it cannot be ruled out that this difference is not due to chance.

Table 3.

Pretest/Posttest Differences in Narrative Condition

	Narrative Posttest	*Narrative Pretest*
Mean	71.875	70.375
Variance	130.1166667	143.9833333
Standard Deviation	11.40686928	11.99930554
Observations	16	16
Pearson Correlation	0.790383349	
Hypothesized Mean Difference	0	
df	15	
t Stat	0.78965599	
P(T<=t) one-tail	0.221016628	
t Critical one-tail	1.753050356	
P(T<=t) two-tail	0.442033257	
t Critical two-tail	2.131449546	

A paired-sample t-test was also conducted to compare pretest and posttest scores within the expository nonfiction condition. A non-significant difference was found in pretest expository nonfiction IRI scores (M= 65.07 SD= 13.05) and posttest expository nonfiction IRI scores (M= 61.2, SD= 13.53); t(14)=1.99, p = 0.07. These results indicate that there was on overall decrease in empathic thinking following exposure to expository nonfiction when compared with pretest scores. However, because the difference in mean scores did not reach statistical significance, it cannot be ruled out that this difference is not due to chance.

Table 4.

Pretest/Posttest Differences in Expository Condition

	Expository Pretest	*Expository Posttest*
Mean	65.06666667	61.2
Variance	170.352381	183.1714286
Standard Deviation	13.05191101	13.53408396
Observations	15	15
Pearson Correlation	0.839776407	
Hypothesized Mean Difference	0	
df	14	
t Stat	1.986381246	
P(T<=t) one-tail	0.033463662	
t Critical one-tail	1.761310136	
P(T<=t) two-tail	0.066927323	
t Critical two-tail	2.144786688	

Hypothesis 2. Pre-test Fantasy subscale score and overall post-test empathy were found to be significantly correlated, $r = 0.42$, $p < .05$. These results suggest that those with higher levels of pretest fantasy subscale scores were more likely to score highly overall on the IRI following exposure to a passage of narrative fiction.

Table 5.

Pretest Fantasy Subscale score Predicting Posttest Overall IRI Score

	Narrative Prettest FS Score	*Narrative Posttest IRI Score*
Narrative Prettest FS Score	1	
Narrative Posttest IRI Score	0.41940469	1

Hypothesis 3. Self-reported amount of narrative fiction read for pleasure in the past month and pre-test levels of empathic thinking were found to be significantly correlated, $r = 0.62$, $p < .05$. These results suggest that those who self-reported to read more books in

the past month for pleasure were more likely to score highly overall on the IRI following regardless of exposure to a passage of narrative fiction.

Table 6.

Amount of Narrative Fiction Read Predicting Pretest Overall IRI Scores

	Reading Score	*Baseline IRI Score*
Reading Score	1	
Baseline IRI Score	0.617852933	1

Discussion

With reported declines in empathy, it is imperative that we explore ways in which this decline can be mitigated. The Occam's razor paradigm posits that the simplest solution is often the best. Emphasizing the importance of narrative fiction as a means to potentiate empathic thought appears to follow this paradigm. The results of this study indicate that it is highly likely reading potentiates empathic thought following immediate proximal exposure to narrative fiction. Furthermore, the results indicate that increased reading over long periods of time and higher levels of empathic thought are linked. The results also indicate that a greater ability to engage in fantasy empathy and higher levels of empathic thought following exposure to narrative fiction are also linked. The limited sample size of the participants as well as the variance in in results should be considered. Furthermore, following data collection, it was noted that the instrument used to determine number of books read for pleasure may not have been sensitive enough to accurately measure this construct. However, even with these limitations in mind, the results of this study are noteworthy.

Reading is an integral part of every child's education and the results of this study indicate that the benefits of reading may extend beyond academic importance to include social and behavioral benefits. Research has demonstrated that the capacity for empathic thought is an essential component of prosocial behavior. Millions of dollars are spent each year in programs to build prosocial habits in the school environment. However, if an increased emphasis on literature can impact these same behaviors, it is vital that this be explored as a viable intervention for bullying and other antisocial behaviors.

Research in this area is limited and the results of this study indicate that further research is warranted. The limitations of this study include a small sample size. This is an area that further research may improve on. Furthermore, a more accurate measurement of past reading habits could yield more significant results relating to long term reading habits and empathic thought.

This is an important area of research and further research is necessary due to the implication that reading very likely effects how we relate and feel towards others. If we can better understand how we relate to others and understand the link between reading and empathic though, educators and school psychologists alike can improve how children relate to others in the formative school years through emphasizing and tailoring an existing component of school curriculum.

Appendix A

INTERPERSONAL REACTIVITY INDEX

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 at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL				DESCRIBES ME VERY WELL

1. I often imagine and daydream about things that might happen to me. (FS)

2. I often have caring, concerned feelings for people less fortunate than me. (EC)

3. I sometimes find it difficult to see things from another person's point of view. (PT) (-)

4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)

5. I really get involved with the feelings of the characters in a book. (FS)

6. In emergency situations, I feel worried and nervous. (PD)

7. I do not get very emotional when I watch a movie or play, and I don't often get completely caught up in the story. (FS) (-)

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

9. When I see someone being treated unfairly, I feel kind of protective towards them. (EC)

10. I sometimes feel helpless in very emotional situations. (PD)

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

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

13. When I see someone get hurt, I tend to remain calm. (PD) (-)

14. Other people's misfortunes do not usually bother me a great deal. (EC) (-)

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

16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)

17. Being in a stressful emotional situation scares me. (PD)

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)

19. I am usually pretty good at dealing with emergencies. (PD) (-)

20. Things that I see happen often cause me to have strong feelings. (EC)

21. I believe that there are two sides to every story and try to look at them both. (PT)

22. I would describe myself as a pretty caring person. (EC)

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

24. I tend to lose control during emergencies. (PD)

25. When I'm upset at someone, I usually try to "put myself in that person's shoes" for a while. (PT)

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. (FS)

27. When I see someone who badly needs help in an emergency, I become very emotional. (PD)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

NOTE: (-) denotes item to be scored in reverse fashion
PT = perspective-taking scale

FS = fantasy scale
EC = empathic concern scale
PD = personal distress scale

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

Except for reversed-scored items, which are scored:

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

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