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Claremont McKenna College

Walking in Their Shoes and Around Their World: Perspective-Taking in Fiction

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Abstract

Along with academically focused benefits such as vocabulary and literacy, fiction reading has social-emotional benefits. Readers of fiction can identify with characters, and be transported into the fictional world, to differing degrees. Fiction, specifically, can help foster empathy. It has been well established that lifelong fiction readers have higher levels of cognitive empathy than those who have had limited experience with fiction. This relationship between transportation and empathy is well-researched, but the effect of identification on transportation and empathy is less well-defined. The relationship between identification with characters and transportation has mixed findings, and has been studied mostly with films. The current study focuses on the relationship between identification and cognitive empathy, with transportation as a possible mediator. Participants (n=148, age 18-60) read the story *The Necklace* by Guy de Maupassant, with explicit directions: either to read as if they were the main character (high identification), or read objectively (low identification). Participants then rated their identification (as a manipulation check) and transportation using self-report scales. Cognitive empathy was measured by the reading the Mind in the Eyes test, where participants saw a picture of eyes, and selected which emotion was being expressed. Results showed no difference between groups, indicating a failed manipulation. Further tests showed no significant correlation between condition and transportation; or condition and cognitive empathy; or transportation in cognitive empathy. There was also no significant regression equation. Future research is needed to understand the underlying mechanisms, and more potential benefits of fiction.

Keywords: cognitive empathy, fiction, transportation, identification

Walking in Their Shoes and Around Their World: Perspective-Taking in Fiction

In a 2015 interview, President Barack Obama discussed the role of fiction in shaping good citizens. He said "[i]t has to do with empathy... And the notion that it's possible to connect with some[one] else even though they're very different from you" (Ha, 2015). Reading has always had its place in schools, where this kind of empathy can be fostered. Although advocates have spoken up and defended the importance of reading, fiction in schools is in trouble (Mathews, 2012). Public education is beginning to sacrifice fiction for nonfiction as a method to catch up in test scores. This has sparked debate among educators and policy makers (Mathews, 2012).

As the United States has fallen behind in test scores, interventions such as the Common Core curriculum have been implemented to catch the nation up. With the emphasis on testing, there has been a backlash from the general public: the majority of Americans believe schools overemphasize test scores (Layton, 2015). With the fear of American children falling behind in math, reading, and science, the push to increase test scores comes at a price. Perhaps more fearful than lower test scores is the lack of benefits from fiction that might go unnoticed in the short term. Public schools are emphasizing testable skills and deemphasizing extremely useful soft skills. Schools are promoting nonfiction works and demoting fiction. While reading fiction helps develop important skills like vocabulary, literacy, and fluency, its other benefits are often overlooked (Layton, 2015). While non-fiction develops background knowledge and vocabulary, fiction is a source for crucial social-emotional skills and character development (Perry, 2016).

In a speech to Morehouse College in 1948, Dr. Martin Luther King, Jr. said “We must remember that intelligence is not enough. Intelligence plus character—that is the goal of true education” (Strauss, 2014). The goal of education has not changed in sixty years, and neither has the role of fiction in this goal. Reading fiction is a safe way for children to experience emotions, new worlds and experiences, and discover emotions without risk. Living vicariously through a character allows students to be vulnerable and test their own convictions, reactions, and opinions. Among other benefits, reading fiction promotes empathy, an irreplaceable skill for understanding others’ perspectives and resolving conflicts. As fiction readers develop empathy, there are important constructs involved, such as being immersed into narrative worlds and identifying with characters in the stories. By understanding the mechanisms behind this relationship, educators and parents can use their knowledge to encourage children to practice empathy. Learning exactly what happens as a reader gets involved in a story can guide the way they engage with the text. By framing their reading of a text in a specific way, a reader might be able to optimize empathy development.

Fiction and Empathy

Empathy has multiple components, and can be separated into two distinct constructs: affective (emotional) empathy and cognitive empathy. While affective empathy focuses more on feeling another person’s emotions, cognitive empathy is the ability to take another’s perspective (Djikic, Oatley & Moldoveanu, 2013). Studies have shown trends that fiction is correlated with cognitive empathy, and not with affective empathy, although the findings are somewhat mixed.

Although related, the two types of empathy are fundamentally different.

Affective, or emotional, empathy has three component parts: feeling another person's emotion, feeling personal distress, and having compassion (Hodges & Myers, 2007).

Affective empathy has to do with feeling emotion, and is more of an innate reaction than a skill (Hodges & Myers, 2007). On the other hand, cognitive empathy is correctly perceiving someone else's emotional state, and is more of a skill. Unlike affective empathy, cognitive empathy does not involve concern for the person. As the name suggests, it is a cognitive skill to figure out what is happening in the mind of someone else; it is the ability to understand another's perspective (Hodges & Myers, 2007). While affective empathy is associated with prosocial behavior and helping behavior, cognitive empathy is helpful for navigating social situations and disagreements. These aspects of empathy are distinct, and have different associations with fiction literature.

Both cognitive and affective empathy have been correlated with a measure of fiction reading to differing degrees. A popular test in the literature measures lifelong exposure to fiction. The Author Recognition Test (ART), the most widely used measure in this area of research, acts as a proxy for a participants' experience with fiction. The measure lists out many "classic" and "modern" authors, and asks participants to circle as many names as they recognize as authors. The test also contains distractor names to ensure participants are not just selecting every name they see. The measure has been used in many studies in association with measures of cognitive and affective empathy.

Measured by the ART, fiction has not been strongly associated with affective empathy. Djikic, Oatley, and Moldoveanu (2013) found no significant correlation between fiction reading (ART) and scores on the Interpersonal Reactivity Index (IRI)

affective empathy subscales. Another study by Koopman (2018) found differences in fiction reading and types of empathy. The ART was significantly positively correlated with the perspective-taking subscale of the IRI, and was not significantly correlated with the study's affective empathy measures (Davis' scale, affective subscales of IRI).

Studies have attempted to find a cause-and-effect relationship of fiction reading and affective empathy. Johnson (2011) had participants read a story, then complete measures of transportation, prosocial behavior, and affective empathy (Batson, Early, and Salvarni's self-report measure of affective empathy). They found that being immersed into the story increased both affective empathy and prosocial behavior. However, the story contained a protagonist who also exhibited prosocial behavior, so the effect may have been due to modeling (Johnson, 2011). Nevertheless, the correlation between fiction reading and affective empathy is shaky at best. This may be because affective empathy is not an active exercise. It is an emotional reaction instead of an exercise in reasoning. It may be emotionally exhausting, but it does not enhance or practice cognitive skills.

Cognitive empathy, on the other hand, has been more strongly associated with fiction. In Koopman's (2018) study, the ART was positively and significantly correlated with the perspective-taking subscale of the IRI. One measure in particular, the Mind in the Eyes test (MIE), has been studied many times in relation to fiction (Baron-Cohen, 2001). In the test, participants see a cropped photo of a pair of eyes with four choices of emotion words to describe the image. Participants select the emotion that best identifies what the person is feeling. The ART has been associated with higher scores on the MIE, showing that readers of fiction have higher perspective-taking ability (Mar, Oatley, Hirsh, de la Paz & Peterson, 2006; Djikic, Oatley & Moldoveanu, 2013; Kidd & Costano, 2013;

Kidd & Costano, 2017; Koopman, 2018). This relationship may be because fictional characters provide safe opportunities for readers to try to understand a new perspective. There is no social pressure to a reader who does not personally engage with the character, and does not have to read the character's mind immediately or react in person. The freedom to try to understand the character's perspective allows the reader to practice and improve their perspective-taking ability.

There is strong evidence for the relationship of life-long reading and the MIE measure of cognitive empathy, but the research is correlational. It may be that perspective-taking ability leads people to an interest in reading, or that fiction increases perspective-taking ability. Authors have attempted to analyze the directionality of this cause-and-effect relationship with some success.

In a pre-post test, between-subjects study by Kidd and Costano (2013), researchers tested whether types of reading cause changes in cognitive empathy scores. Researchers tested three groups: literary fiction, popular fiction, and nonfiction. In the experiments, participants read a short section of a book in one of the three categories. In one experiment, they compared literary fiction to popular fiction; in another experiment, they compared literary fiction to nonfiction. In each experiment, participants completed the MIE before and after reading the story to test changes in cognitive empathy. Researchers found that participants who read literary fiction showed the highest levels of cognitive empathy: those who read literary fiction performed higher on the MIE than both the popular fiction and nonfiction groups. This study suggests two findings: that reading literary fiction can causally increase perspective-taking ability; and that literary fiction, and not popular fiction or nonfiction, causes this increase in ability.

These promising results sparked attention in the field, leading to replication studies. Pino and Mazza (2016) performed a replication plus extension on the study, making the same comparisons (literary versus nonfiction versus popular — in this case, science — fiction). Their study included more time and resources than Kidd and Costano (2013). In Pino and Mazza's (2016) study, participants read a full book, and the pre- and post- tests were two weeks apart. The authors also extended the experiment by adding more empathy measures: they had 12 measures, including the perspective-taking part of the IRI and a revised MIE. Kidd and Costano's (2013) work replicated: participants who read literary fiction showed increases in cognitive empathy. The replication seems to validate Kidd and Costano's (2013) findings (although important methodological differences will be discussed later).

However, when Samur, Tops, and Koole (2018) attempted to replicate the experiments by Kidd and Costano (2013), the study failed to replicate. Samur, Tops, and Koole's (2018) study was a direct replication, as opposed to Pino and Mazza's (2015) replication plus extension. Nevertheless, the failed replication shows that the way Kidd and Costano tested the cause-and-effect relationship might not be as solid as previously thought. Despite the failed replication, the work by Kidd and Costano inspired a movement in the field to examine the effects of fiction on empathy. The replication failure could be due to many causes, and despite new data, the logic and theory behind the experiments remain.

The current study uses the ideas of Kidd and Costano (2013) and Pino and Mazza (2016) to examine the relationship between literary fiction and cognitive empathy, acknowledging the failed replication. This study digs deeper into the mechanisms behind

the relationship between literary fiction and cognitive empathy. Specifically, this experiment looks at the constructs of transportation and identification to explain how fiction may increase cognitive empathy.

Transportation and Empathy

There are several cognitive processes that occur as one engages with a piece of fiction. Insights into these mechanisms can explain more about the more complicated nature of the effect of literary fiction on cognitive empathy. One of these constructs is transportation: “an integrative melding of attention, imagery, and feelings,” whereby the reader goes on a “journey” into the fictional world (Green & Brock, 2000). Green and Brock’s (2000) validated transportation scale includes items such as “While I was reading the narrative, I could easily picture the events in it taking place.” Participants who score highly on this measure indicate high absorption in the story world. For example, a reader who is highly transported in *Harry Potter* is absorbed in Hogwarts, and may be less attentive to their immediate surroundings or the passage of time as they read.

Transportation is an important part of engaging in a work of fiction. Research has shown that fiction readers develop cognitive empathy only to the extent that they are transported into the story (Argo, Zhu & Dahl, 2007; Bal & Veltkamp, 2013). One study showed that participants displayed longer term differences in cognitive empathy only if they were transported into the story (Bal & Veltkamp, 2013). Those who were highly transported while reading fiction showed an increase in empathy a week later, while participants who reported low transportation showed a decrease in empathy a week later (Bal & Veltkamp, 2013). In the study, levels of transportation predicted levels of cognitive empathy over

time. These results suggest that transportation moderates the effect of fiction on cognitive empathy.

Another study looked directly at perspective taking — specifically whether participants would adopt the opinion promoted in a story (Cohen, Tal-Or & Mazor-Tregerman, 2015). Participants read a controversial story about the Israeli-Palestinian conflict that included characters promoting biased messages. One might think reading an opinion might strengthen one’s own preconceived notions, but this effect was not observed. Participants who were highly transported in the story were more likely to report tempered views (Cohen, Tal-Or & Mazor-Tregerman, 2015). This study demonstrates a possible broader ability to take another’s perspective: transportation may increase perspective-taking ability overall more globally, changing a reader’s whole mindset instead of just taking one person’s perspective. Instead of merely adopting whatever the most recent opinion was, they might have a higher ability to weigh both sides of an argument and consider all sides of an issue. They might have a higher capacity to take the perspective of all sides, more than just the one side they just heard.

Identification and transportation

Another cognitive process that a reader engages in is identification. Identification is defined as: “the process whereby viewers vicariously take the place of a [fictional] character and react to his or her experiences as if they were happening to the [reader]” (Sestir & Green, 2009). The self-report identification scale contains items such as “When good things happened to (character), I felt happy” (Sestir & Green, 2009). As shown in multiple studies, identification and transportation are moderately correlated but distinct constructs (Sestir & Green, 2009; Tal-Or & Cohen, 2010; Thompson et al., 2018).

By definition, transportation and identification are related: the former is absorption in a *world*, the latter is absorption into a *character*. Unsurprisingly these constructs are correlated (Thompson et al., 2018). In a study that looked at individual differences that may affect transportation, authors tested mood and participant characteristics, as well as identification (Thompson et al., 2018). Identification was statistically correlated and regressed on transportation, finding significant r values and beta values: identification with the two main characters yielded β values of .26 and .15, and r values of .38 and .30, respectively (Thompson et al., 2018). Using scales similar to the ones adopted in this study (Sestir & Green, 2009; Green & Brock, 2000), Thompson et al. (2018) found that identification and transportation are significantly and moderately correlated.

Because the constructs are similar, it is important to acknowledge that they are nevertheless distinct. Both identification and transportation involve absorption into a story, but transportation is more general (Cohen, Tal-Or & Mazor-Tregerman, 2015). Identification involves living the story as a character, while transportation is being absorbed in the narrative world. Research has statistically shown that transportation and identification are unique constructs (Tal-Or & Cohen, 2010; Sestir & Green, 2009). Tal-Or and Cohen (2010) found that different aspects of plot affected film watchers' identification and transportation differently. The valence (positive versus negative) of the information given about the character affected identification only, whereas learning about a character's past affected transportation only (Tal-Or & Cohen, 2010). Their findings demonstrate the constructs have discriminant validity.

Another study tested the overlap between the two concepts and found them to be distinct. Sestir and Green (2009), whose identification scale is adopted in this paper, found that the two constructs were significantly different from each other. Their study examined the effects of both transportation and identification on self-concept while participants watched a film clip. They manipulated identification and transportation with directions for how to watch the film so that there were four groups: high identification, low identification, high transportation, and low transportation. None of the groups significantly overlapped in transportation or identification (Sestir & Green, 2009). Thus, this operationalization of the two constructs demonstrates that these constructs are distinct.

Identification and transportation have been shown to be important processes during fiction reading. Researchers have studied these constructs separately, but this paper attempts to look at their direct relationship (Cohen, Tal-Or, & Mazor-Tregerman, 2015; Sestir & Green, 2010; Tal-Or & Cohen, 2010). Often these constructs are viewed as merely similar processes that co-occur during the consumption of fiction. Instead of viewing these constructs as two causes to an effect, this paper presents them as parts of a larger model.

Of course, this model involves cognitive empathy — so what is the research on identification and empathy? Despite the vast amount of literature linking transportation and cognitive empathy, there is surprisingly little research connecting identification and cognitive empathy. A study looking at identification in films found that trait cognitive empathy predicted identification with a group in a film (Chory-Assad & Chicchirillo, 2005). However, this study did not study how identification affects cognitive empathy.

The literature is missing the relationship of identification predicting cognitive empathy, and this study will add some information to that lacking area.

Identification affects cognitive empathy with transportation as a mediator

The roles of identification and transportation can be nested within the relationship between literary fiction and cognitive empathy. I predict that identification with characters happens before transportation because readers need a specific vehicle through which they experience the world (van Laer et al., 2014). Furthermore, identification with a single character will lead to transportation (the generalized absorption) which will lead to an increase in overall levels of cognitive empathy. Identification can lead to improved levels of cognitive empathy, and the mechanism that drives this relationship is transportation.

Identification alone might utilize the ability to take one person's perspective, (specifically, the main character's perspective). Identification may fuse the reader's own identity with the identity of the character, but it does not increase the reader's overall cognitive empathy. Being absorbed into the life of one character is one-dimensional and does not affect overall perspective-taking ability. However, once identification generalizes to transportation, when the reader is enveloped in the different world (through the lens of one character), the reader is practicing much more cognitive empathy: not only are they taking one other person's perspective, they are taking the perspective of other situations, characters, and dilemmas in an entire new society. The new, unfamiliar world expects more from the reader's cognitive abilities. It requires more work to be transported than to identify. Living in the world requires greater cognitive capacity, greater ability to not only take the initial main character's perspective, but to show

perspective-taking ability for much more than one character. The process is like exercising a muscle: whereas identification uses the cognitive empathy “muscle,” transportation pushes the muscle, exercising it so much that it strengthens the ability. Identification is like lifting light weights that use muscles but do not change their strength, and transportation is like lifting heavy weights that change the composition of the muscle, making it stronger.

The reader engages in this mental effort because they are motivated and interested enough in the story to put in the more difficult cognitive work; the world is interesting enough to put in the effort, so it is worth it to use cognitive energy. For example, a reader may begin JK Rowling’s *Harry Potter and the Sorcerer’s Stone*. Identification may make a reader absorbed in the character of Harry Potter; but transportation in the narrative world of Hogwarts requires the reader to take the perspective of each character and situation in the book. The reader is motivated to learn more about the world and be transported into it. The extent of transportation is associated with how much the reader exercises their cognitive empathy abilities, which consequently changes those abilities.

Identification alone requires cognitive empathy, but does not *change* one’s cognitive empathy ability. Transportation, which can be brought about through identification, *does change* one’s cognitive empathy through the more challenging and more taxing mental capacity. Identifying with one character requires the reader to take their perspective, and might not be cognitively taxing. However, once the reader is transported into a new world, the reader must stretch their ability. It is no longer just one character with a different experience than the reader. Now it is an entire world where institutions, culture, and global perspective are all different.

Hypotheses

In a review article by Tal-Or and Cohen (2016), the authors propose an exploration into the relationship between identification and transportation. They suggest that identification cannot happen without transportation (Tal-Or & Cohen, 2016). This paper brings their theory to fruition, and tests the integral role of transportation in identification. The model presented in this paper squares with Tal-Or and Cohen's (2016) paper, suggesting that identification leads to transportation. I hypothesize that identification leads to cognitive empathy, only through transportation. Without transportation, identification will have no effect on cognitive empathy. My hypotheses and their reasoning are as follows:

1. Transportation affects cognitive empathy such that an increase in transportation leads to an increase in cognitive empathy, as measured by the MIE.
2. Identification and transportation are closely tied together.
3. Identification leads to transportation, thereby leading to cognitive empathy.

Identification leads to transportation because identifying with a character places the reader in that narrative world. For stories in which a strong character is presented early in the plot, identification occurs first, which leads to transportation. The reader is first exposed to the character, and uses that character as a lens to experience the narrative world. Without that character, their transportation is delayed (but still occurs). Identification is a convenient way to be transported into the fictional world, the character acting as a model for how to experience the world.

The current study aims to test this model by having participants read a short story and take measures of transportation, identification, and cognitive empathy (MIE). I

hypothesize that transportation will mediate the effect of identification on cognitive empathy. I hypothesize that transportation will be a mediator because of the nature of the constructs at hand. Transportation, not identification, will influence cognitive empathy because transportation is a more general, taxing cognitive process.

Method

Participants

Participants received course credit for participating in the study, or volunteered to participate with no incentive. The sample consisted of 148 participants, mostly students at colleges in Southern California, with a few participants who were friends or family of the researcher (95 women, 52 men, 1 nonbinary). The mean age was 20.6 (range from 18-60).

Design

The experiment had a one-way, between subjects design with two levels. The independent variable was identification (high, low), and the outcome variable was empathy (with transportation as a mediator). There were 75 participants in the high identification condition, and 73 participants in the low identification condition.

Procedure

Some participants were recruited through lower-level psychology courses, and received course credit for participating in the study. The remaining participants were recruited via social media and personal messaging with no incentive. The study was sent as a link, with instructions to take it in a quiet place, free of distractions. Participants were told the study would take around twenty minutes.

Once participants clicked on the link, it took them to a Qualtrics survey.

Participants checked a box indicating their informed consent to take the study. On the next page, participants answer demographic information (age, time of day, race, gender).

Then, they read instructions for reading the story *The Necklace* by Guy de Maupassant. Participants read different directions according to their condition that was randomly assigned to them using the Qualtrics randomizer tool. In the low identification condition, participants were told to “read the story objectively, focusing on the facts, as if you were an independent observer of the narrative.” Participants in the high identification condition were told to “read the story as if you were the main character in the narrative.” The next page of the survey began the story (about 2850 words). The story was on three pages, allowing participants to scroll down the page to see more of the story. After reading the story, participants responded to a survey consisting of an attention check, a manipulation check, and a scale of transportation. Items in the survey were randomized.

Finally, participants completed the measure of cognitive empathy, the reading the Mind in the Eyes (MIE) test. Participants read directions for the test, and saw one practice example (see Figure 2). Then, they went through 36 images, completing the full MIE. At the end of the survey, participants were debriefed about the purpose of the study, and were thanked for their participation.

Materials

Fictional story. Participants read the short story *The Necklace* by Guy de Maupassant (2850 words). The story describes a covetous woman who cannot afford jewelry for a party, but instead borrows a necklace from her friend. She loses the necklace, and she and her husband buy a replacement. The couple take out loans, work

extra jobs, and spend 10 years paying the necklace off — only to discover at the end that the original, borrowed necklace was fake. The narrative evokes feelings of grief, loss, and sympathy for the characters. The story also introduces the main character, Mathilde, at the very beginning, so participants could engage in identification immediately.

Transportation. The transportation scale was taken from Green and Brock (2000). It consists of 12 questions (ex. “While I was reading the narrative, I could easily picture the events in it taking place”). Three items were reverse coded (ex. “While I was reading the narrative, activity going on in the room around me was on my mind.”) Participants responded on a scale from 1 (strongly disagree) to 7 (strongly agree). The scale demonstrated acceptable reliability (Cronbach’s $\alpha = 0.70$). Scores on each item were averaged to find each participant’s scale score.

Empathy. The Mind in the Eyes test measured cognitive empathy (Baron-Cohen, 2001). Participants see thirty-six images of faces, cropped to only see the eyes, with four words next to it. The participant must choose the word that best describes the emotion displayed. Scores are summed (out of 36 possible correct answers) for each participant.

Manipulation Check. An identification scale (from Green & Brock, 2000) served as a manipulation check (Cronbach’s $\alpha = 0.82$ showed good scale reliability). There were three questions that measured how much participants identified with the main character of the story (ex. “When good things happened to Mathilde, I felt happy”). Scores were averaged to find each participant’s scale score.

Attention Check. Participants were asked two questions about the plot of the story as an attention check. Participants who answered those questions incorrectly were excluded.

Results

Descriptive

Of the 286 participants who started the study, 169 completed it entirely. Five participants failed the attention check questions, and 16 participants experienced technical difficulty during the survey and were discounted. The total number of participants for analysis were $n=148$. Of the racial breakdown of participants, there were 93 White/non-Hispanic, 1 Black/African-American, 10 Hispanic/Latinx, 28 Asian/Pacific Islander, 13 Biracial/Multiracial, 1 Middle Eastern, and 2 declined to answer. Of the total participants, 73 were in the objective/low identification condition, and 75 were in the subjective/high identification condition. Scores on the Reading the Mind in the Eyes test (MIE) ranged from 16-34 correct answers out of a possible 36 ($M = 27.1$). Transportation scale scores ranged from 2.17 – 6.00 on a 7-point scale ($M = 4.20$). Identification scale scores ranged from 1.00 – 7.00 on a 7-point scale ($M = 3.90$).

Scale Reliability

To test the internal reliability of the transportation and identification scales, a Cronbach's alpha was found for each measure. The reliability was acceptable for the transportation scale ($\alpha = .701$), and good for the identification scale ($\alpha = .820$).

Manipulation Check

Independent samples t tests were run to determine if the manipulation was successful in creating differences in groups. An independent samples t test found no effect of condition on identification scores. There was no significant difference in the identification scores for high identification ($M=3.95$, $SD = 1.25$) and low identification ($M=3.85$, $SD=1.35$) conditions; $t(146) = -.456$, $p = .204$. This test shows that the

manipulation was unsuccessful, and there was no difference in the reported identification with characters despite different directions.

Additionally, there was no effect of condition on transportation scores for high identification ($M=4.28$, $SD = .80$) and low identification ($M=4.11$, $SD=.70$) conditions; $t(146) = -1.346$, $p = .432$. Condition did not affect levels of transportation. A third independent samples t test found that the manipulation did not affect scores on the MIE. There was no significant difference in the MIE scores for high identification ($M=26.85$, $SD = 3.57$) and low identification ($M=27.34$, $SD=3.00$) conditions; $t(146)=.903$, $p = .368$. The manipulation did not affect scores on the measure of cognitive empathy. Based on these t tests, the condition manipulation was unsuccessful, and did not create differences in identification, transportation, or cognitive empathy.

Correlations

Identification and transportation scores were significantly and moderately correlated ($r = .51$, $p < .001$). Transportation and MIE scores were not significantly correlated ($r = -.03$, $p = .72$). Identification and MIE scores also were not significantly correlated ($r = .03$, $p = .73$). Condition was not significantly correlated with MIE scores ($r = -.07$, $p = .37$) or transportation ($r = .11$, $p = .18$).

Regressions

A linear regression was done to predict MIE scores based on condition (high or low identification). Condition did not significantly predict MIE scores, $\beta = -.07$, $t(147) = -.90$, $p = .37$. Condition did not explain a significant proportion of variance in MIE scores ($R^2 = .01$, $F(1,146) = .82$, $p = .37$). The identification manipulation did not affect scores of cognitive empathy. Furthermore, a linear regression was run to predict transportation

scores based on condition. The regression was not significant ($\beta = .11$, $t(147) = 1.35$, $p = .18$), and condition did not explain a significant proportion of variance in transportation scores ($R^2 = .01$, $F(1,146)=1.81$, $p = .18$). Condition did not significantly predict transportation scores.

Lastly, a multiple regression was run to test the amount of variance of MIE scores explained by condition and transportation (see Figure 1). The regression was not significant for condition ($\beta = -.47$, $t(147) = -.87$, $p = .39$), or transportation ($\beta = -.10$, $t(147) = -.27$, $p = .79$). Neither condition nor transportation significantly explained variance in MIE scores ($R^2 = .01$, $F(2,145) = .44$, $p = .65$).

The bivariate regressions show that condition did not predict transportation or cognitive empathy. When regressed on MIE scores, condition and transportation did not predict cognitive empathy.

Mediational Analyses

Mediational tests were conducted to see if transportation mediated the effect of condition on cognitive empathy. A Sobel test was run to test the significance of the mediational role of transportation in the effect of identification on cognitive empathy. The Sobel test was not significant ($t = -.35$, $p = .73$). Transportation did not mediate the relationship between condition and MIE scores.

Discussion

Summary

This study meant to test how fiction develops cognitive empathy, through identification and transportation. The model proposed that identification increased

cognitive empathy, with transportation mediating the relationship. The results showed, with regression and mediational model techniques, that this model was not significant.

The two groups did not differ in levels of identification, deeming the manipulation unsuccessful. The directions to read either objectively or subjectively did not affect identification. Therefore, the high identification manipulation did not reflect higher levels of identification, and the low identification manipulation did not reflect lower levels of identification. Because the groups did not show any difference in identification, no claims can be made about the effects of identification according to condition. The failed manipulation consequently leaves questions to be answered in future research.

Unsurprisingly, condition did not predict transportation. Because the groups were not significantly different, the question of whether identification affects transportation remains unanswered. Condition also did not predict cognitive empathy, possibly due to the failed manipulation. It is impossible to say whether identification affects cognitive empathy since the manipulation failed. However, correlations show that identification and transportation were significantly correlated. This relationship fits in logically with past literature, replicating the finding that identification and transportation are related concepts (Thompson et al., 2018).

Methodological Explanations

It is difficult to say whether identification predicts transportation or cognitive empathy since the manipulation failed. The manipulation was successful in Sestir and Green's (2009) study, but unsuccessful in the current study. One difference could be that Sestir and Green (2009) used the instructions for participants viewing a film instead of

reading a story. The medium of storytelling could change how the participants engage with the piece of fiction. Something about watching film could change the way viewers interact with the story. Reading a story might be inherently more subjective (even for participants who were told to read objectively) since participants need to make up their own imagery, whereas film already produces images for the viewer. Even though participants in the low identification condition were told to read objectively, the instructions might have had unintended consequences. Instructing participants to “focus on the facts” entails paying close attention to character descriptions. This may unintentionally encourage participants to visualize characters to ensure they remember their physical description. Vivid mental pictures could influence how much participants identify with the characters. The mentalizing could also affect their self-reported transportation, especially since one of the items on the transportation scale was “I had a vivid mental image of Mathilde (the main character).” In that way, the identification manipulation might have crossed over from identification to transportation. The manipulation, therefore, would not have showed divergent validity since the instructions affected both identification and transportation. A different manipulation that creates significantly different groups would be needed for future research on identification. The manipulation would have to be stronger and more salient to participants to make sure they thoroughly read and follow instructions. With a successful manipulation, identification may predict transportation and/or cognitive empathy.

Besides the manipulation failure, the method may have still contributed to the null results. First, the sample size and population might have affected results. The sample size might have been too small to find an effect. A preliminary power analysis showed that a

sample size of 404 participants (202 per group) was needed to see the effect — which is likely to be small if it exists. The final sample size was 148 participants, which was considerably less than 404. Furthermore, the age of the population might have been too high to see an effect. The effect of one story on overall cognitive empathy might decrease over time. For people who have read many books, the effect of identification and transportation on cognitive empathy might be minimal. However, looking at a population of school-aged children might show larger differences. Because a younger population has less experience reading fiction, they might show more considerable differences after reading one story. Future research may use a developmental psychology lens to study the effects of identification and transportation on cognitive empathy for participants of varying ages.

Another factor that could have affected the results was the freedom that participants were given to complete the study in their own time. A conscious choice was made to prioritize a greater sample size over a more controlled environment. Because the setting was not monitored, there was no control in the context in which participants took the study. Participants might have been distracted during the study, had their attention divided among multiple activities, or taken a break midway through the study. These factors all could have affected identification, transportation, and cognitive empathy. Since attention is such a large factor in identification and transportation, future research may want to investigate the role of attention within the proposed model.

Furthermore, the choice of the story itself may have added unintended consequences. After taking the study, some participants mentioned their dislike for the main character, Mathilde. There may be an effect of likeability of characters that

influences identification. Cohen (2001) suggested that liking a character is part of identification, and incorporated likeability in their identification scale. Similarly, in the identification scale used in this paper, there were two items that might have been affected by likeability: “When reading the story, I wanted Mathilde to succeed in achieving her goals” and “When good things happened to Mathilde, I felt happy”. If a reader dislikes the character, they may not want her to succeed. Choosing a story with a more likeable main character might have more successfully affected identification. Additionally, the fact that participants did not choose the story might have had implications for identification. People deliberately choose the stories they want to read, and the main character likely affects their choice. Participants who have a choice in selecting a story might consider the main character in their decision-making process. Therefore, they might have an easier time identifying with the main character, or being transported into the fictional world, when they choose the stories themselves. Future studies may want to give participants the option of choosing among a few stories to increase ecological validity.

One surprising finding was that this study found no significant correlation between transportation and cognitive empathy even though past literature has established this relationship (Argo, Zhu & Dahl, 2007; Bal & Veltkamp, 2013; Cohen, Tal-Or & Mazor-Tregerman, 2015). This could be because of the length of the story *The Necklace*. It could have been too short, not allowing participants to immerse themselves enough to change their cognitive abilities. It took participants around 10-15 minutes to read the story. They might need more time to visualize and learn about the world to engage their cognitive capacities enough to change them. For example, a full book would allow a

reader to see more of the characters' setting, location, social and political context, etc., rather than merely a few details. The longer engagement with the characters and narrative world might exercise their cognitive empathy more, thus changing their perspective-taking ability through practice. This also might have explained why Pino and Mazza's (2016) study replicated when Samur, Tops, and Koole (2018) did not. Pino and Mazza (2016) used a longer story, which gave participants more time to be more absorbed in the characters and fictional world. Transportation in such a brief amount of time might not have had a strong enough effect on cognitive abilities to change them.

It is also possible that transportation from one story does not have lasting effects on cognitive empathy. Once a reader is immersed in the world, they might stop reading and retreat back to reality without any cognitive changes. It could be similar to extreme code-switching, where readers have the ability to alternate from one world to another. This may explain why Samur, Tops, and Koole (2018) did not replicate the study by Kidd and Costano (2013). Both studies involved participants reading an excerpt from a longer story just once. Participants might have needed more material and time to increase levels of cognitive empathy. It could also explain why Pino and Mazza's (2015) replication plus extension did replicate. They gave their participants more material and more time, with more opportunity to develop their cognitive abilities. Taken together with research on the ART, it makes sense that more than a few pages is needed to develop cognitive empathy. The correlation between the ART and the MIE suggests that many stories, not just one story, increases perspective-taking ability. There may be a point in a reader's life where cognitive empathy increases after a few books, and increases more with a few more books. The rate may be slower, with more cognitive effort and practice required for

reading to increase cognitive empathy. The current study only had a few pages of text, which might be insignificant in the process of using fiction to increase transportation and develop empathy.

Another reason one story may not affect cognitive empathy could be due to the sleeper effect. There might not be enough time between reading the story and testing cognitive empathy to show a difference in skill. This sleeper effect theory was proposed by Bal and Veltkamp (2013). They found that, after reading a fiction book, participants who were highly transported exhibited an increase of cognitive empathy a week later (Bal & Veltkamp, 2013). They suggested that as stories sink in and participants remember them more, empathy presents itself later (Bal & Veltkamp, 2013). Like any other experience a person has, a fictional story might take time to soak in before it changes someone's thought process.

There also could be missing variables. Perhaps the process of reading fiction, identifying with characters, increasing transportation, and developing cognitive empathy is more effective for those who read less fiction overall. Controlling for lifelong reading using the ART might explain some variation in cognitive empathy scores. One additional story might not affect readers with high fiction experience; but one story may significantly increase cognitive empathy scores for those with low fiction experience. (This, of course, assumes that one story can affect overall cognitive empathy.) Future research can add the ART measure to the current suggested model.

Theoretical Explanations

The null findings might have been due to the theory itself. The theory that identification leads to transportation, which predicts cognitive empathy, may be flawed.

Transportation could affect cognitive empathy, and identification could affect another construct altogether. The model could be missing other mediators or moderators, or could be completely fallible.

It is possible that the theory is attempting to connect concepts that do not naturally affect each other. Identification and transportation might be distinct concepts that do not directly influence each other. They are correlated and co-occur, but they may not directly affect each other in the process of engaging with fiction.

Evidence for the theory being flawed comes from the failed replications of Kidd and Costano (2013). The replications show evidence of an unreliable effect, and the results from the current study square with their findings. Perhaps there is no effect to discover. This would explain why the replications failed, and why the current study did not find any correlation between transportation and cognitive empathy. Even though the manipulation was unsuccessful, the study could have had more than merely methodological errors. Transportation and cognitive empathy should have been correlated, and were not, which could be because these constructs are unrelated.

Implications

Although the current study did not successfully answer the proposed questions, it is important to keep studying the way fiction develops cognitive empathy. If we can develop cognitive empathy by instructing children to read a story in a certain way, it could improve their perspective-taking abilities as they develop literacy, vocabulary, and reading comprehension. If future research shows that adding simple directions to homework helps their overall ability to take other people's perspective, we can help students easily and considerably. It is worth doing more research to figure out if a simple

intervention is possible and effective. Increasing cognitive empathy can help with disagreements, negotiations, arguments, diplomacy, and politics. If we can read people and understand their perspective, we can appeal to them, relate to them, and see where they are coming from. We can use this to compromise, make agreements, and be socially and politically productive in today's society.

Future Directions

The current study sets up a possible mechanism for how reading fiction develops cognitive empathy. Although the manipulation failed, it is still worth exploring whether this model stands. Future research can repeat this study using a different, stronger manipulation that successfully creates different groups. Researchers may conduct a pilot study to ensure the manipulation is effective in creating different groups. A possible low-identification manipulation could be to instruct participants to mark words as they read that would be difficult for fourth-graders to understand (Cohen, Tal-Or & Mazor-Tregerman, 2015). Giving a specific job to the low-identification participants, rather than generally instructing them to focus on the facts of the story, may make it more difficult to identify with characters.

If identification does not affect cognitive empathy through transportation, could identification still affect cognitive empathy? There is little research on identification and cognitive empathy, especially in reading fiction. Research is needed to understand that relationship, and investigate whether there is another mediator or moderator in place (besides transportation).

It also might be worth expanding the kinds of designs used. A pre-post test design might make the differences in cognitive empathy more clear. Participants could complete

the first half of the MIE test before reading a story, and the second half of the test after reading the story. Differences in scores before and after reading would rule out individual differences and allow researchers to directly examine the change in cognitive empathy.

There also might be an increase in the number and types of measures used to assess cognitive empathy. In addition to using the MIE, the perspective-taking subscale of the IRI might provide more information from participants and increase convergent validity. More potential added measures include the Attributions of Intentions Task, Advanced Theory of Mind Task, and the cognitive empathy subscales of the Empathy Quotient Scale (used in Pino & Mazza, 2016).

Lastly, the temporal sequence is important to understanding the mechanisms behind reading fiction. Identification could lead to transportation and increase cognitive empathy, or transportation could lead to identification which increases cognitive empathy. Identification or transportation could come first. Unfortunately, it is difficult to disentangle the concepts since they seem to co-occur — but it is not impossible. Participants could read a story in small sections, completing transportation and identification measures after each section. Following the trends of identification and transportation can determine when each of the constructs begins and how much each fluctuates.

The temporal sequence also could depend on each piece of fiction. Some fictional books may induce transportation first, and other books may induce identification first. The presentation of the story may affect whether readers are influenced by characters first, or by setting first. If a strong character is introduced at the very beginning of a story, like in *The Necklace*, identification may happen first; but if setting is introduced first, like

in John Steinbeck's *East of Eden*, transportation might occur first. Initially introducing strong characters may give readers a lens through which they can experience the new world; on the other hand, initially introducing a vivid setting can take the reader immediately to the fictional world without getting there through a character. In sum, the relationship may be more complicated than it first appears, and may depend on each individual story.

Conclusion

Although this study leaves many questions unanswered, the questions raised are important for any readers of fiction. The possibilities have real-world consequences that can improve levels of cognitive empathy for students everywhere. Though the relationship between fiction and cognitive empathy is complicated, future research can determine exactly what educators, parents, and students can do to improve their perspective-taking ability. If simple instructions can be shown to increase cognitive empathy, this simple intervention can help readers any time. Fiction can act as more than just a story, but also a place to develop perspective-taking skills. More research will give more evidence for the establishment of fiction in school curriculum, and make sure schools do not miss out on teaching valuable life skills. Understanding the mechanisms behind fiction reading and cognitive empathy can help students understand fictional characters, peers, classmates, and eventually co-workers, employers, and fellow citizens — all while engaging with their favorite books.

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Appendix A

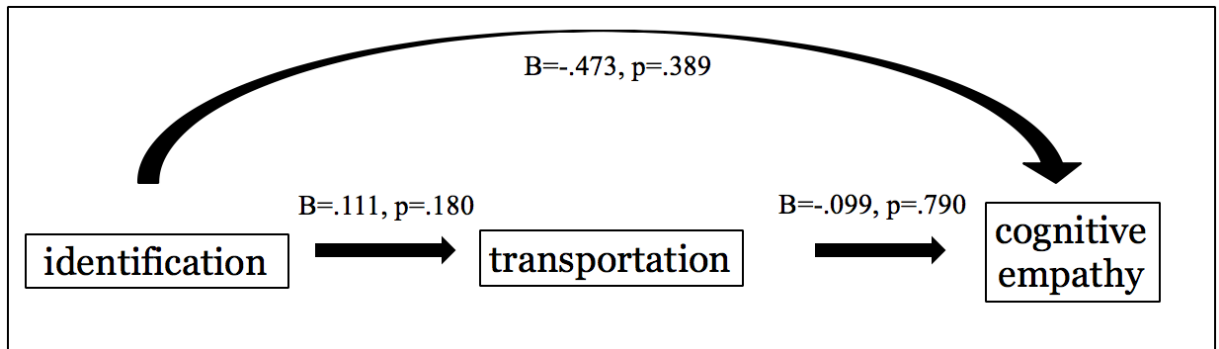


Figure 1. Multiple regression. Condition and transportation did not significantly predict scores of cognitive empathy.

joking

cautious



arrogant

reassuring

Figure 2. Example item from the Mind in the Eyes test measuring cognitive empathy (Baron-Cohen, 2001). The correct answer is cautious.

Identification items (Green & Brock, 2001)

On a scale from 1 (not at all) to 7 (very much)

1. When good things happened to Mathilde, I felt happy.
2. When negative things happened to Mathilde, I felt sad.
3. When I read the narrative, I often felt/reacted as if the experiences of Mathilde were happening to me.
4. When watching the movie clip, I wanted Mathilde to succeed in achieving her goals.

Transportation Questionnaire (Green & Brock, 2001)

On a scale from 1 (not at all) to 7 (very much)

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

Notes: Items 2, 5, and 9 are reverse-scored.